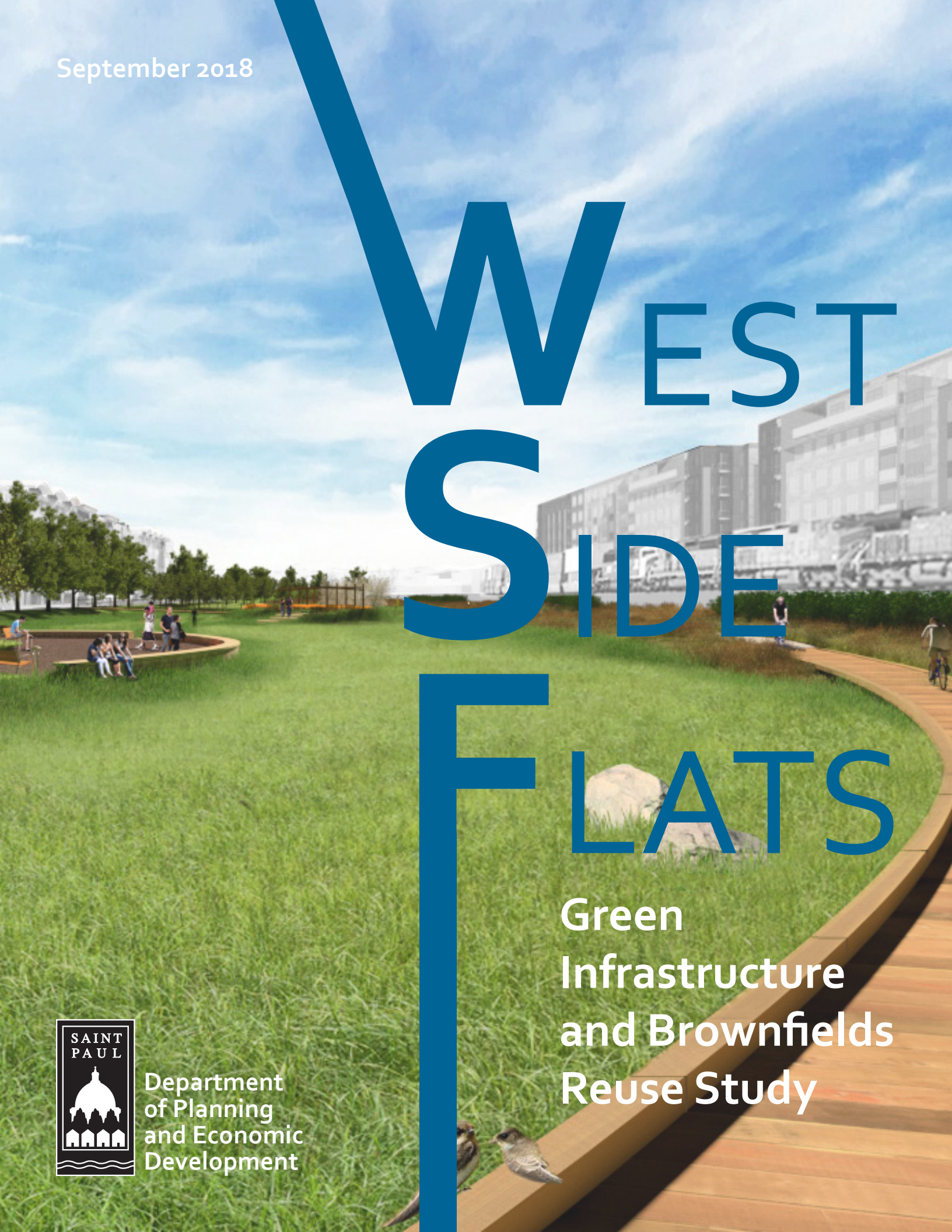

September 2018

WEST SIDE FLATS

Green Infrastructure and Brownfields Reuse Study

SAINT PAUL

Department of Planning and Economic Development

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Acknowledgements

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City Interdepartmental Project Management Team

Department of Finance
Michael Solomon, City Treasurer

Department of Parks & Recreation
Ellen Stewart, Landscape Architect

Department of Planning & Economic Development
Jules Atangana, Senior Project Manager
Marie Franchett, Principal Project Manager
Kristin Guild, Deputy Director
Jamie Radel, Senior Planner, EPA Grant Work Lead
Lucy Thompson, Principal Planner
Josh Williams, Senior Planner

Department of Public Works
Patrick Murphy, Stormwater Engineer

Department of Safety & Inspections
Wes Saunders-Pearce, Water Resource Coordinator
Tia Anderson, Site Plan Review

Community Outreach & Brownfields Education Team

Minnesota Brownfields
Martha Faust, Executive Director
Natalie Brown, former Program Associate
Joe Mahowald, Program Associate

Public Arts Saint Paul
Aaron Dysart, Community Artist
Amanda Lovelee, Community Artist

West Side Community Organization
Monica Bravo, Executive Director
Bahiah Hartshort, Community Organizer
Krysten Ryba-Tures, past Board President
Leah Shepard, Executive Administrator

Greenway Analysis Team

Barr Engineering
Nathan Campeau, Water Resources Engineer
Brendan Dougherty, Landscape Architect
Dan Fetter, Project Engineer
Fred Rozumalski, Lead Designer/Project Manager
Kathryn Ryan, Landscape Architect

Ehlers & Associates
Jessica Cook, Financial Specialist
Stacie Kvilvang, Senior Municipal Advisor

Kimley Horn
Michael Lamb, Urban Designer

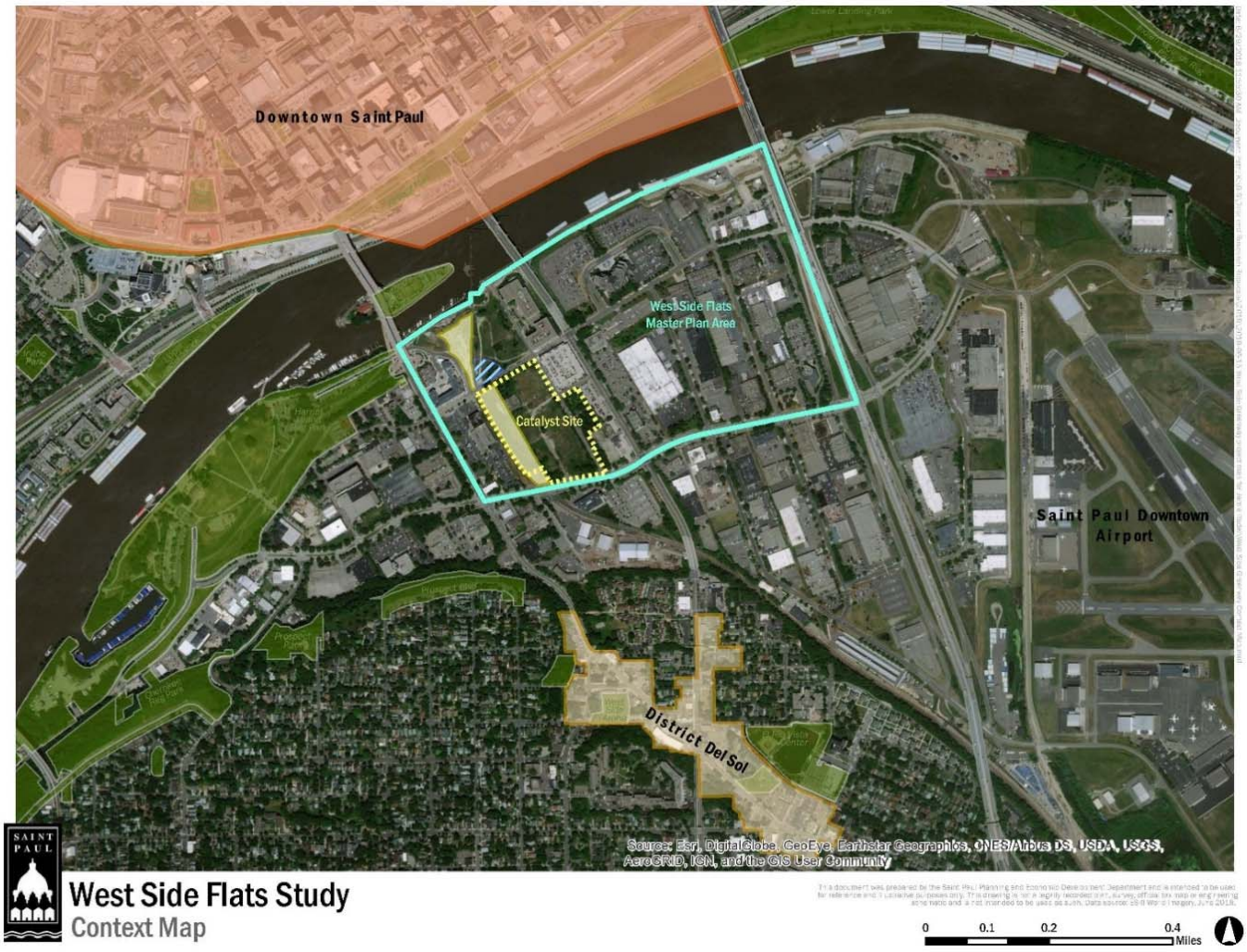
Zan Associates
Dan Edgerton, Senior Associate
Charleen Zimmer, President

Area-wide Brownfields Review and Environmental Assessment

American Testing and Engineering
Gail Cedarburg, Vice President
C. V. (Trey) Howard III, Project Geologist
Susan Mickus, Project Geologist
Charles Tiller, Senior Project Manager

INTRODUCTION

The West Side Flats provides a unique opportunity to revitalize a large urban area on the Mississippi River. Located directly south of downtown Saint Paul on a natural floodplain that was once a large sand bar between the river valley's bluffs, the West Side Flats (the Flats) encompasses the entire floodplain area between the river's western edge and the river's terraces and bluffs. This study focuses on the approximately 120 acres of land between Wabasha Street, Plato Boulevard, Lafayette Road/Highway 52, and the Mississippi River, which was the subject of a 2015 master planning and urban design process.



While much of this area has suffered from disinvestment over the last several decades, the Flats holds great promise to be transformed into a riverfront urban village that complements the greater West Side community and reconnects it to the river. A mix of residential, commercial, industrial, office, institutional, entertainment, environmental, and recreational uses will fill in this "hole in the urban fabric" of Saint Paul and revitalize this long-neglected segment of the Mississippi riverfront.

The purpose of the West Side Flats Brownfields Reuse and Green Infrastructure Study was three-fold:

1. To undertake a green infrastructure study that examined the feasibility of a greenway to serve as a district stormwater system, created a greenway concept design, and developed implementation strategies;
2. To build the City's understanding of brownfields in the West Side Flats Master Plan area; and
3. To provide educational information to the community on how brownfields redevelopment takes place.

This plan documents the planning process and community preferences in addition to key decision points on the design of the greenway. It will serve as greenway implementation manual for development of the West Side Flats Greenway. It also provides important baseline environmental information that will help facilitate redevelopment of the broader master plan area. It is a living document that will be updated as new information and additional research is gathered and/or city policies change.

BACKGROUND

Located across the river channel from Saint Paul's downtown and between the Mississippi River valley's bluffs, the Flats became home to businesses and market places in the late-1800s with a riverfront neighborhood sprouting up alongside these business uses, providing housing for the area's workers. Immigrants who originally settled in the in this area, and those who followed them, eventually expanded the West Side neighborhood to the terraces and bluffs that line the floodplain. In the 1920s, the City built both the municipal airport and municipal barge terminal in the area.

For several decades, businesses and housing grew side by side in this flood-prone area. Frequent flooding of the river resulted in significant deterioration of the buildings and landscape. The City had ongoing concerns about the deteriorating physical conditions of the Flats throughout the first half of the 20th century. Following the 1952 flood, planning began for a new levee and transformation of the Flats into a modern industrial park.

In the 1960s, a new levee and floodwall were built. In the 1960s, residents and businesses were relocated, most buildings in the Flats were removed and Riverview Industrial Park was developed, which resulted in separating the West Side community from the river. It is important to acknowledge the deep psychological scar the relocation process left on the West Side community and the residual pain that is still experienced today.

For approximately 20 years, the City and West Side community has been working together to bring economic vibrancy back to the West Side Flats area and has taken the lead to find funding to undertake environmental assessment and cleanup efforts in an attempt to bring renewed vitality to this community. With many vacant and underutilized parcels, much of the Flats area is blighted and suffers from economic disinvestment and deferred property maintenance. The efforts to renew this area came to a halt with the onslaught of the Great Recession and the collapse of the real estate market in the late 2000s.

To re-energize the conversation about reinvestment in this area, the City initiated a master planning process to focus community, stakeholder; and policymaker attention to the project area. The West Side Flats Master Plan and Design Guidelines were

adopted in June 2015. One of the cornerstones of this plan was developing a shared, stacked green infrastructure (SSGI) system envisioned as a greenway, which integrates the functionality of both a district stormwater management facility and open space amenity.

In 2014, the largest vacant property in this Master Plan area, the 14.6-acre catalyst site, was put on the market by a consortium of banks that owned the property as the result of a failed development project. The Saint Paul Housing and Redevelopment Authority submitted an offer on the property, but was outbid by Weidner Apartments, a national multi-family housing developer. Upon acquisition of the catalyst site, Fillmore Avenue Apartments LLC put forward a development concept that included five blocks of new development and the Greenway.

Shared, Stacked Green Infrastructure

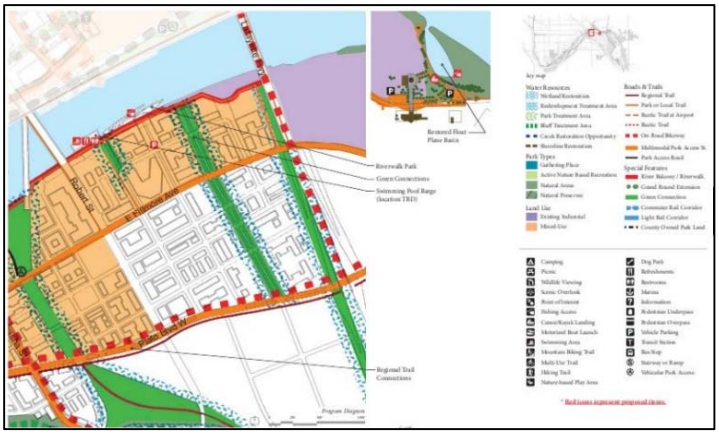
The term "shared, stacked green infrastructure" (SSGI) describes an approach to managing stormwater that leverages funds spent on stormwater management to achieve multiple benefits. "Shared" means that the stormwater facility has two functions: treatment of stormwater and provision of passive green space. "Stacked" indicates that they are in the same location. "Green infrastructure" refers to the use of plants and soil to filter stormwater and promote infiltration of water into the ground. These elements are in contrast to the more traditional approach to stormwater management, which treats parcels individually, and relies on curbs, gutters, and underground tanks and pipes to collect and rapidly convey stormwater away. A common example of green infrastructure is a rainwater garden. Generally green infrastructure practices attempt to mimic natural "hydrology," or the ways in which water moves across and through the landscape is undisturbed natural systems. With SSGI, green infrastructure practices are scaled up to create district-wide systems that not only that stormwater from the public right-of-way and multiple surrounding properties, but also provide open space and other amenities in urban areas.

Previous Planning Efforts

A significant amount of thought has gone into developing visions and plans for the City's Mississippi Riverfront, the Flats, and the development of the Greenway. The following section documents existing plans that help guide the future development of the project area.

Great River Passage Master Plan (2013)

The Great River Passage Master Plan was adopted by the City Council in 2013. The Master Plan identifies transformative recreation and leisure opportunities along the river and balances them with protection and restoration of natural resources, adding value to adjacent land uses while respecting community and neighborhood desires for better access to the river. Based on the Master Plan's three guiding principles - More Natural, More Urban, More Connected - three strategies were identified that are relevant to the Greenway project, including:



1. improve the river's edge to connect new development;
2. create neighborhoods that connect to the river; and
3. establish green connections to the river.

This Master Plan envisions a vibrant urban riverfront pedestrian promenade - Levee Riverwalk - extending from Harriet Island Regional Park to the Lafayette Bridge to reconnect the West Side to the river and create an attractive riverfront destination. Supporting a vibrant West Side riverfront, green connections in the form of linear open spaces are envisioned to link neighborhoods and employment centers to the river, creating multiple benefits for the City, neighborhoods, and employment areas. The Master Plan's recommendations for the West Side Flats focus on bringing public space and complementary development close to the river's edge to activate the riverfront and link it to the redeveloping neighborhoods and employment centers in the river corridor. An urban mix of land uses, development intensities, block and street patterns, and open space connections is desirable to support this vision of a vibrant riverfront and revitalized riverfront neighborhoods.

West Side Flats Master Plan & Development Guidelines (2015)

In 2015, the City Council adopted the West Side Flats Master Plan & Development guidelines to articulate a vision for how the City wants to see this area transform over time. The vision statement for the Master Plan states:

> *The West Side Flats will emerge as a thriving riverfront urban village that connects the larger West Side community to the Mississippi River and downtown Saint Paul. With its unique location in the Mississippi River floodplain, the presence and movement of water will be reflected in land use patterns, street design, building massing, stormwater features, and public realm design. The West Side Flats will have strong physical and visual connections to the river's edge and bluffs, walk/bike-friendly streets, a well-designed network of public spaces, restored natural systems, urban neighborhood design, a complementary mix of high-quality and human-scaled buildings, a variety of housing types and public art. The West Side Flats will recapture its identity as a place that welcomes and integrates a broad mix of people, cultures and destinations into a vibrant mixed-*

use community. By restoring a more balanced mix of neighborhood, business and natural systems, it will be a model for economic, environmental and social sustainability. The employment-oriented district will continue to provide high-paying commercial/industrial job opportunities for the region and local residents, as it evolves into a more diverse, higher-intensity, and visually attractive business district over time.

The plan has twelve guiding principles with seven relating directly to the planning and implementation of the Greenway and overall land reuse efforts being considered in this planning process. These include:

- Integrate a broad mix of complementary land uses throughout the neighborhood that offer people opportunities for living, working, commerce, entertainment, and recreation.
- Create a prominent public realm that links the Riverfront Esplanade, bluffs, parks, open spaces, and streets into a green space framework; provides opportunity for community gathering and public art; and connects to the regional system of trails, parks, and open space.
- Sensitively integrate stormwater runoff into the neighborhood's green infrastructure system of streets, public open spaces, and private yards as a valuable natural resource, visual asset, and unique neighborhood identity.
- Create an urban ecology that balances sustainable urban and natural systems, including tree canopy, green streets, native vegetation, and cleanup of contamination.
- Support community cultural development opportunities that reflect and respond to the larger West Side neighborhood's past, present, and future, engaging artists and creative communities in all phases of the West Side Flats redevelopment.
- Create a unique and welcoming public edge along the riverfront that invites walking cycling and gathering places for all seasons.
- Engage all members of the West Side community in on-going plan implementation.

The Master Plan details green infrastructure strategies and identifies the Greenway as a one of three "green fingers/corridors," which is described as "regional treatment in parks and open space connections between the river bluffs and West Side neighborhoods – recreation, multi-modal transportation, and ecological connections: linear parks, block parks, and major north-south roads." As shown in the illustrative plan, the Greenway is the organizing design feature for area located between Wabasha and Robert Streets and provides an important connection from the Mississippi River to the planned neighborhood and greater West Side community. In addition, the Arts Opportunity plan identifies several locations adjacent to or within the

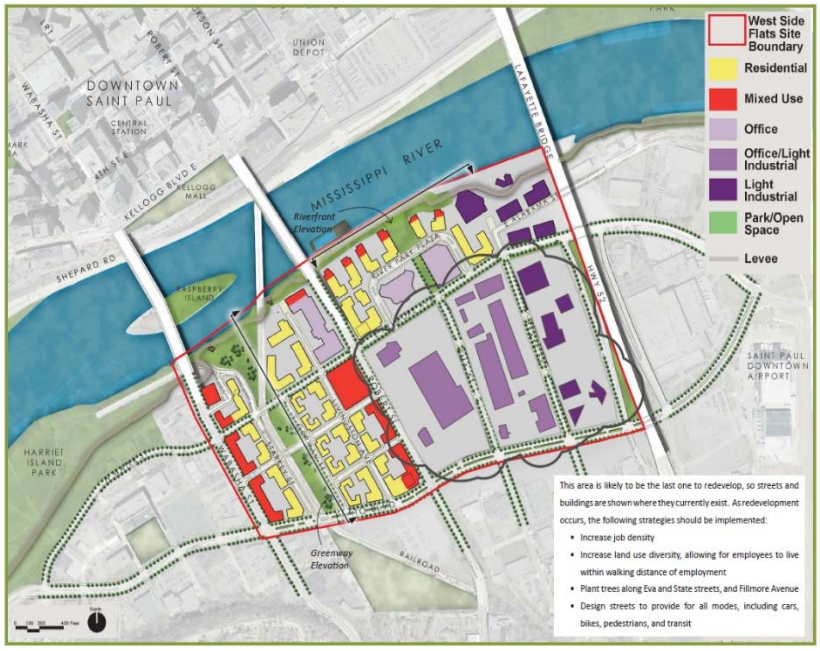
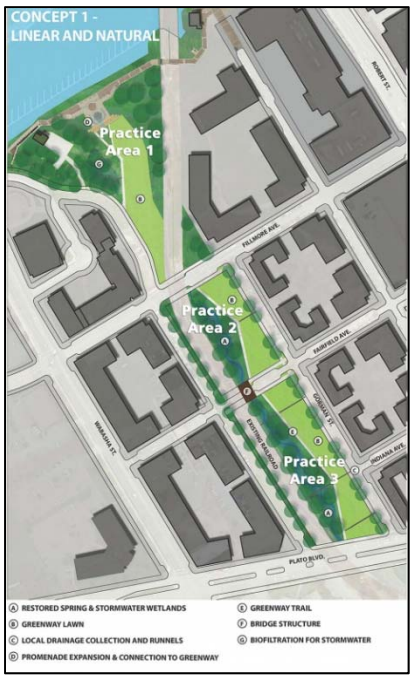


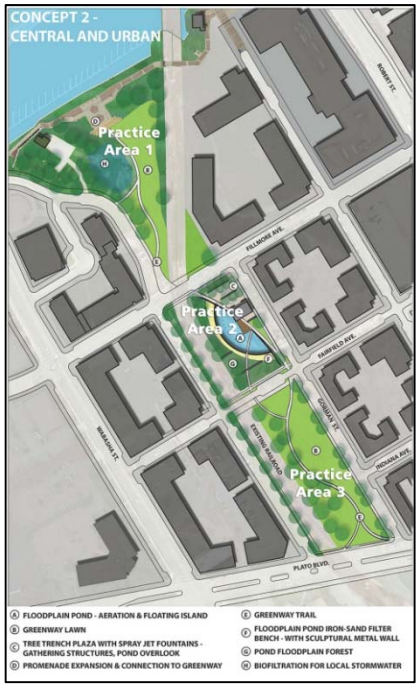
FIGURE 1: ILLUSTRATIVE PLAN FROM THE WEST SIDE FLATS MASTER PLAN AND DEVELOPMENT GUIDELINES. IT SHOWS BOTH LAND USE AND BUILDING PLACEMENT IN

Greenway as potential areas for art and interpretation. A copy of the Master Plan can be found at: https://www.stpaul.gov/sites/default/files/Media%20Root/Planning%20%26%20Economic%20Development/WSFMP_FINAL_121715_Web.pdf

WEST SIDE FLATS GREENWAY CONCEPTUAL GREEN INFRASTRUCTURE DESIGN (2015)

With technical assistance from the USEPA's Green Infrastructure Technical Assistance Program, the City of Saint Paul worked with Tetra Tech to develop a West Side Flats Conceptual Green Infrastructure Design. The project focus was to investigate the extent to which the Greenway could reasonably host surface water features and to a lesser extent subsurface storage features to treat stormwater and manage potential localized flooding while serving as an amenity to the community. Methods to fund the construction, operation, and maintenance of the shared stormwater management features were also evaluated. Options were informed by both a baseline stormwater analysis of the drainage area, as well as a series of discussions with the diverse steering committee, that included engineers, planners, and landscape architects.





Key takeaway messages from the project were:

- Interdepartmental input is required for successful planning and implementation of green infrastructure projects within the public realm.
- Including green infrastructure as part of a master planning process provides the opportunity to incorporate the public's vision for green infrastructure and its shared stacked functions. It also provides the opportunity to understand the important technical aspects of incorporating green infrastructure, such as defining the tributary drainage area and determining how stormwater will be conveyed to the green infrastructure practices.
- The technical aspects of the project need to advise the form and vice versa.

A full copy of the report can be found at:
https://www.epa.gov/sites/production/files/2015-10/documents/saint_paul_tech_assistance.pdf.

WEST SIDE FLATS GREEN INFRASTRUCTURE STUDY

The aspiration for the Greenway is to develop a holistic "district" stormwater system that integrates treatment of stormwater and public open space instead of the traditional site-by-site management approach. Through this approach, stormwater is now a feature to create new vibrant, green spaces where water is revealed, interpreted, and celebrated instead of a burden to be managed. The Greenway will anchor a more balanced mix of neighborhood, commercial, and natural systems in this area, which will serve as a national model for economic, environmental and social sustainability. Innovative stormwater management is a key component for planning efforts around future development on the Flats.

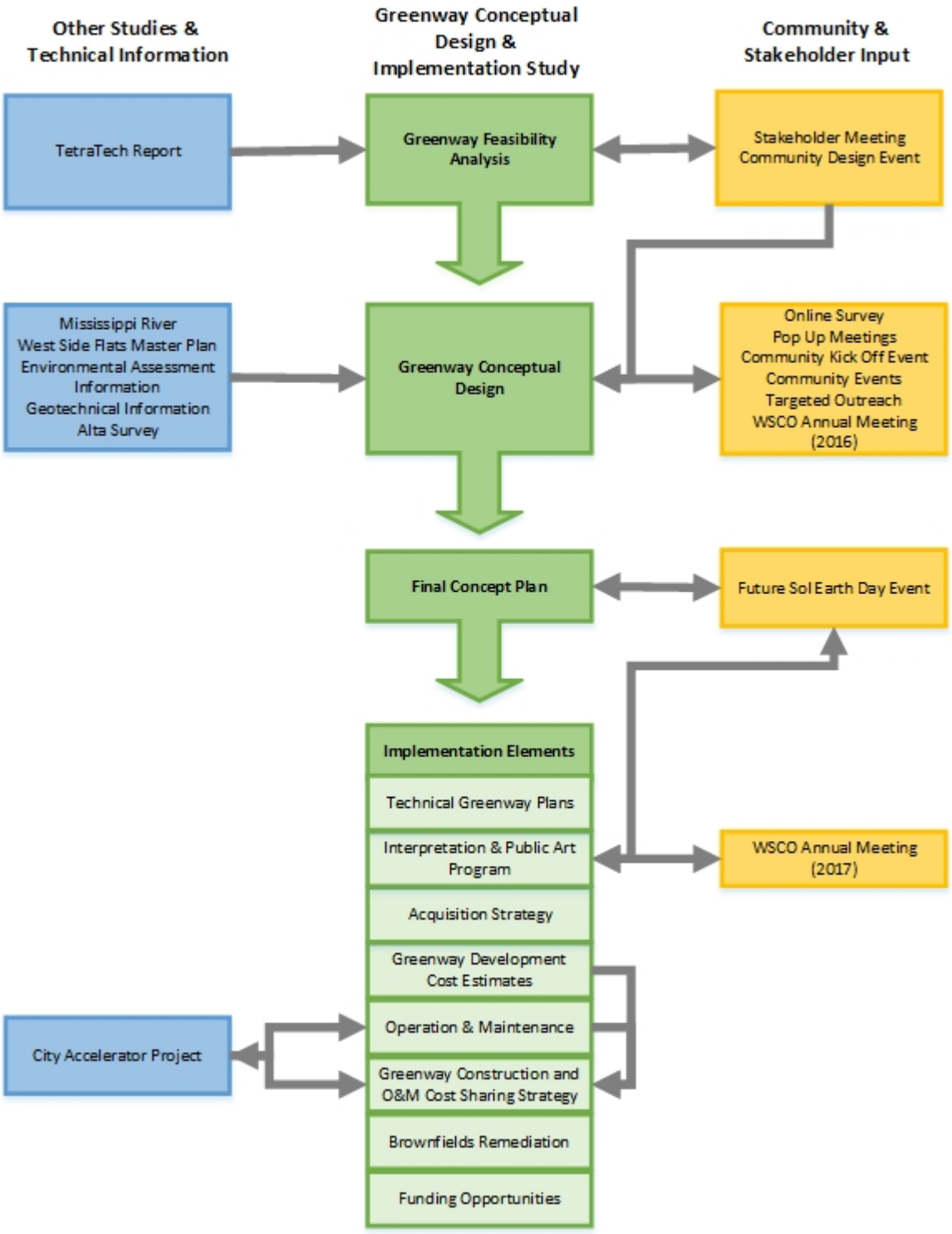
Expected benefits of implementing the "greenway" or SSGI approach on the Flats include:

- Creating more open space by integrating stormwater infrastructure with a green amenity;
- Using developable land and infrastructure more efficiently;
- Enhancing the market for adjacent mixed-use development.
- Improving community resiliency with visible systems that are part of the social fabric that reconnects people to the environment;
- Enhancing environmental performance (reduced urban heat island effect and capture of greenhouse gases);
- Creating a functional green connection from the Mississippi River to the new West Side Flats neighborhood; and
- Catalyzing economic development as a result of intentional environmental sustainability and placemaking.

The following section of this report documents the Greenway study process, community input activities and feasibility analysis, introduces the Greenway design, and identifies implementation elements, including technical Greenway plans, interpretation and public art program, acquisition strategies, development cost estimates, operations and maintenance, green infrastructure funding strategy, brownfield analysis, and funding opportunities.

STUDY PROCESS

From June 2016 through March 2018, the City of Saint Paul undertook planning efforts to develop a concept plan and comprehensive implementation strategy for the West Side Flats Greenway, information from previous work and technical analysis and community and stakeholder input were integrated into the planning process and implementation strategy development.



PUBLIC INPUT

The City of Saint Paul, project partners, including West Side Community Organization (WSCO) and Public Arts Saint Paul, and Greenway design consultants (Barr Engineering Team) worked together over the course of two years to gather input from the West Side community and other stakeholders on the West Side Flats Greenway. The Team employed several different outreach approaches to attempt to bring a diverse group of voices to the project.

PHASE 1: WHAT IS THE WEST SIDE FLATS GREENWAY?

The purpose of this initial phase of outreach was to introduce a broader community to the Greenway and identify community preferences around design aesthetics and potential programming elements of the park space (e.g. activities existing community members would like to see take place in the Greenway). A variety of engagement techniques were used, including online survey, an innovative project kickoff event, Pop Up meetings, and a more traditional community meeting.

ONLINE SURVEY

In August 2016, the City, with input from WSCO, developed and posted an online survey to gather information on design style and programming of the Greenway. The survey was promoted through a city distribution list for people interested in West Side activities and WSCO's social media and email list. One hundred twenty-three responses were received.

COMMUNITY KICKOFF EVENT AND MOVIE IN THE PARK

On August 11, 2016, the City and WSCO hosted a kick-off meeting for the Greenway project in conjunction with sponsoring a movie in the park night at Parque de Castillo, which is located within two miles of the future Greenway. To overcome the challenges of bringing people to a standard community open house event, the concept was that a wider cross-section of community might attend a movie in the park than just a traditional community meeting about the Greenway. Fliers were created for the event in English, Hmong, Somali, and Spanish, and interpreters were available at the event. Activities included a visual preference survey for elements of the Greenway and a children's coloring/drawing of what they would like in the Greenway. The City invited its environmental consultants completing environmental assessment activities to attend so that attendees with questions about the environmental conditions on the site could talk with experts.

FIGURE 2: INVITE FOR THE PROJECT KICK OFF EVENT. IT WAS ALSO PRODUCED IN HMONG, SPANISH, AND SOMALI.

POP UP MEETINGS

The City held four Pop Up Meetings using a model that includes receiving a popsicle for answering a short survey. Locations and times for Pop Up meetings were selected to obtain input from a variety of groups, including:

- Lunchtime along the riverfront promenade to hear from those who work in the area
- A Friday evening at the intersection of Cesar Chavez and State Streets
- The Kickoff Event/Movie in the Park Night
- The West Side Safe Summer Nights event

FIGURE 3: POP UP MEETING AT THE INTERSECTION OF CESAR CHAVEZ AND STATE

Community Events

WSCO staff and volunteers and City Staff attended a variety of community events to gather input, including the local farmer's market on two Saturday mornings and a WSCO-sponsored community design event.

Targeted Outreach

WSCO went to Our Lady of Guadalupe Church, Torre de San Migual Apartments, and Dunedin Terrace Apartments to gather input from these communities.

Stakeholder Design Session

The Barr Design Team facilitated a day-long design session with City staff from Parks, Public Works, Planning and Economic Development, and Safety and Inspections, the property owner's representatives and their engineer, and WSCO staff. The meeting focused on presenting results of the feasibility analysis, a site visit, and gathering perspectives on technical and design issues.

Community Design Event

On September 20, 2016, the City and WSCO hosted a design event that was developed by the Barr team. The purpose of the event was to provide an update the community on the results of the feasibility analysis of the Greenway with participants being asked to participate in a visual preference survey and "send a postcard" to themselves about visiting the Greenway in the future.

FIGURE 4: DESIGN EVENT ATTENDEES PARTICPATING IN THE VISUAL PREFERENCE SURVEY.

FIGURE 5: MINNESOTA BROWNFIELDS DISCUSSING BROWNFIELDS REDEVELOPMENT AT THE DESIGN EVENT

WSCO Annual Meeting 2016

On November 15, 2016, City staff attended the WSCO Annual meeting with information on the Greenway. Those who stopped by to discuss the project were asked how they would allocate financial resources to specific elements the Greenway, including public art, a water feature, a playground, landscaping, trails, a plaza, interpretation, and bike facilities with landscaping receiving the most support.

Themes of Phase 1 Engagement

Key themes that arose during the initial phase of engagement include the following community aspirations.

The Greenway should:

- Help acknowledge and remember the long history of the West Side Flats as a place of settlement and relocation.
- Be a place everyone feels welcome—both existing and future residents.
- Host a variety of active and passive activities that take place in the Greenway, including walking trails and space for relaxation, gathering, playing, and sports activities.
- Maximize usable area of open and park space.
- Have a more natural design esthetic within park/plaza spaces by using natural materials.
- Develop a symbolic and physical connection to water.
- Incorporate naturalized plantings including grasses, flowers, shade trees to complement functional more highly trafficked lawn spaces.
- Focus resources on landscaping and public art.

FIGURE 6: WORD CLOUD DEVELOPED FROM RESULTS OF COMMUNITY INPUT ACTIVITES

Phase 2 Engagement: Design Confirmation

The second phase of the outreach understand whether the design team "got it right." This work included gathering feedback on the conceptual design for the Greenway also garnering input to help with more detailed design elements, such materials and interpretative elements to be incorporated into the Greenway.

Earth Day Outreach Event - Future Sol at the Greenway

On April 22, 2017, the City, Public Art Saint Paul, and WSCO hosted a community event marking the end of the initial planning phase of the Greenway and to get feedback on the draft concept. To encourage community members to attend the event, a broad range of activities were planned, including an Aztec dance performance celebrating the Earth and water, screen printing with University of Minnesota students, a food truck selling refreshments, and a public art project celebrating the future Greenway. Attendees were asked to draw their hopes or intentions for the Greenway on a yellow five-gallon bucket to be used as a planter for sunflowers that were then used to delineate the future location of the Greenway on the catalyst site. The desired outcome of this project was to build community connections to the future Greenway. In keeping with the purposed of this event, those attending had the opportunity to listen to a presentation on the design effort by the consultant team, comment on preferred materials and other Greenway details, provide general direction on Greenway interpretation, and inform the team what they saw missing or in need of additional thought. In addition, representation from Minnesota Brownfields was there to provide information on general brownfields assessment and cleanup. See Appendix A for additional photos.

FIGURE 7. BARR ENGINEERING DISCUSSING GREENWAY CONCEPTS WITH EVENT ATTENDEES.

FIGURE 8. BARR ENGINEERING PRESENTS THE CONCEPTUAL GREENWAY DESIGN

FIGURE 9. AZTEC DANCERS PERFORM A DANCE TO HONOR THE IMPORTANCE OF WATER

FIGURE 10. MINNESOTA BROWNFIELDS INFORMATOIN ON BROWNFIELDS CLEANUP

FIGURE 11. EVENT ATTENDEES PUTTING THEIR INTENTIONS FOR THE GREENWAY ON SUNFLOWER PLANTERS

FIGURE 12. SUNFLOWER PLANTERS LINE THE FUTURE GREENWAY

Ideas resulting from Phase 2 engagement included:

- Requests that plantings include native flower plants, plants that support pollinators (bee-friendly/monarch-friendly), and a food forest.
- Preference for natural, toned down materials and native plant plantings
- Addition of public art
- Tangible activities for kids, such as playgrounds

Phase 3 Engagement: Interpretation and Public Art Program

The final phase of outreach focused on delving deeper into questions around Greenway interpretation and public art for which actual planning will be undertaken through a separate process.

WSCO 2017 Annual Meeting

On December 8, 2018, the City and Public Art Saint Paul attended the WSCO Annual Meeting where they set up a table presenting the final design from Barr and using this as an opportunity to gather input about the possible future Greenway interpretation public art that could be integrated into the space.

Themes from Phase 3 engagement included:

- Continued interest in having art and interpretation focused on the Native American and immigrant experiences and cultural heritage of the Flats.

GREENWAY FEASIBILITY ANALYSIS

Barr Engineering completed a greenway feasibility analysis to determine if there was sufficient capacity for the area designated as the Greenway to accommodate the stormwater generated within the identified district using methodologies consistent with that used in the 2015 Tetra Tech report. Through this process, Barr identified several physical constraints that made implementing a district SSGI system on this site particularly difficult, including:

- site size;
- proximity to the Mississippi River Levee/Floodwall System and Army Corps of Engineer regulations;
- proximity to railroad right-of-way and railroad regulations;
- existing City and Metropolitan Council Environmental Services (MCES) easements; and
- depth of groundwater.

Despite the site complications, initial analysis of projected stormwater volumes and onsite storage capacity indicated that it was possible to meet all the parameters established by the City around water quality treatment, rate control, discharge, and drainage area. However, there would be severe limitation on the ability to provide open space amenity within the Greenway. To meet the community's desire for additional usable open space on this site and the Master Plan's direction to make this an attractive and functional neighborhood amenity, changes were made to the underlying assumptions to decrease the volume of water being treated within the Greenway and increase space for other uses.

Key Decision: Stormwater Infiltration

Stormwater infiltration will not occur as part of the Greenway. Rationale behind that decision included:

- Proximity of the Greenway to the Mississippi River levee/floodwall and potential inability to manage additional stormwater during a flood event.
- Known groundwater issues at businesses in the area.
- Concern over stratification of fill materials and possible transport of pollution.

RATE CONTROL STANDARD:

Amend the rate control approach to reflect only that which is required by City code. The initial assumption included a higher standard for rate control, including managing for stormwater generated on public development (e.g. right of way), which is exempted under City Code.

WATERSHED SIZE:

The original assumptions on the contributing watershed were consistent with those made in the Master Plan—to include development generally bound by the Mississippi River, Robert Street, Plato Avenue, and Wabasha Street; however, the Master Plan assumed that project timing would align, developers would be willing or could be compelled to "contribute" stormwater generated by their property to the Greenway, and that the existing railroad would be vacated. The Sherman Project made the determination to manage stormwater runoff generated from their property on their site, therefore it was eliminated from the contributing watershed area. In addition, due to complications of bringing a pipe under the railroad tracks, the added cost, and the unknown timeline of that development, the parcels to the west were eliminated from the contributing watershed area. See the Feasibility

Memo in Appendix B to learn about the alternatives that were examined to convey the water from the western parcels to the Greenway.

Table 1 compares the initial and final greenway assumptions and expected outcomes.

Table 1: Comparison of Initial and Final Greenway Assumptions and Expected Outcomes		
Assumption	**Initial**	**Final**
Water Quality Treatment Standards *Standard Applied: 1.1 inches of instantaneous runoff from impervious surfaces.*	Applied to all private development and public infrastructure	Applied to all private development and public infrastructure
Rate Control Standard *Requirement: Minimum discharge of 1.64 cfs per acre in the 100-year event for private development*	Applied to all private and public development.	Applied to only private development.
Discharge to the river by pumping station during riverine flood events	No increase to the overall rate of discharge at the outfall through the levee was allow in any event up to the 100-year event.	No increase to the overall rate of discharge at the outfall through the levee was allow in any event up to the 100-year event.
Watershed size	Phase 1 (Practice areas 2 & 3): 35.0 acres Phase 2 (Practice area 1): 7.1 acres	Phase 1 (Practice areas 2 & 3): 21.2 acres Phase 2 (Practice area 1): 7.0 acres
Phase 1 (Practice Area 2 and 3) greenway area dedicated to stormwater management	Retention area: 1.16 acres 10-year footprint: 2.53 acres 100-year footprint: 2.72 acres Total of practice area: 2.73 acres	Retention area: 0.66 acres 10-year footprint: 0.85 acres 100-year footprint: 0.95 acres Total of practice area: 1.01 acres
Phase 2 (Practice Area 1) greenway area dedicated to stormwater management	Retention area: 0.21 acres 10-year footprint: 0.52 acres 100-year footprint: 0.61 acres Total of practice area: 0.66 acres	Retention area: 0.19 acres 10-year footprint: 0.28 acres 100-year footprint: 0.36 acres Total of practice area: 0.39 acres

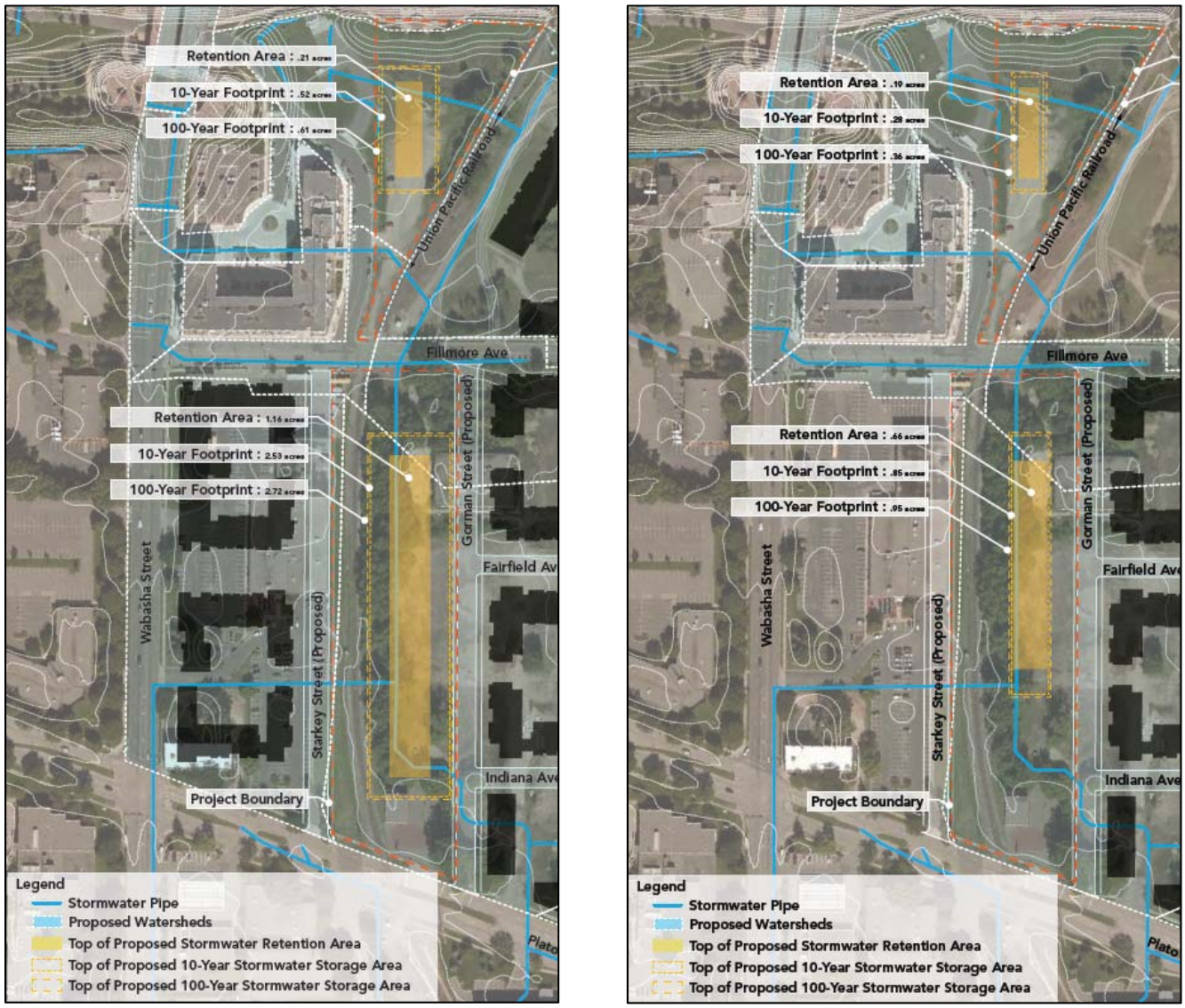


FIGURE 13: AREA DEDICATED TO STORMWATER MANAGEMENT UNDER INITIAL ASSUMPTIONS COMPARED TO THAT UNDER FINAL ASSUMPTIONS. THE FINAL ASSUMPTIONS ARE THOSE USED FOR THE GREENWAY DESIGN.

GREENWAY CONCEPTUAL DESIGN

The Barr team undertook conceptual design of the Greenway using guidance provided in Great River Passage and West Side Flats Master Plans, data from the Feasibility Analysis and brownfields assessment work, community input on aesthetics and desired activities, and stakeholder conversations. Through synthesis of this information, the following design objectives were established:

- Improve water quality.
- Meet stormwater requirements
- Re-establish ecological communities likely found on or near the Flats pre-European settlement that provides contrast to the planned urban environment.
- Maximize potential usable open space for a wide variety of recreation opportunities.
- Create habitat for pollinators and song birds within the urban environment.
- Minimize the potential need to landfill contaminated soil.
- Make a strong visual connection to the Mississippi River and downtown Saint Paul.
- Provide an interactive, natural experience that allows visitors to experience natural hydrological processes.

The resulting design is responsive to these objectives, providing a multi-use Greenway that creates sedge meadows to management stormwater retention, trails and boardwalks that take users through the wetland areas with formal and informal amenity spaces that allow for a range of outdoor activities.

FIGURE 14: BIRDS EYE PERSPECTIVE LOOKING NORTH TOWARD THE MISSISSIPPI RIVER.

STORMWATER MANAGEMENT AND WATER FEATURES

The stormwater management system planned for the Greenway is a biofiltration system that mimics a sedge meadow. It will be planted with sedges and grasses that are well-adapted to fluctuations in water level that will be experienced in the Greenway during storm events. Biofiltration will work at the Greenway by routing stormwater runoff from the designated watershed into a large, shallow depression or basin. Native vegetation planted within the basin is designed to hold and filter out pollutants and sediment, which is later gathered for disposal**.** During storms, runoff pools in the basin and filters through the plants and soil down to a drain-tile system. The filtered runoff is slowly discharged, per City stormwater management requirements, into the pre-existing storm sewer on the site. Runoff from very large storms bypasses the basin through overflow structures that direct stormwater into the storm sewer system untreated.

What is a Sedge Meadow?

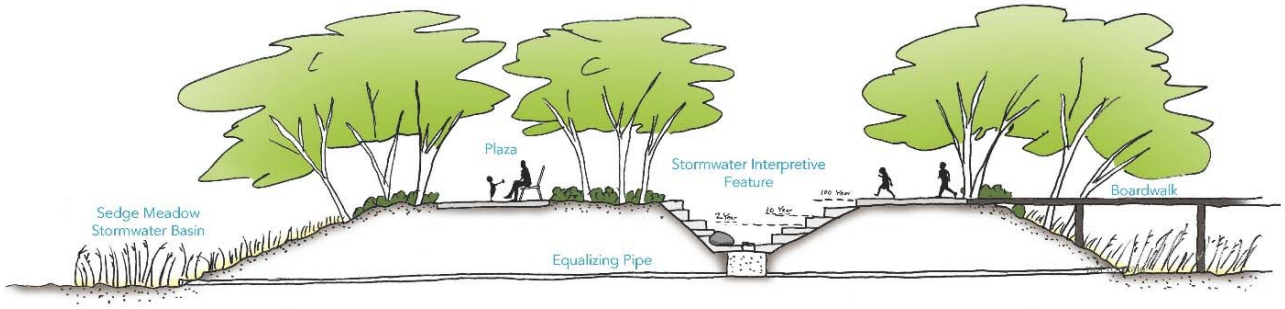
A Sedge meadow is a wetland type dominated by grass-like plants called sedges. Sedge meadows are often found between uplands and lakes, rivers, or streams. They were likely present in and around the Flats pre-European settlement. Annually, sedge meadows will be wettest after snowmelt and spring rains. By the end of summer, little or no standing water remains. Plants from this community are well adapted to the water fluctuations that will be experienced in the bioretention basins.

While community interest in a permanent water feature located in the Greenway, such as a pond, fountain, or stream was strong, the Barr feasibility analysis indicated that the volume of water expected to drain into this facility is insufficient to support a water feature. In addition, there was a desire to minimize the volume of impacted soil that may be required to be removed and transported to a landfill. A water features in a shallow basin would require supplemental water from the potable water. This would be counter to a key initiative of the development of the SSGI concept for the Greenway which is to acknowledge the importance of water as a finite resource. Instead, the design offers users boardwalks and walking trails through the sedge meadow, which is a different connection to stormwater than is typically available. The experience will change based on the amount of water flowing into the wetland system.

FIGURE 15: GREENWAY VISITORS WALKING ON THE BOARDWALK THROUGH THE SEDGE MEADOW STORMWATER MANAGEMENT AREA. THE BOARDWALK MAY BE COVERED WITH WATER DURING HEAVY STORM EVENTS.

Illustrative Plan: Phase 1 of the Greenway

Section: The Island



To increase the amount of land that could be used for recreation and amenities, an alteration was made to the West Side Flats Master Plan. The adopted Master Plan shows Fairfield Street bisecting the Greenway and connecting across the railroad tracks. In addition, when the Master Plan was developed, it was assumed that the rail facility would be abandoned in the future. However, the rail facility currently remains active, and it is unlikely the City would receive approval for an additional crossing. The Master Plan will need to be amended.

Recreation and Amenity Features

The design of the greenway has accommodated recreation and amenity features through the creation of gathering spaces, open spaces, and connections. These are not descreet elements, but integrated with the sedge meadows to create a unique urban park experience.

Gathering Spaces

Civic Plaza: The Civic Plaza is the located in the northeast corner of the greenway. It will function as a flexible, multiuse space with perimeter seating. This space is the most formal of the designed features.

FIGURE 16: WALKERS USING THE MULTI-USE PATH, FAMILIES RELAXING ON THE CIVIC GREEN, AND CHILDREN PLAYING ON THE ELEVATED LOOKOUT AREA.

The Island: The Island is located at the center of the greenway within the sedge meadow to echo the nearby islands and sandbars of the Mississippi River. As its name suggests, it will be surrounded by water as the storm water basin fills from a storm event. There will be an informal stone seating area for those who want to enjoy the natural surroundings.

Open Spaces

Civic Green: The Civic Green is a tree lined unprogrammed large lawn that can be used to relax and informal play and activities.

Elevated Outlook: The Elevated Outlook is located in the southwestern portion of the Greenway. A small hill will be created to allow for views of Saint Paul's downtown skyline. As with the civic green, this unprogrammed space will allow visitors to enjoy the greenway.

FIGURE 17. VISITORS EXPERIENCING THE SEDGE MEADOW THROUGH THE LOW WATER TRAIL.

Connections

Low Water Trail: The low water trail is designed to be an informal passage through the site. It connects the Island to the Civic Plaza, but it's designed to evoke walking through a "found" nature trail. At times, this trail will be submerged, but it offers visitors a chance to connect at ground level to the vegetation

and wildlife within the basins. Scattered along this trail as conceptualized, are dynamic art pieces that can help interpret the Greenway but can also engage young visitors in play.

FIGURE 18: CYCLIST USING THE MULTIUSE TRAIL.

BOARD WALK: The Boardwalk provides an elevated walking surface through the low areas of the sedge meadow and walk amongst the sedges and grasses.

MULTI-USE RECREATION PATH: The recreation trail is a north-south connection that connects the southwest corner to the northeast corner of the Greenway. A boardwalk takes users across the low-point of the stormwater basins. This trail does not exit to the northwest corner of the site to avoid conflicts with the active rail line.

See Appendix C for concept plans and supporting documentation.

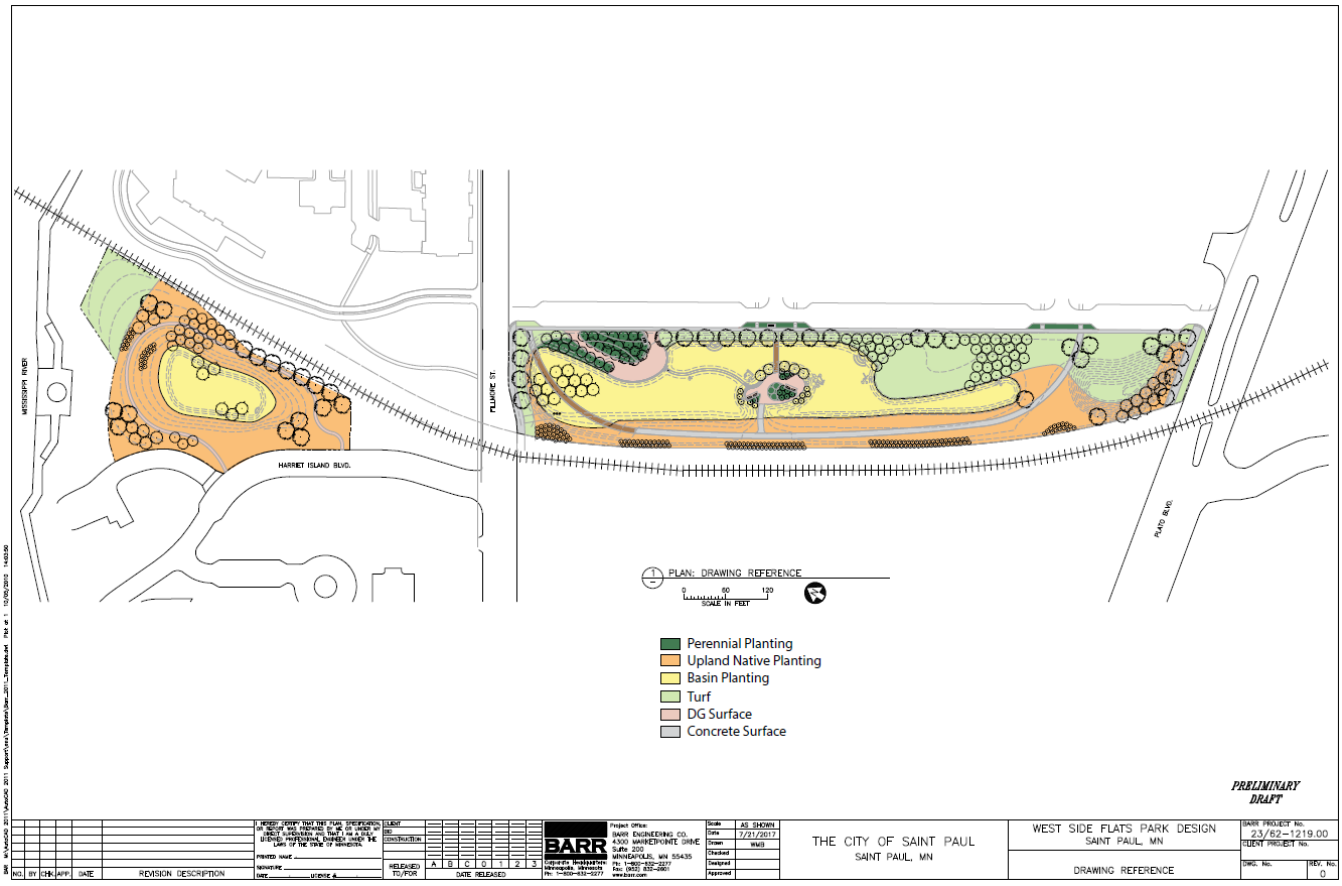
ACTION STEPS:

- Update the West Side Flats Master Plan to eliminate the Fairfield Avenue street connection; this should take place concurrent with any needed revisions for the private development.

IMPLEMENTATION ELEMENTS:

TECHNICAL GREENWAY PLANS

The development of the conceptual plan occurred in tandem with the development of a technical plan set. As Tetra Tech put forward in the key messages of its preliminary feasibility analysis of the Greenway, it was imperative to advance the park and amenity design in tight coordination with the more technical design work of the stormwater engineering. Because of these combined efforts, the Barr team completed a 30% technical plan set to ensure that the conceptual design was grounded in reality and could perform the dual stormwater management and open space purpose in harmony.



The City's inter-departmental project team discussed the benefits and risks of finalizing the plan set with resources allocated to the final design of the stormwater management system of this project through a Metropolitan Council Livable Communities Demonstration Account (LCDA) grant. After considerable analysis, the team decided that the City would not take the lead on this effort but would require the developer of the area served by the Greenway (expected to be the current property owner) to complete final engineering of the greenway. The rationale behind the decision was that the preferred construction scenario for the Greenway is that the developer (expected to be the current property owner) construct the Greenway under an ordinance permit and turn ownership of the entire facility over to the City when it is completed. Should the City complete the engineering documents and something unexpected arise during construction, the City may be responsible to re-engineer the Greenway. The project team determined to mitigate that risk by requiring the developer to finalize the plan set.

See Appendix D to review the 30% plan set.

ACTION STEPS:

- Provide developer with conceptual design work and technical plan files for them to complete final design and engineering.
- Review design and technical plans prepared by the developer's team to ensure consistency with vision and consistency with City standards.

GREENWAY INTERPRETATION AND PUBLIC ART PROGRAM

The last element that needs to be planned for the Greenway is the interpretation and public art components. Based on community input gathered during this process, Public Art Saint Paul developed two concepts using precedents from other cities around the world focusing on water and history. These well-known examples will help set the stage for the larger community conversation.

See Appendix E to review interpretation concepts developed by the Barr Team and precedents of how public art has helped implement interpretive elements of other public spaces.

Saint Paul's Public Art Ordinance

The City's public art ordinance requires that capital projects funded by eligible sources resulting in a property to be operated by the City shall dedicate one percent of eligible project funds for public art. Initial analysis indicated that the Greenway will need to comply with this requirement. Additional information can be found at: https://www.stpaul.gov/departments/financial-services/public-art-ordinance-program.

ACTION STEPS:

- Seek additional funding resources for interpretation and public art planning and implementation.
- Complete additional community outreach on interpretation and public art plan.
- Undertake interpretation and public art planning.

GREENWAY ACQUISITION STRATEGY

Currently the 4.6 acres need for the initial phase of the Greenway is privately owned by Fillmore Avenue Apartments LLC and John Nasseff. Approximately 4.31 acres is located on Fillmore Avenue Apartment's property and 0.29 acres is located on the Nassif property. It is expected that 16.7 acres (728,000 sq. ft.) of land will be developed as part of the Fillmore Avenue Apartments LLC development based on a development scenario that shows the developer acquiring the HRA-owned parcels, which includes approximately 10.75 acres that will be parcels for new development. As this area will be required to be platted under Section 63.301 of the City's Legislative Code prior to development, the City will have the authority to require a portion of the greenway to be dedicated to the City through both the drainage and parkland dedication provisions of the subdivision code.

The Phase 2 area is owned by the Saint Paul Housing and Redevelopment Authority and no additional land is needed.

LAND FOR STORMWATER MANAGEMENT

The 1.7 acres of the land needed for stormwater management is located on Fillmore Avenue Apartment's property. Section 69.504(g)(2) of the Subdivision Code allows the Planning Commission to require that land be reserved for stormwater detention ponds. It states: "The planning commission shall require that land be reserved for stormwater detention ponds in locations designated in the comprehensive plan or as designated by the director of public works such that there sue will prevent erosion or substantially reduce the costs of the stormwater disposal system…the area shall be shown and marked on the plan, 'Reserved for Stormwater Detention Pond Purposes.' The developer shall dedicate all such ponding areas to the city as a condition of the final subdivision plan approval…Where the required ponding area, as designated in the comprehensive plan or as

designated by the director of public works, has a value in excess of seven (7) percent of the market value of the subdivision lands as determined by the city valuation engineer, it shall be offered to the city for purchase; the city shall be given a reasonable time to respond."

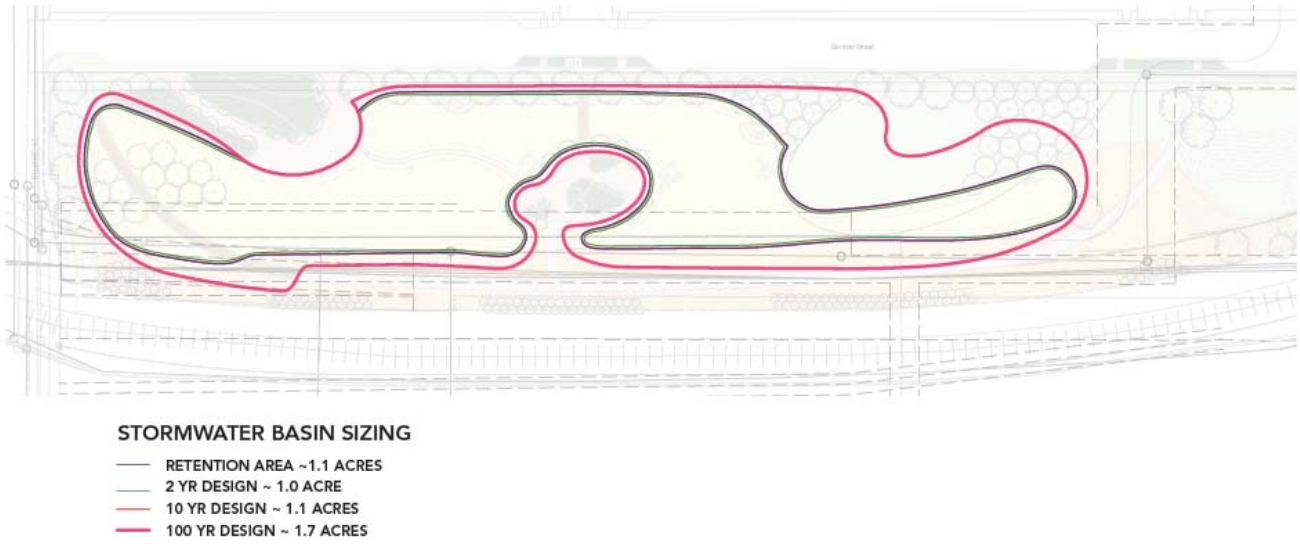


FIGURE 19. BARR ENGINEERING GENERATED ANALYSIS OF THE RETENTION BASIN AREA BASED ON EVENT SIZE

The following is a preliminary analysis of the application of this ordinance requirement:

- The Greenway is identified in the West Side Flats Master Plan, which is adopted in the City's Comprehensive Plan; therefore, the City, via the planning commission, can require the land owner to dedicate up to 7% of the value of the subdivision lands for stormwater ponding purposes.
- Conversations with the City Attorney's office indicated that since the City's stormwater regulations require management for a 100-year storm event, the area of the basin designed to contain the 100-year event can be required to be dedicated. Documentation provided by Barr indicates that the 100-year basin is 1.7 acres (74,052 sq. ft.) in area.
- Per the City's real estate manager, the total value of the 728,000 sq ft of property expected to be developed by Fillmore Ave Apartments LLC is $7/sq. ft. as of November 2017. The maximum dedication amount is $356,720, which equates to approximately 50,960 sq. ft.
- The difference between the amount of land needed for storm water management and that which can be required under the dedication ordinance is 0.53 acres (23,092 sq. ft.).
- The remaining land not leveraged through the dedication process will need to be leveraged via a land swap with the developer for HRA-owned property or acquired by the City.

LAND FOR PARKS

The approximate 2.90 acres of land needed for park space is located on property owned by Fillmore Avenue Apartments (2.61 acres) and Nasseff (0.29 acres).

As Fillmore Avenue Apartments project area will be platting as part of their development, the City can require up to 9% area of the new parcels for new development to be dedicated for parkland. However, this will not meet the full need.

Section 69.511(a) of the Subdivision Code sets the framework by which the City may choose to require parkland to be dedicated through the platting process. It states: "…for platting of land for residential, commercial, or industrial development, a reasonable portion of the buildable land may be required to be dedicated or conveyed to the city on a one-time basis, prior to or at the same time as recording the final plat, for public use for parks, playgrounds, recreation facilities, trails, wetlands, or open space needed as a result of the plat, to a maximum of nine (9) percent of the total acreage of new lots that are being created for new residential or mixed-use development…"

The following is a preliminary analysis of the application of this ordinance with information known to date:

- Based on the concept plan submitted by the developer for the build out of this area, there are approximately 10.74 acres (467,845 sq. ft.) of land for new development.
- The Parkland Dedication requirement would be 9% of the land area, which is 0.97 acres.
- The difference between the needed amount of parks space on the property owned by the developer and that which would be required to be dedicated is 1.64 acres (71,586 sq. ft.)
- The remaining land not leveraged through the dedication process will need to be leveraged via a land swap with the developer for HRA-owned property or acquired by the City.

Action Steps:

- Require up to 7% of the value of the market value of the subdivision lands to be dedicated under the stormwater ponding provision as a condition of the approval of the plat.
- Require up to 9% of land for new parcels for new development be dedicated for parkland purposes as part of the condition of plat approval.
- Work with the Fillmore Avenue Apartment on an acquisition strategy for the remaining 2.17 acres of the Greenway located on their property that is not obtained through dedication.
- Develop an acquisition strategy for the .29-acre Nasseff parcel at an appropriate time. The property owner passed way in early 2018.

Greenway Construction Cost Estimates

Barr prepared cost estimates for the development of the greenway. Estimates were prepared in two ways. The first looked at costs for phasing the Phase 1 Greenway area as the City may not have access to the Nasseff parcel when the stormwater system is needed for the Fillmore Avenue Apartments development. The second way in which the cost estimates were broken down was by type of cost—stormwater, parks, and roads. This was done because tax increment financing and some grants cannot be used for park development.

The development cost of Phase 1 of the Greenway is approximately $2.8 million with $1.6 million in park costs, $1.1 in stormwater costs, and $0.09 million in road costs.

Go to Appendix F to review costs estimates.

Action Steps:

- Update cost estimates, as necessary.

Preliminary Greenway Operations and Maintenance (O&M) Strategy

With resources from the City Accelerator project, a preliminary Greenway O&M Strategy was developed. This strategy includes two parts: the preparation of preliminary Greenway O&M Plan for the stormwater management system and; the development of an annual O&M cost estimate both of which were prepared by Barr Engineering.

O&M Plan

The O&M Plan describes the functionality of the biofiltration stormwater system, identifies a series maintenance actions that need to be undertaken for the system to operate properly, and provides a rain garden inspection report.

Annual O&M Costs

At the request of the City of Saint Paul, Barr developed annual cost estimates for the tasks identified in the O&M Plan. The estimate placed the annual costs of the biolfiltration basins at $13,598 and for the pretreatment structures at $2,700 for a total cost of $16,298.

Go to Appendix G to review the O&M Plan and the O&M Cost Estimates.

Action Steps:

- Finalize the O&M Plan when the project has been constructed, and the as-builts have been prepared.
- Update O&M Cost Estimates based on final O&M Plan.

Greenway Infrastructure Financing (GIF)

City Accelerator is an initiative of Living Cities that convened an interdepartmental group of City staff to:

- Develop a fair and equitable stormwater funding mechanism that addresses construction, operation and maintenance, and replacement costs; and,
- Define roles, responsibilities, and processes across City divisions and departments to successfully institutionalize solutions, including addressing long-term maintenance costs.

The outcome of this work is the Green Infrastructure Financing district model. The model provides a framework for the City to finance and recover the up-front public infrastructure cost for shared stormwater systems as well as their ongoing operation and maintenance.

As part of the City Accelerator project the City worked with Ehlers Inc to develop financing mechanisms for the construction and development and O&M of shared-stacked green infrastructure. Specific applications of these models were then applied to the West Side Flats Greenway. The following provides a brief description of the recommended financing models.

GIF District Connection Fee Cost Recovery Model

As part of the City Accelerator project, Ehlers Inc. was asked to develop financial models for recovering the upfront cost of system construction as well as ongoing contributions for O&M of the district stormwater system. Some of the goals for establishing funding mechanisms included:

- developing a replicable model for other GIF Districts in the City;
- keeping the system easy to administer;
- limiting financial risk to the City of St. Paul; and
- leveraging future development to help pay for the system.

Ehlers, City staff, and the project steering committee considered several cost recovery options for the GIF District stormwater infrastructure including special assessments, grants, area charges and connection fees. The proposed cost recovery option is to charge a connection fee that is paid when the building permit is issued. The fee will be based on the historical cost of installing underground stormwater management systems, which have ranged from $0.64 to $4.35 per square foot for sites greater than one acre based on a 2017 by Young Environmental Consulting Group, LLC. The proposed fee is recommended as $3.14 per square foot, which represents the 75th percentile in the range of historical costs. The $3.14 per square foot would apply to net developable area (land area less roads, parks, and stormwater easements), and inflate at 3% annually. The fee would apply to all properties within GIF Districts unless previously negotiated development agreements preclude collection of the fee.

It is proposed that the City establish a Stormwater Infrastructure Fund for all its GIF Districts. The Fund would receive all connection fees and pay for the GIF District improvements. Fees collected from one project can be used to fund future stormwater projects. By using a connection fee methodology, the City will need to pay cash or finance the stormwater improvements and then wait for redevelopment to occur to recover its costs. The City is taking the risk that redevelopment will be delayed or not occur as planned, and the City may not fully recover its costs. It is important to note that the City may not expend connection fees collected for stormwater on park improvements. Funding resources for park improvements will need to come from an eligible source.

To review specific application of these models to the West Side Flats Greenway, please go to Appendix G.

STORMWATER SERVICE CHARGES TO FUND OPERATING COSTS

The annual operating and maintenance costs for the green stormwater systems may be paid for by the properties benefitting from the infrastructure. The approach recommended from the City Accelerator project is that each property will pay its existing Storm Sewer Service Charge (SSSC), which will be dedicated to paying expenses associated with the District's green stormwater system. In addition, the City will establish a surcharge that applies to the properties within the District. Operating and maintenance costs will be estimated for each District, and a surcharge will be calculated for each District. For the West Side Flats District the preliminary estimate of total annual charges, including the existing SSSC and the proposed surcharge, are $.04 to $.05 per square foot of developable property. This surcharge will be codified in the City Code.

ACTION STEPS:

- Institute a GIF District connection fee by ordinance
- Institute a greenway surcharge by ordinance
- Collect greenway connection fee upon development of the private parcels
- Annually collect the Storm Sewer Service Charge and greenway surcharge to cover the cost of the operation and maintenance costs.

BROWNFIELDS ASSESSMENT OF THE GREENWAY

The City received a U.S. EPA site-specific assessment grant to undertake environmental assessment activities at the catalyst site. The City retained American Engineering and Testing (AET) to undertake this work. To date, efforts have focused on completing a Phase 1 environmental site assessment (ESA) for the entire catalyst site and enrolling the greenway portion of that site into the State of Minnesota's Voluntary Investigation and Cleanup Program (BF0000042) and undertaking Phase 2 ESA activities for that area.

FIGURE 20. THE WATEROUS COMPANY, A FIRE PROTECTION EQUIPMENT MANUFACTURER, WAS LOCATED ON SITE OF THE FUTURE GREENWAY SITE. JUST TO THE SOUTH OF THE MANUFACTURING FACILITY WERE SINGLE-FAMILY HOMES THAT WERE DEMOLISHED AFTER THE 1952 FLOODING.

PHASE 1 ESA RESULTS

On November 9, 2016, AET finalized the Phase 1 ESA report for the project area. The assessment identified four recognized environmental concerns, including:

- Identified presence of soils with DRO, PAHs, arsenic, barium, cadmium, lead and mercury above regulated levels. Concentrations of lead exceed hazardous levels on the eastern portion of the Site.
- Fill is known to contain non-soil constituents that include concrete, ash, coal, slag, plastic, brick, sheet metal, iron scrap and possibly foundry sand.
- Based upon the results of the previous investigations, the northern two thirds of the Site situated east of the former Custer St right-of-way including rail spurs has not been adequately assessed. Based on the historic uses, the potential exists for impacts to the subsurface in this area.
- The potential exists for groundwater and soil gas impacts on the site from existing contamination on the site and migration from nearby properties

Based on these concerns, it was recommended that additional investigation and a response action plan/construction contingency plan be prepared prior to redevelopment activities occurring.

PHASE 2 ESA RESULTS

On May 25, 2017, AET finalized a Phase 2 ESA report for the greenway portion of the catalyst site.

AET identified the following impacts:

- Debris is present in the fill soils, which makes the fill/debris mixture a solid waste if excavated;
- The levels of diesel-range organics, certain metals, and benzo(a)pyrene equivalents in the fill soils within certain areas, rendering the materials as MPCA regulated fill soil rather an unregulated fill soil for purposes of off-site reuse;
- Soil vapors are not impacted above the MPCA 33x Residential ISV regulatory criteria; and
- Groundwater appears to not be impacted above regulatory guidelines.

AET recommended:

- Excavated soil/debris would need to be disposed of at a landfill with an alternative to screen the materials to separate the debris from the soil, which may result in a more cost-effective measure;
- Because the measured concentrations of contaminant impacts exceed regulatory criteria, an MPCA Response Action Plan is warranted to manage the contamination and risk during site redevelopment.

Based on review by PCA of this work, AET undertook another round of sampling in April 2018 to complete site characterization. This section of the plan will be updated with those findings as well as the Response Action Plan. As the RAP is developed, the City's project management team will work with the environmental consulting team to develop a cleanup plan that attempts to reuse unregulated fill, such as buried construction debris, as potential base materials for new streets that will be constructed as part of the larger redevelopment project.

Complete copies of the Phase 1 and 2 ESAs are located at: https://www.stpaul.gov/departments/planning-economic-development/planning/west-side-flats-master-plan/west-side-flats. As additional documents are finalized, they will also be posted at this location.

ACTION STEPS:

- Continue to update environmental information on the City's website
- Finalize Phase 2 ESA
- Work with the environmental consultant to develop a RAP that focuses on reuse of nonhazardous construction debris as base for future roads
- Submit RAP to the Pollution Control Agency for approval
- Host community information on the final investigation results and cleanup strategy
- Identify potential funding sources for Greenway cleanup activity

The following table identifies potential funding sources by funder, funding source, and potential use that could help advance redevelopment activities and construction of the greenway beyond that discussed in the Greenway Infrastructure Fund section of this report.

Table 2: Potential Greenway Funding Sources

Funder	Funding Source	Potential Use
U.S. EPA	Assessment Grant	Environmental assessment site assessment and remedial planning activities.
	Cleanup Grant	Environmental cleanup of soil and ground water contamination on City-owned property
Minnesota Department of Employment and Economic Development	Redevelopment Grant	• Demolition • Interior abatement • Water and sewer • Standard sidewalks • Lights • Roads • Ponding • Environmental infrastructure
	Contamination Investigation	Environmental site assessment and remedial planning activities on development sites
	Contamination Cleanup	Environmental cleanup activities on development sites
Metropolitan Council	Livable Communities Development Account Development Grant	Design and development of stormwater infrastructure
	Tax Base Revitalization Account Site Investigation Grant	Environmental site assessment and remedial planning activities on tax base generating sites
	Tax Base Revitalization Account Cleanup Up Grant	Environmental cleanup activities on tax base generating sites
	Tax Base Revitalization Account SEED	Environmental assessment, remedial planning, or cleanup for future tax base generating sites within areas of concentrated poverty.
Minnesota Pollution Control Agency	Technical Assistance Grant	Environmental assessment activities (Nasseff site)
Minnesota Public Facilities Authority	Point Source Implementation Grant	Stormwater management system construction

City of Saint Paul	Tax Increment Financing	• Demolition • Interior abatement • Water and sewer • Standard sidewalks • Streets • Lights • Roads • Ponding • Environmental infrastructure • Note: Cannot be used for park space
	Capital Improvement Budget	Capital improvements, such as parks, infrastructure, etc.
	Community Development Block Grant	Public facility construction, such as parks
	Neighborhood STAR Grant	Capital improvements, such as parks, infrastructure, etc.
Private foundations and nonprofit organizations, such as National Recreation and Park Association's Great Urban Parks Campaign	Miscellaneous Grants	Monitor philanthropic opportunities around green infrastructure, parks development, and public art.

ACTION STEPS:

- Keep abreast of potential new funding sources.
- Apply for resources as project timing becomes solidified.

AREAWIDE BROWNFIELDS ANALYSIS

American Engineering Testing, Inc. (AET) conducted a review of existing environmental information within the West Side Flats Master Plan area (Project Area). AET identified potential contaminated sites based on their review of historical records in the company's archive, information available on Ramsey County property viewer website, records available from the Minnesota Pollution Control Agency (MPCA).

This Area Wide Assessment identified 37 low, medium, or high priority potential contaminated sites within the Project Area. AET Ranked the sites according to the Minnesota Department of Transportation-specified criteria.

Low Potential Sites: Three sites were identified as having as low potential for contamination (shown in green on map below). Sites ranked low, have no indicators that significant contamination has impacted soil and groundwater.

Medium Potential Sites: Five sites were identified as having medium potential for contamination (shown in yellow below). Sites ranked medium have some indicators that contamination has impacted the soil and groundwater.

High Potential Sites: Twenty-nine sites were identified as having high potential for contamination (shown in red below). Sites ranked medium have high significant indicators that contamination has impacted soil and groundwater.

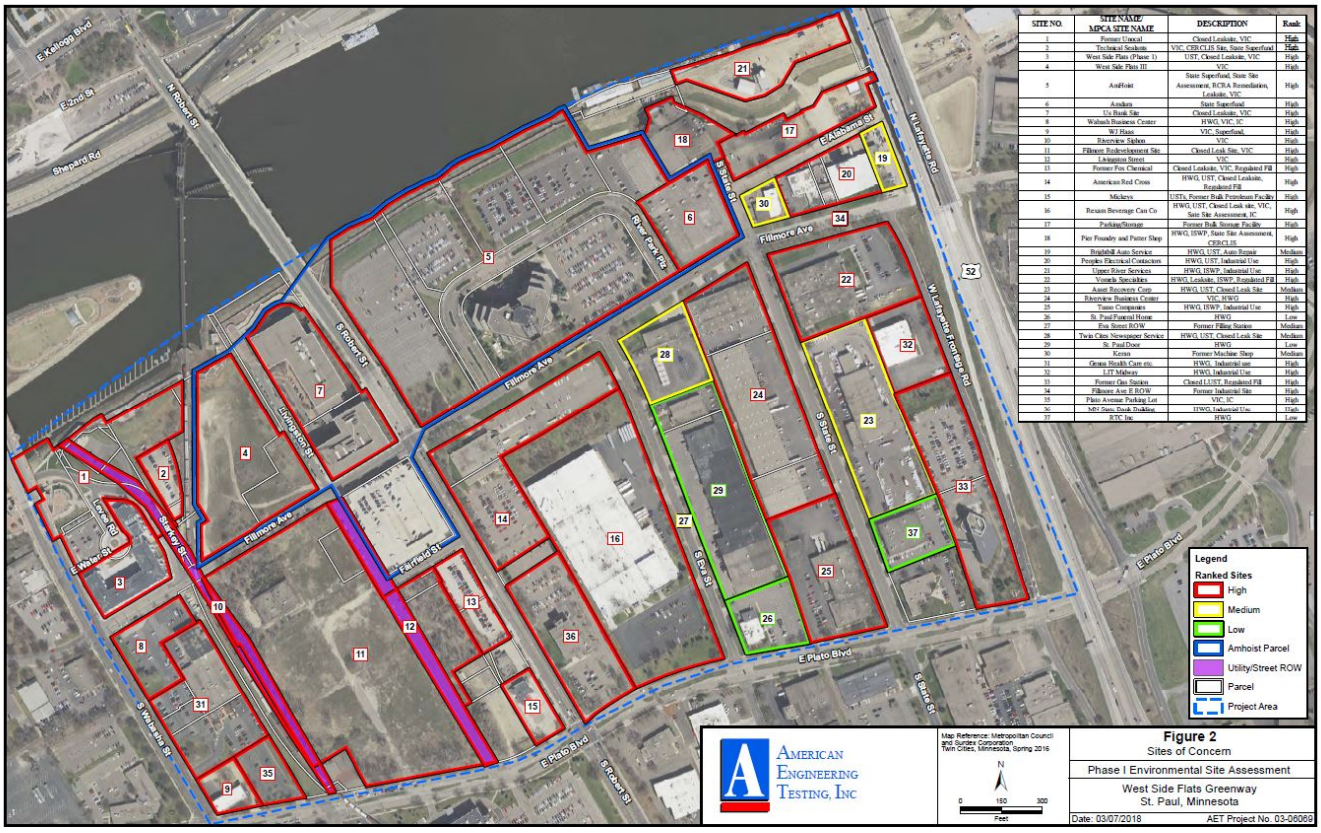


FIGURE 21: FIGURE 2 FROM THE WEST SIDE FLATS AREA WIDE ASSESSMENT IDENTIFYING LOW, MEDIUM, AND HIGH POTENTIAL SITES.

Recommendations from the study include:

- Advancing soil borings in selected locations during the planning phase for any new construction or public works project within the boundaries of the Master Plan area to evaluate the potential to encounter impacted soil/and or groundwater in areas where excavation and/or dewatering is planned.
- Based on results, it may be necessary to prepare a Response Action Plan/Construction Contingency Plan outlining procedures for managing impacted soils and groundwater encountered during construction activities.

To review the full report, see Appendix I of this document.

ACTION STEPS:

- Share results of this assessment with city staff, property owners, and potential developers.
- Work with property owners and developers to find resources to assist with environmental assessment and cleanup
- Consider applying for an EPA area-wide assessment grant for the West Side Flats master plan area.

Brownfields Education

The West Side community has historically been engaged and organized around environmental justice issues, including that of environmental contamination within their neighborhood. As such, the City wanted to develop a brownfields education program to help community members become better informed and learn about brownfields assessment and cleanup processes, who the regulatory actors are, and how to find out where brownfields are located within their community. The City partnered with Minnesota Brownfields to prepare a series of educational materials, which included a Brownfields 101 presentation, an online video, and a brownfields redevelopment infographic.

Brownfields 101 Presentation

On January 26, 2017, the City and WSCO hosted a Brownfields 101 session developed and presented by Minnesota Brownfields. The Minnesota Brownfields team defined what a brownfield property is, provided information on the process of brownfields redevelopment, the roles the City, State, and property owners take on in this process, identified the benefits of brownfields redevelopment, showed some examples of brownfield projects in Saint Paul, and provided information on where to find more information on brownfields within their community.

The presentation is posted on the City's website at: https://www.stpaul.gov/departments/planning-economic-development/planning/brownfield-reclamation.

Brownfields Online Video

To expand the audience that could learn the information conveyed in the Brownfields 101 presentation, the City worked with Minnesota Brownfields to develop five-minute web-based video explaining what a brownfield is, detailing the brownfields assessment, cleanup, and reuse process while showing examples of brownfields projects throughout Saint Paul, including the West Side Flats project area. Those included on the video are then Mayor Chris Coleman, Department of Employment and Economic Development Commissioner Shawntera Hardy, and Minnesota Pollution Control Agency Commissioner John Linc Stine.

The video is available for viewing at: [https://www.stpaul.gov/departments/planning-economic-development/planning/brownfield-reclamation.](https://www.stpaul.gov/departments/planning-economic-development/planning/brownfield-reclamation)

Brownfields Redevelopment Infographic

The final tool that was developed to help inform the community of the brownfields redevelopment process was an infographic that provides a step-by-step breakdown of process, who is involved in the process, and how it happens. As the formal planning process concludes, this tool can easily be printed and distributed when city staff attends meetings and community events where redevelopment, contamination, and brownfields cleanup is discussed.

Action Steps:

- Continue to work with the community to help them understand brownfields redevelopment throughout the development in the Master Plan area and the as the Greenway is constructed.
- Maintain and update the City's brownfield reclamation webpage.
- Update presentation, video, and infographic, as needed.
- Provide subtitles for the video and translation of infographic to help all community members learn about brownfields cleanup and redevelopment.

Action Step Summary – Project Implementation

As shown through this planning process, the implementation of the Greenway and redevelopment effort, in general, will take many actors to help bring to fruition, including several City Departments, the developer, regulatory agencies, the development community, and West Side residents. The following is a summary of the action steps that have been identified thorough this plan. Responsibly and timeline has been assigned to each task.

Table 3: Project Implementation

Task	Responsibility	Timeline Short-term: 0 to 12 months Long-term: 12 months+
Greenway Conceptual Design		
Update the West Side Flats Master Plan to eliminate the Fairfield Avenue street connection; this should take place concurrent with any needed revisions for the private development	City-PED Developer	Long-term
Greenway Technical Documents		
Provide developer with conceptual design work and technical plan files for them to complete final design and engineering	City-PED	Short-term
Complete engineering work	Developer	Long-term
Review design and technical plans prepared by the developer's team to ensure consistency with vision and consistency with City standards	City-Parks City-Public Works City-DSI	Long-term
Greenway Interpretation & Public Art		
Seek additional funding resources for interpretation and public art planning and implementation.	City-PED City-Parks	Short-term
Complete additional community outreach on interpretation and public art plan.	City-Parks	Long-term
Undertake interpretation and public art planning.	City-Parks	Long-term
Greenway Acquisition Strategy		
Require up to 7% of the market value of the subdivision lands to be dedicated under the stormwater ponding provision as a condition of the approval of the plat.	City-PED City-Public Works	Long-term
Require up to 9% of land for new development be dedicated for parkland purposes as part of the condition of plat approval.	City-PED City-Parks	Long-term
Work with the Fillmore Avenue Apartment on an acquisition strategy for the remaining 2.17 acres of the Greenway located on their property that is not obtained through dedication.	City-PED City-Parks	Long-term
Develop an acquisition strategy for the 0.29-acre Nassif parcel at an appropriate time. The property owner passed way in early 2018.	City-PED City-Parks	Long-term
Greenway Cost Estimates		
Update cost estimates, as necessary.	Developer City-Public Works City-Parks	Long-term

Task	Responsibility	Timeline Short-term: 0 to 12 months Long-term: 12 months+
Operations & Maintenance (O&M)		
Finalize the O&M Plan once final engineering has been completed on the Greenway	Developer City-Parks City-Public Works	Long-term
Update O&M Cost Estimates based on final O&M Plan	Developer City-Public Works	Long-term
Green Infrastructure Financing		
Institute a GIF District connection fee by ordinance	City-Public Works City-DSI City-Attorney	Short-term
Institute a greenway surcharge by ordinance	City-Public Works City-DSI City-Attorney	Short-term
Collect greenway connection fee upon development of the private parcels	City-Public Works City-DSI	Long-term
Annually collect the Storm Sewer Service Charge and greenway surcharge to cover the operation and maintenance costs	City-Public Works	Long-term/Ongoing
Brownfields Assessment and Remedial Planning		
Continue to update environmental information on the City's website	City-PED	Ongoing
Finalize Phase 2 ESA	City-PED	Short-term
Develop RAP that focuses on reuse of nonhazardous construction debris and reuse of soil	City-PED	Short-term
Submit RAP to the Pollution Control Agency for approval	City-PED	Short-term
Host community information on the final investigation results and cleanup strategy	City-PED	Short-term
Identify potential funding sources for Greenway cleanup activity	City-PED	Ongoing
Funding Opportunities		
Keep abreast of potential new funding sources.	City-PED City-Parks City-Public Works	Ongoing
Apply for resources as project timing becomes solidified.	City-PED City-Parks City-Public Works	Ongoing
Area-wide Brownfields Assessment		
Share results of this assessment with city staff, property owners, and potential developers.	City-PED	Short-term
Work with property owners and developers to find resources to assist with environmental assessment and cleanup	City-PED	Ongoing
Consider applying for an EPA area-wide assessment grant for the West Side Flats master plan area.	City-PED	Ongoing
Brownfields Education		
Continue to work with the community to help them understand brownfields redevelopment throughout the development in the Master Plan area and the as the Greenway is constructed.	City-PED	Ongoing
Maintain and update the City's brownfield reclamation webpage.	City-PED	Ongoing

Task	Responsibility	Timeline Short-term: 0 to 12 months Long-term: 12 months+
Brownfields Education (continued)		
Update presentation, video, and infographic, as needed.	City-PED	Ongoing
Provide subtitles for the video and translation of infographic to help all community members learn about brownfields cleanup and redevelopment.	City-PED	Ongoing
Continue to work with the community to help them understand brownfields redevelopment throughout the development in the Master Plan area as the Greenway is constructed.	City-PED	Ongoing

List of Appendices

APPENDIX A: FUTURE SOL CELEBRATION

Earth Day Event- Future Sol

Photos by Brooke Ross

APPENDIX B: WEST SIDE FLATS GREENWAY FEASIBILITY REPORT

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Jamie Radel, City of Saint Paul
From: Nathan Campeau, PE and Adam Howard, PE
Subject: West Side Flats Greenway Stormwater Sizing and Feasibility
Date: September 21, 2017, *revised November 29, 2017*
Project: West Side Flats Greenway
c: Wes Saunders-Pearce and Patrick Murphy, City
Fred Rozumalski, Barr

1.0 Background

The City of Saint Paul envisions the West Side Flats Greenway as a linear public space with the dual purposes of providing stormwater management for adjacent private development/public infrastructure as well as creating an attractive green space for use by existing City residents and future residents of the West Side Flats. This memo addresses the feasibility of implementing stormwater management in the West Side Flats Greenway.

2.0 Stormwater Sizing Criteria

The City directed Barr to size the proposed stormwater facilities in the West Side Flats using methodology consistent with the EPA's 2015 report, "West Side Flats Greenway Conceptual Green Infrastructure Design." The EPA report conceptualized three "practice areas" to treat the tributary watersheds of the West Side Flats. This number was subsequently reduced to two "practice areas" as Practice Areas 2 and 3 were combined due to the removal of planned Fairfield Avenue extension through the Greenway.

Two alternatives were developed for the conveyance of runoff from the area confined between Plato and Fillmore and Wabasha and the rail (generally west of the combined Practice Areas 2 and 3). Infrastructure for the conveyance of runoff from this area must meet cover requirements of the railroad while staying above the existing 90-inch storm sewer. The two alternatives were developed to convey runoff from the west side of the railroad to the east side: 1) a 30-inch pipe generally centered within the project area that conveyed flows below the rail, then a riser structure and open box that conveyed flows over the 90-inch storm sewer and into the proposed Practice Area 2/3 basin, and, 2) 18-inch storm sewer pipes that convey runoff to the existing 18-inch storm sewer under Fillmore Ave, and then into the proposed Practice Area 2/3 basin south of Fillmore. Both alternatives were deemed feasible, but would increase costs due to design complexities. After further discussions, the City directed Barr to no longer consider runoff from west of the existing railroad in the design for the south basin (Practice Areas 2 and 3).

Additionally, the proposed Sherman development north of Fillmore and east of the railroad was removed from the system because the developer decided not to participate in the district stormwater system.

As shown in Figure 1, the resulting Practice Area 1 is located north of Fillmore Avenue and treats 7.0 acres (53% impervious) of land, 100% of which is public infrastructure, while the resulting Practice Area 2/3

south of Fillmore Avenue treats 21.2 acres (66% impervious) consisting of private developments and public right-of-way.

Using an existing conditions XP-SWMM hydrologic and hydraulic model developed by WSB for the City, Barr developed a proposed conditions model and refined the existing conditions model to allow direct comparison between existing and proposed conditions. The proposed conditions watershed characteristics were developed using development plans provided for the Weidner properties and proposed street cross sections in the 2015 West Side Flats Master Plan. As previously mentioned, parcels west of the railroad corridor and the Sherman property were not considered to contribute to Practice Area 2/3.

Pervious areas in the model were assumed to have a curve number of 69 in accordance with previously defined values within the City's XP-SWMM model. Precipitation depths were obtained from NOAA's Atlas 14 and paired with the NRCS MSE3 rainfall distribution. The precipitation depths were 2.8 inches, 4.18 inches, and 7.4 inches for the 2-year, 10-year, and 100-yr design precipitation events, respectively. The time of concentration was not modified from the existing conditions XP-SWMM model and therefore remained at 15 minutes for all watersheds.

Stormwater facilities were sized to provide water quality treatment for all areas and to control rate for the private areas. At the direction of the City, rate control was not considered for the public contributing areas, including existing and proposed street right-of-way. Due to the presence of high groundwater and the fact that periodic Mississippi River flooding is known to further raise groundwater for extended periods, all water quality facilities were assumed to be filtration, through the use of vegetated filtration basins. Rate control was accommodated in the stormwater facilities by allowing a bounce (or live storage) above the filtration basin. Typical cross sections of each stormwater facility are shown in Figure 2.

The following assumptions were made in sizing of stormwater infrastructure:

- While water quality treatment is not required by municipal code, a water quality standard of sizing for the **1.1 inches of instantaneous runoff from impervious surfaces** (MIDS) was applied to private development and public infrastructure.
- Rate control to the City of standard of a **maximum discharge of 1.64 cfs per acre in the 100-year event** was applied uniformly across the watershed to private development. Rate control was not considered for existing and proposed public right-of-way.
- Because the study area sits behind the City's levee and floodwall system and discharges to the river by pumping station during riverine flood events, **no increase in the overall rate of discharge at the outfall** through the levee was allowed in any event up to the 100-year event.

These sizing criteria result in the stormwater facilities as shown in Table 1. The required acreage for each storage level and the overall basins is represented by a range which allows for flexibility in configuring the basins to allow for utility conflicts and park features. Figures 1 and 3 show the approximate size of the water quality and rate control components of the stormwater facilities in Practice Areas 1 and 2/3. Table 2 summarizes the existing and proposed discharge rates at the levee outfall, demonstrating that the proposed conditions results in no increase in the overall rate of discharge at the outfall to the Mississippi River.

Table 1. Stormwater Basin Sizing

Parameter	Practice Area 1	Practice Area 2/3
Watershed Size (acres)	7.0	21.2
Percent Impervious	53%	66%
Public Retention Volume (cf)	14,774	11,062
Private Retention Volume (cf)	0	44,441
Public Detention Volume above Retention (cf)	0	0
Private Detention Volume above Retention (cf)	36,946	100,965
Outlet Types	Two - 12" Diameter Standpipes	Three - 24" Diameter Standpipes
Outlet Invert	700.86 (6.6)	700.50 (6.2)
Total Area of Practice Area (acres)	0.39 – 0.48	1.01 – 2.37
Top of Basin Elevation	704.36 (10.1)	704.00 (9.7)
Area of Water Quality Retention (acres)	0.19 – 0.21	0.66 – 0.98
Top of Water Quality Retention Elevation	700.86 (6.6)	700.50 (6.2)
Top of Media Elevation	699.36 (5.1)	699.00 (4.7)
Basin Bottom Elevation	697.86 (3.6)	697.50 (3.2)
2-yr Elevation	701.43 (7.2)	701.26 (7.0)
Area of 2-year ponding (acres)	0.24 - 0.26	0.79 – 1.09
10-yr Elevation	702.09 (7.8)	701.98 (7.7)
Area of 10-year ponding (acres)	0.28 – 0.29	0.85 – 1.20
100-yr Elevation	703.74 (9.5)	703.25 (9.0)
Area of 100-year ponding (acres)	0.36 – 0.42	0.95 – 1.81

Note: All elevations in NAVD88, elevations in parenthesis are Saint Paul datum (NAVD88 minus 694.26)

Table 2. Existing and Proposed Discharge Rates at Levee Outfall

Design Event	Existing Conditions Flowrate (cfs)	Proposed Conditions Flowrate (cfs)
2-year	245	225
10-year	434	375
100-year	506	490

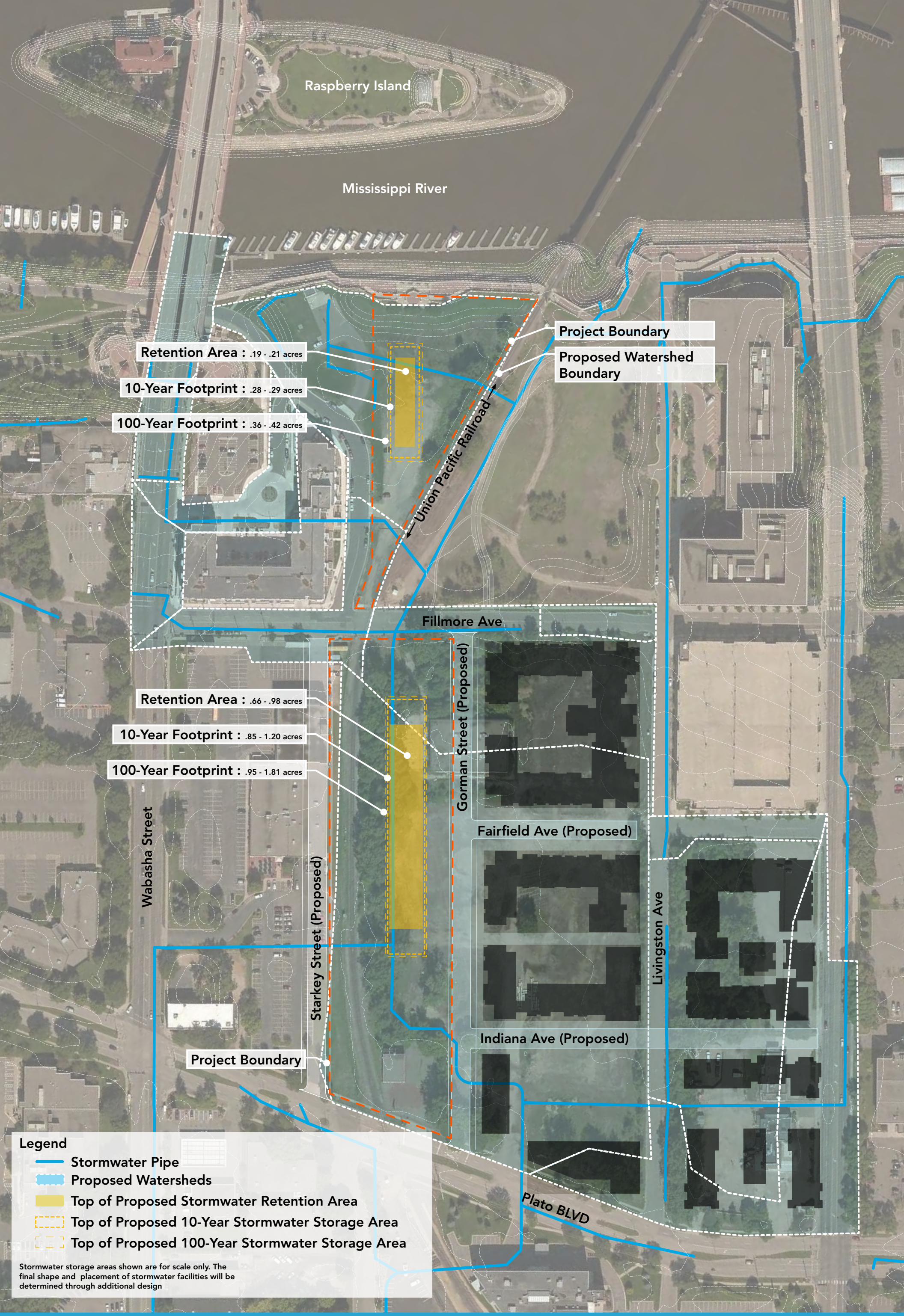
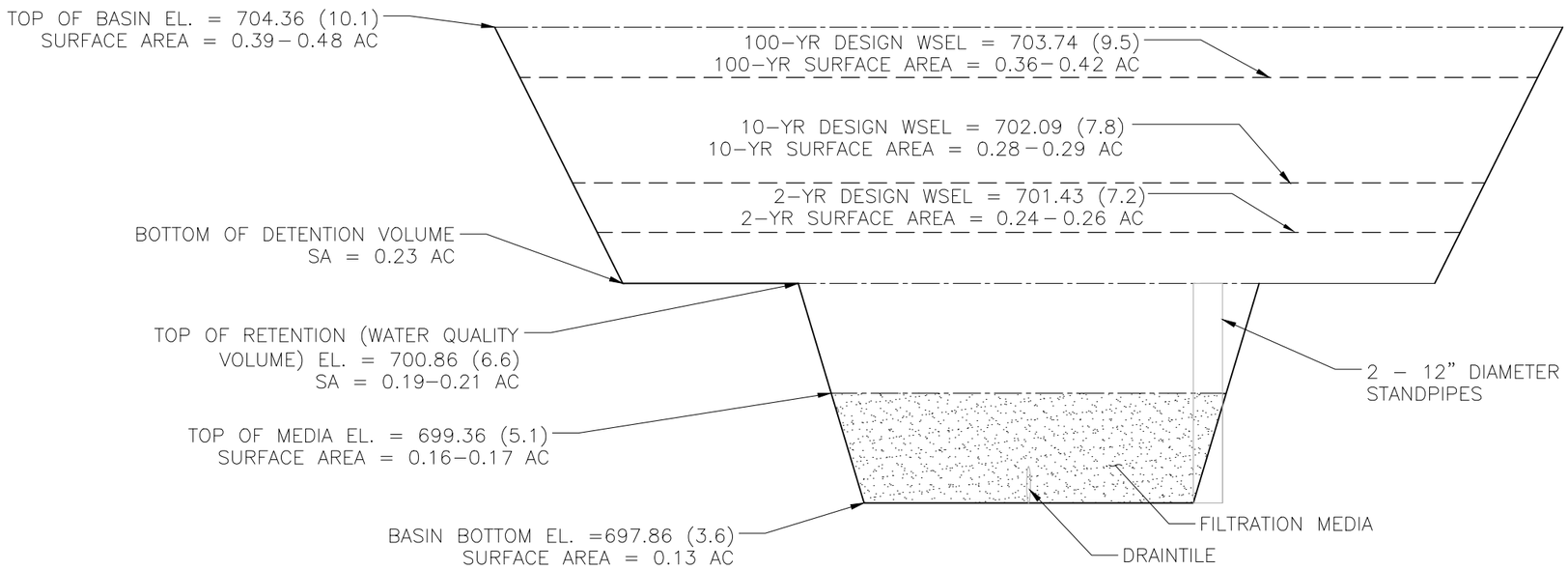


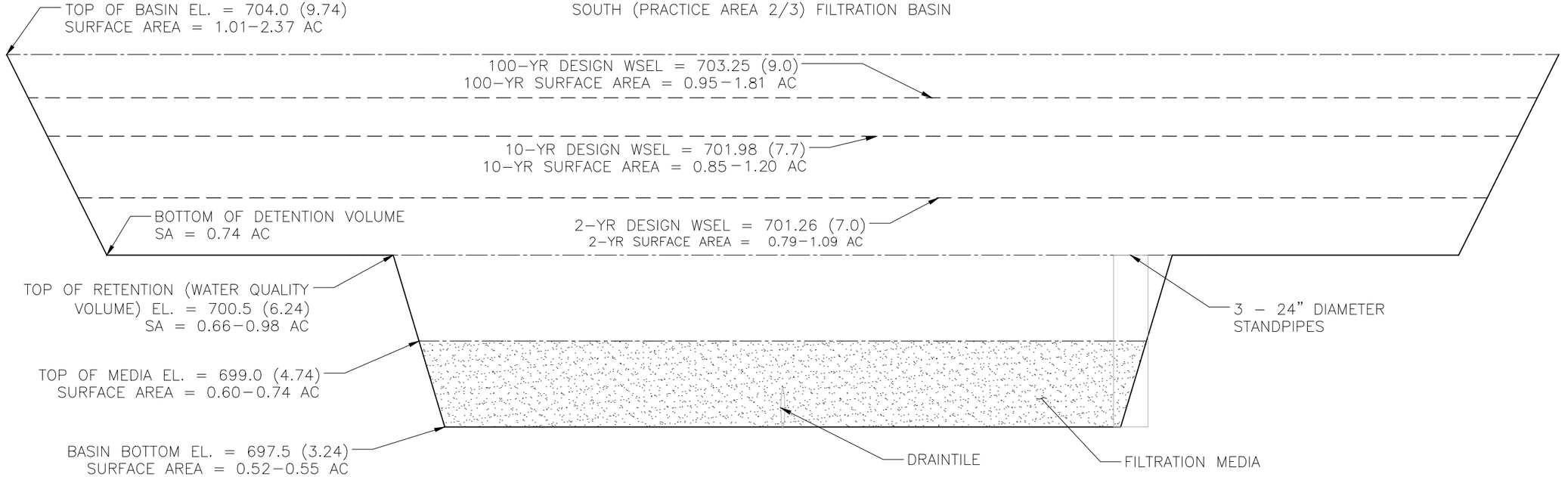
Figure 1

Potential for District Stormwater Management on Project Site
Prepared by Barr Engineering Co. for The City of Saint Paul - 9/8/2017

NORTH (PRACTICE AREA 1) FILTRATION BASIN



SOUTH (PRACTICE AREA 2/3) FILTRATION BASIN



NOTE: ALL ELEVATIONS IN NAVD88, ELEVATIONS IN PARENTHESIS ARE SAINT PAUL DATUM (NAVD88 MINUS 694.26)

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Ph: 1–800–632–2277
Fax: (952) 832–2601
www.barr.com

Scale	NTS
Date	
Drawn	
Checked	
Designed	
Approved	

FIGURE 2
BASIN SECTIONS

WEST SIDE FLATS
SAINT PAUL, MN

BARR PROJECT No.
CLIENT PROJECT No.
DWG. No.
REV. No.

Mississippi River

Retention Area : .19 - .21 acres

10-Year Footprint : .28 - .29 acres

100-Year Footprint : .36 - .42 acres

Levee Easement Area

Rail Road ROW

Union Pacific Railroad

MCES Sewer

MCES Sewer Easement

Fillmore Ave

Retention Area : .66 - .98 acres

10-Year Footprint : .85 - 1.09 acres

100-Year Footprint : .95 - 1.81 acres

Project Boundary

Future Sanitary Forecemain Alignment

MCES Sewer Easement

MCES Sewer

City of Saint Paul Sanitary Sewer
(Potential to Move)

City of Saint Paul Storm Sewer

Fairfield Ave (Proposed)

115'

98'

Wabasha Street

Starkey Street (Proposed)

Gorman Street (Proposed)

Livingston Ave

Storm and Sanitary Sewer Easement
(Per Doc. No. 925703)

Indiana Ave (Proposed)

Plato BLVD

Legend

- Stormwater Pipe
- Easment or Rail Road ROW area
- Top of Proposed Stormwater Retention Area
- Top of Proposed 10-Year Stormwater Storage Area
- Top of Proposed 100-Year Stormwater Storage Area

Stormwater storage areas shown are for scale only. The final shape and placement of stormwater facilities will be determined through additional design

BARR

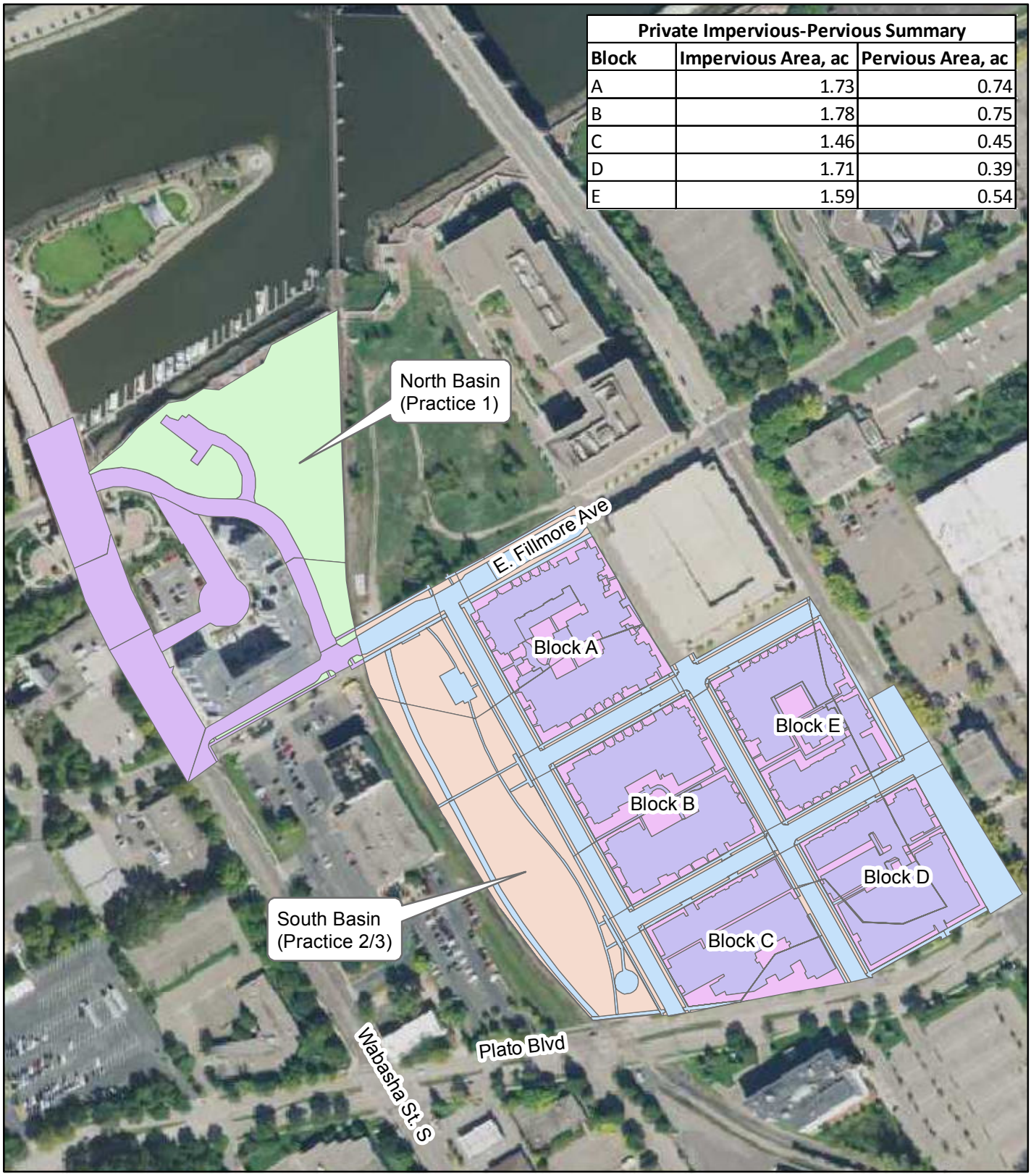
Figure 3

Potential Utility and Easement Conflicts

Prepared by Barr Engineering Co. for The City of Saint Paul - 9/8/2017

0 80 160

Feet



Private Impervious-Pervious Summary		
Block	Impervious Area, ac	Pervious Area, ac
A	1.73	0.74
B	1.78	0.75
C	1.46	0.45
D	1.71	0.39
E	1.59	0.54

Legend

- Public Pervious - North Basin (3.3 acres)
- Public Impervious - North Basin (3.7 acres)
- Public Pervious - South Basin (4.4 acres)
- Public Impervious - South Basin (5.7 acres)
- Private Pervious - South Basin (2.9 acres)
- Private Impervious - South Basin (8.3 acres)

N

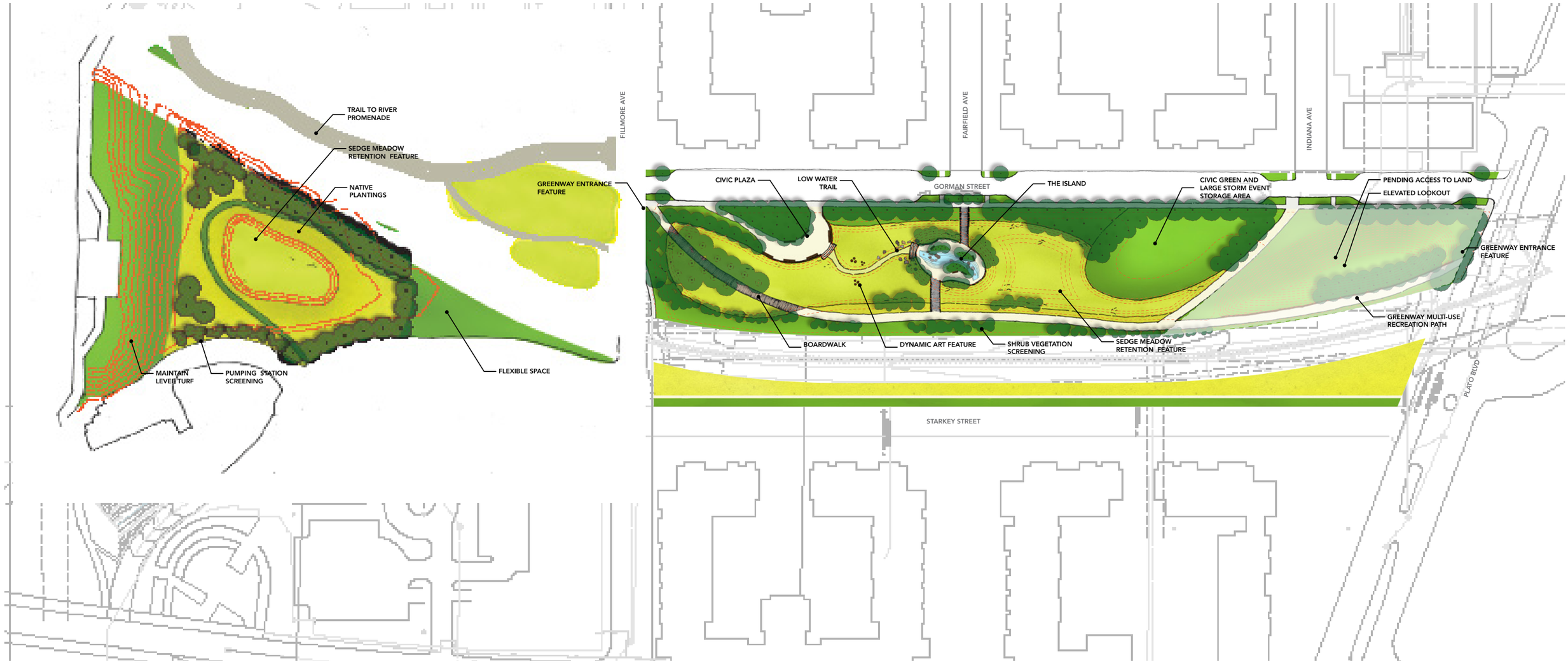
300 150 0 300

Feet

Figure 4

West Side Flats
Public-Private Contributing Summary

APPENDIX C: WEST SIDE FLATS CONCEPT PLANS



West Side Flats Greenway

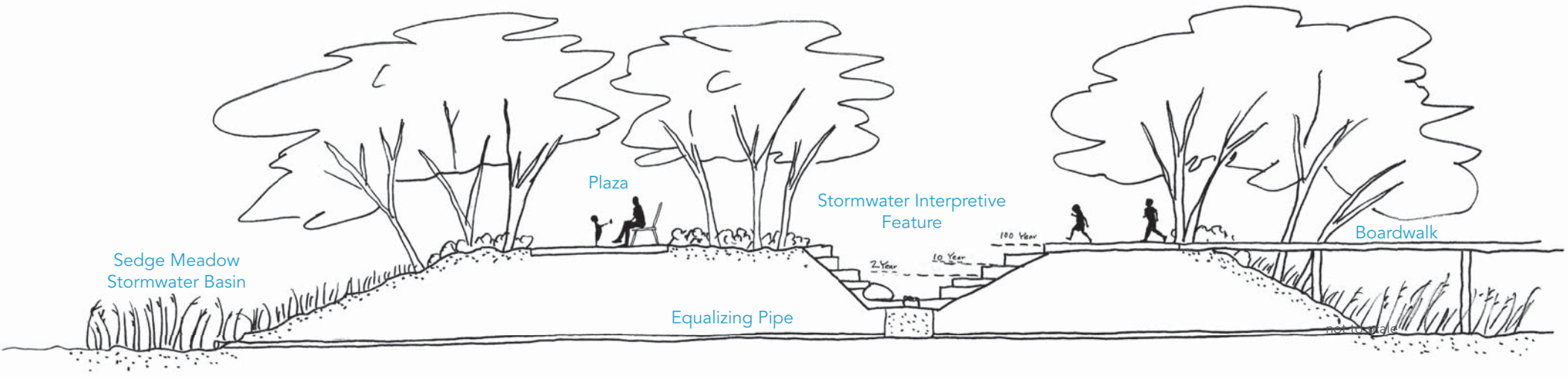
Prepared by Barr Engineering Co. for The City of Saint Paul - 04/21/2017

0 40 80 120
Feet

Key

1. The Island
2. Civic Green
3. Sedge Meadow
4. Civic Plaza
5. Low Water Trail
6. Boardwalk
7. Dynamic Art Feature
8. Vegetative Screening
9. Elevated Lookout
10. Muti-Use Recreation Path
11. Future Development
12. Existing Rail Road

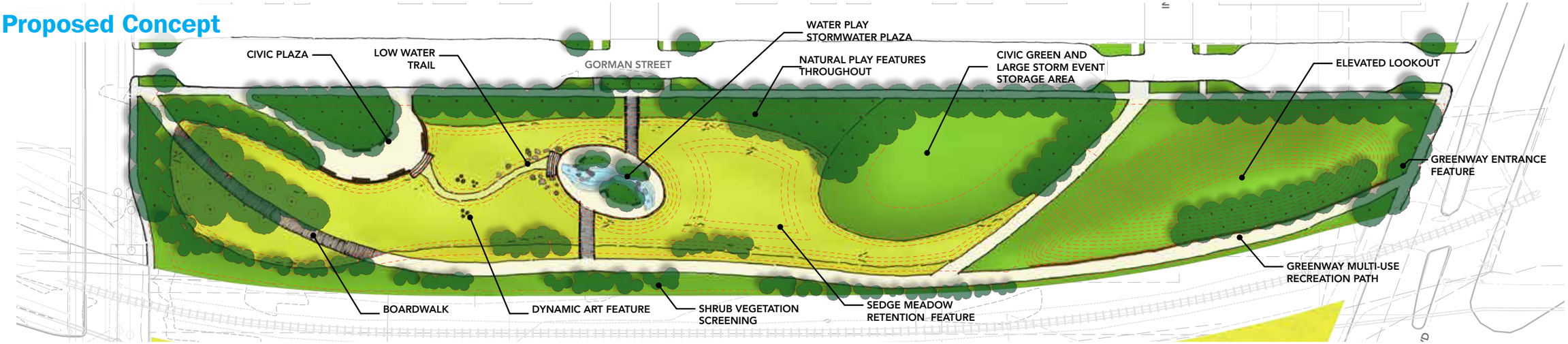
Section: The Island



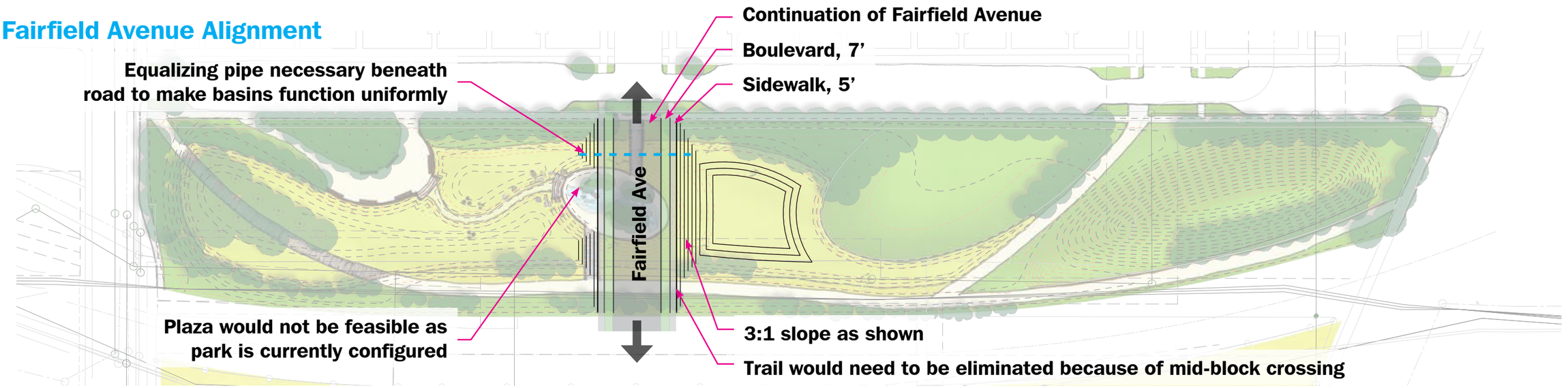
West Side Flats Greenway - Conceptual Rendering

Prepared by Barr Engineering Co. for the City of Saint Paul — 4/22/2017

Proposed Concept



Fairfield Avenue Alignment

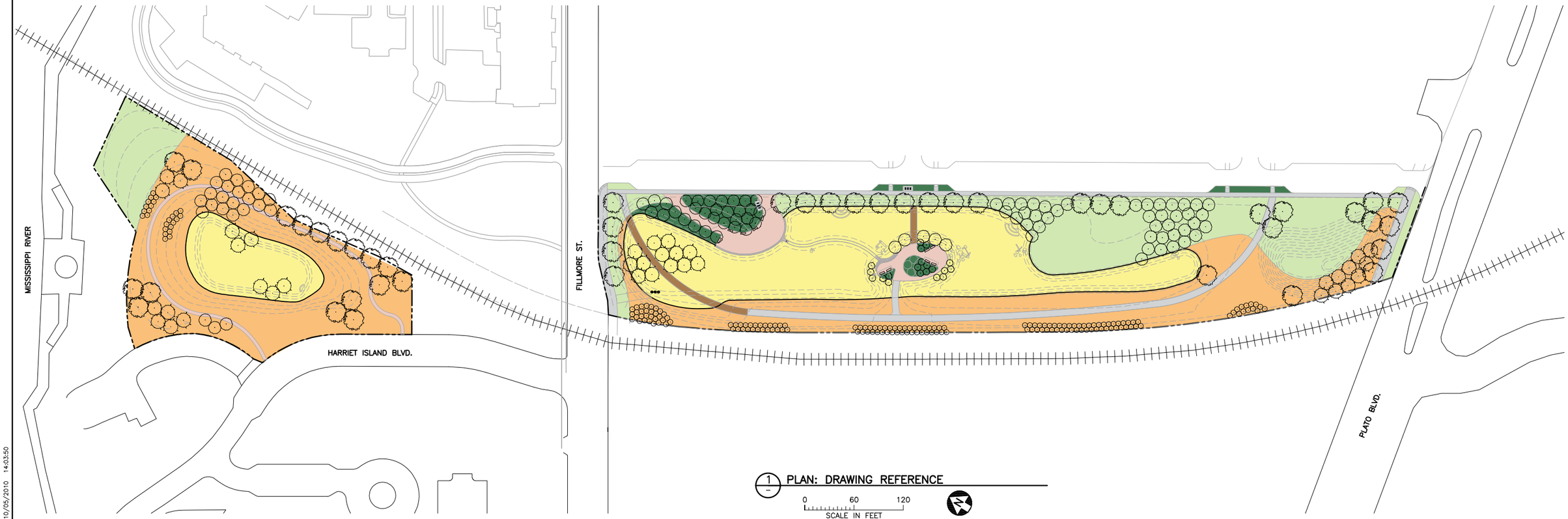


Summary of Impacts

The continuation of Fairfield Avenue through the proposed greenway would impact both peoples' use of the greenway and stormwater treatment capacity as the greenway as it is currently designed. It would result in the elimination of the central plaza and reduce stormwater storage by approximately 9,000 cubic feet. If the central plaza were to be moved elsewhere in the greenway it would result in the loss of an additional 12,500 cubic feet of stormwater storage. This may increase more if additional grading to preserve greenway features are desired.

In addition to the reduction of stormwater storage, the continuation of Fairfield Avenue would result in the elimination of the 10' wide bike/pedestrian trail and boardwalk running north-south through the greenway. A mid-block crossing would be too unsafe for trail users. The user experience of the greenway would be greatly compromised by the addition of the street. The greenway is only 180 feet wide and breaking it in the middle would result in two small, disconnected greenspaces surrounded by urban development. It would lack respite.

APPENDIX D: TECHNICAL PLANS



1 PLAN: DRAWING REFERENCE

0 60 120
SCALE IN FEET

- Perennial Planting
- Upland Native Planting
- Basin Planting
- Turf
- DG Surface
- Concrete Surface

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Ph: 1-800-632-2277
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THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

DRAWING REFERENCE

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No.
REV. No. 0

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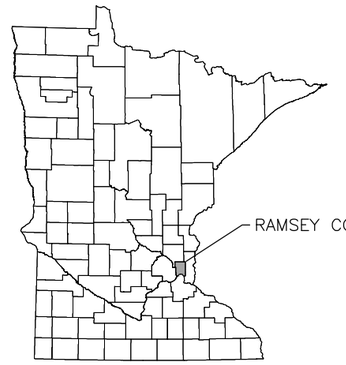
WEST SIDE FLATS PARK DESIGN
CITY OF SAINT PAUL

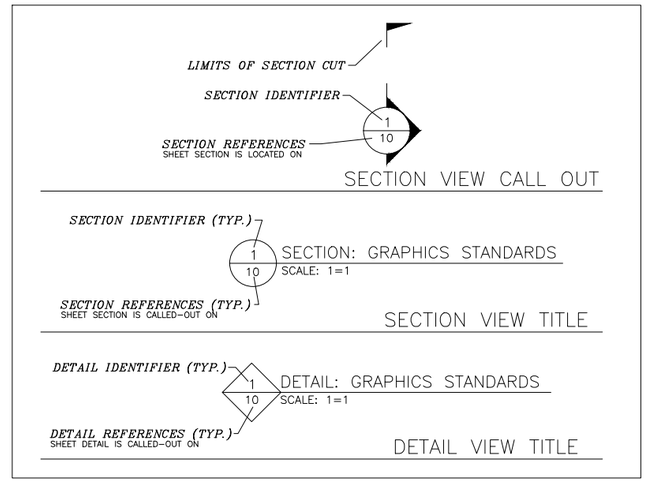
PROJECT LOCATION MAP



MINNESOTA COUNTY MAP

INDEX OF SHEETS

SYMBOLS AND ABBREVIATIONS:



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CONTACTS:

LANDSCAPE ARCHITECT:
Fred Rozumalski
Barr Engineering Co.
4300 Market Pointe Dr
Bloomington, MN 55435
952-832-2733
frozumalski@barr.com

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Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

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Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PROJECT LOCATION
AND SHEET INDEX

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CLIENT PROJECT No.	
DWG. No.	G-01
REV. No.	A

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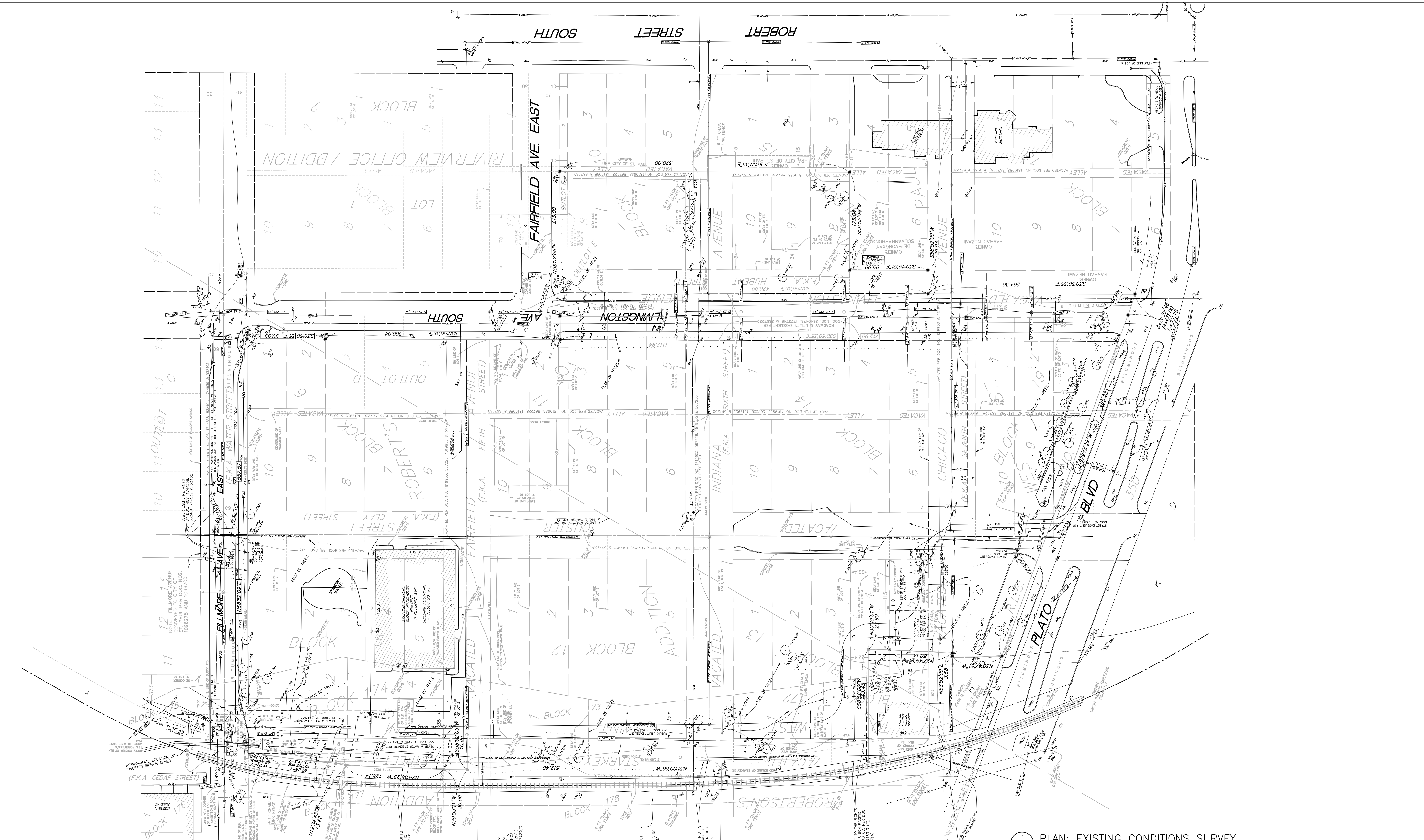

1 PLAN: EXISTING CONDITIONS SURVEY

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PRELIMINARY DRAFT

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Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
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Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

EXISTING CONDITIONS SURVEY

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. G-02
REV. No. A

GENERAL CONSTRUCTION ACTIVITY INFORMATION:
The Stormwater Pollution Prevention Plan (SWPPP) is required for the General Permit Authorization to Discharge Stormwater Associated with Construction Activity (NPDES Permit) as required by the Minnesota Pollution Control Agency (MPCA) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS).

The project is located in the south central portion of Ramsey County in the Saint Paul, Minnesota. Proposed construction will take place within Sections 5 & 6 of Township 28 North, and Range 22 West, Latitude: 44.939356, Longitude: -93.086767.

The project Work involves demolition of existing impervious surfaces, reconstruction of impervious surfaces, construction of new impervious surfaces, construction of new buildings, construction of a rain garden, and site restoration. The project is not part of a larger common plan of development. The project proposed has a total disturbance area of less than five (5) acres. Erosion prevention measures are required to prevent sediment from being transported off site and to nearby surface waters. Refer to project drawings for further details.

The anticipated total area of disturbance is approximately X.X acres.

The total area of pre-construction impervious area within project area is approximately X.XX acres.
The total area of post-construction impervious area is approximately X.XX acres.

DATES OF CONSTRUCTION:
Begin Construction May 1, 2016, Completion November 1, 2016. (CAN BE MORE VAGUE THAN THIS IF WE DONT KNOW).

RESPONSIBLE PERSONS:
Below is a list of people responsible for this project who are knowledgeable and experienced in the application of erosion prevention and sediment control BMPs. They shall oversee the implementation of the SWPPP, inspection, and maintenance of erosion prevention, and sediment control BMPs before and during construction.

RESPONSIBLE PERSONS IS PENDING CONTRACTOR SELECTION

OWNER:	CITY OF SAINT PAUL	CONTRACTOR: TBD	
MAILING ADDRESS:	803 OLD HWY 8 NW NEW BRIGHTON, MN 55112	MAILING ADDRESS:	
CONTACT PERSON:		CONTACT PERSON:	
PHONE:		PHONE:	
EMAIL:		MOBILE PHONE:	

TRAINED INDIVIDUAL	RESPONSIBILITY	APPLICABLE TRAINING	TRAINING DOCUMENTATION ATTACHED?
Patrick Brockamp, PE	Preparation of SWPPP	Construction Stormwater Training Barr Engineering, January 2012, Updated March 2016	No
TBD	Oversight of SWPPP Implementation, Revision And Amendment	TBD	No
TBD	Performance of SWPPP Inspections	TBD	
TBD	Performance or Supervision of Installation Maintenance, and Repair of BMPs		

RECEIVING WATERS:

Water body ID: 07010206-505 Water Body Name: Mississippi River Water Body Type: River

Special Water? No Impaired Water? Yes DNR Work in Water Restrictions? No

Project Area Soil Type: Urban Land, developed. SSURGO soil group numbers shown in Figure 1.

Impaired Waters: There is an impaired water within 1 mile of the project site. The Mississippi River is the receiving water and is within approximately 600 feet of the site (conveyed by existing storm sewer). This reach of the Mississippi River has an approved TMDL Plan for: Mercury in Fish Tissue; Mercury in Water Column. Additional Impairments for Fecal Coliform; PCB in Fish Tissue; Perfluorooctane Sulfonate (PFOS) in Fish Tissue; Turbidity

Wetland Impacts and Mitigation: N/A

Environmental Review/Endangered or Threatened Species Review/Archeological Site Review: N/A

PROJECT PLANS AND SPECIFICATIONS:

Required Feature	Sheet No.
Project Location	G-01
Construction Limits	C-02
Existing and Final Grades with Flow Direction	C-XX
Impervious Surfaces	C-XX
Potential Pollution generating activities	C-04 to C-XX
Areas not to be disturbed	Any Areas Outside Construction Limits
Areas where construction will be phased	N/A
Temporary and Permanent erosion and sediment control BMPs	C-02, C-XX, & C-XX
Standard Details for erosion and sediment control	C-03
Estimated Preliminary BMP Quantities	On Drawings

TEMPORARY EROSION CONTROL PRACTICES

Timing:
1. Delineate areas of the site not to be disturbed (with flags, stakes, signs, silt fence, etc.) before work begins.
2. Construction phasing will be used when possible to minimize concurrent soil exposure; stabilizing areas as soon as work is completed; and restoring access paths when they are no longer needed.
3. Initiate stabilization immediately whenever any construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 7 calendar days.
4. Complete stabilization no later than 7 calendar days after the construction activity in that portion of the site has temporarily or permanently ceased.

BMPs:
1. Erosion control and stabilization practices to be installed are depicted on Drawings No. C-12, and include: silt fence, sediment control logs, rock construction entrance, vegetation (through seeding), and mulching.
2. Soils stockpiles shall be stabilized with fast-growing cover crop and silt fence or sediment control log shall be placed around the perimeter of the stock piles.
3. Erosion control blanket shall be used to cover all disturbed slopes.
4. Direct construction site discharges to vegetated areas where feasible.
5. Install all BMPs in accordance with relevant manufacturer specifications and accepted engineering practices.

TEMPORARY SEDIMENT CONTROL PRACTICES

Timing:
1. Establish sediment control practices on all downgradient perimeters prior to commencing any upgradient land-disturbing activities.
2. If sediment control practices must be adjusted or removed to accommodate short-term activities, complete the activity as quickly as possible and re-install immediately after the activity has been completed or before the next precipitation event (even if the activity is not yet complete).
3. Maintain downgradient sediment control practices until final stabilization has been achieved for upgradient areas.

BMPs:
1. Minimize soil compaction where feasible.
2. Preserve topsoil where feasible; if topsoil must be removed, store in a segregated stockpile for reuse in site restoration.
3. Sediment control practices to be installed are depicted on Drawing C-12 and include: silt fence, sediment control logs, and rock construction entrance.
4. Install silt fence or sediment control logs around the perimeter of temporary soil stockpiles.
5. Install rock construction entrances as a vehicle tracking BMP to minimize the track out of sediment from the construction site.
6. Monitor adjacent paved surfaces for track out of sediment from construction site and remove sediment via street sweeping if necessary.
7. Install all BMPs in accordance with relevant manufacturer specifications and accepted engineering practices.

BMP DESIGN FACTORS

1. Reduce runoff rate by 20% in 2, 10, and 100-year precipitation events to conform with Rice Creek Watershed District Rules.
2. Treat runoff from 1.1-inch event to conform with Rice Creek Watershed District Rules.
3. Nature of stormwater runoff and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features: The site accumulates runoff from many off site slopes. Provide all erosion and sedimentation control devices to handle this off site runoff.
4. If any stormwater flow will be channelized at the site, design BMPs to control both peak flow rates and total stormwater volume to minimize erosion at outlets and to minimize downstream channel and streambank erosion: Peak flow rates and total stormwater volume should not be increased during this project. Stormwater channelization is anticipated. Channelized flow will be routed to vegetated areas where appropriate.
5. Range of soil particle sizes expected to be present on the site and surrounding area: clay, sandy clay, sandy silt, silty sand, sand, gravel.

PERMANENT STORMWATER MANAGEMENT SYSTEM

1. This project will NOT generate greater than one acre of new impervious surface and will NOT require a stormwater management system.

INSPECTION AND MAINTENANCE ACTIVITIES

Inspection Requirements:
1. Inspect the entire construction site at least once every 7 days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours.
2. Where parts of the site have permanent cover, but work remains on other parts of the site, inspection frequency may be reduced to once per month in areas with permanent cover.
3. Inspect all erosion prevention and sediment control BMPs and pollution prevention management measures for integrity and effectiveness.
4. Inspect surface waters for evidence of erosion and sediment deposition.
5. Inspect construction site vehicle exit locations for evidence of off-site sediment tracking onto paved surfaces and inspect streets and other areas adjacent to the project for evidence of off-site accumulations of sediment.
6. Inspections must be conducted by an appropriately trained individual in accordance with the CSW Permit.

Maintenance Requirements:
1. Repair, replace, or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery or as soon as field conditions allow access.
2. Repair, replace or supplement all perimeter control devices when they become nonfunctional or the sediment reaches 1/2 of the height of the device.
3. Remove all deltas and sediment deposited in surface waters and restabilize the areas where sediment removal results in exposed soil within 7 days of discovery.
4. Remove tracked sediment from all paved surfaces both on and off site within 24 hours of discovery.
5. Remove off-site accumulations of sediment in a manner and at a frequency sufficient to minimize off-site impacts.
6. Maintain all BMPs accordance with relevant manufacturer specifications and accepted engineering practices.

Recordkeeping:
1. All inspections and maintenance must be recorded within 24 hours in writing and records must be retained with the SWPPP.
2. Records of each inspection and maintenance activity shall include:
   a. Date and time of inspections
   b. Name of person(s) conducting inspections
   c. Findings of inspections, including the specific location where corrective actions are needed
   d. Corrective actions taken (including dates, times, and party completing maintenance activities)
   e. Date and amount of all rainfall events greater than 0.5 inches in 24 hours; rainfall amounts will be obtained from a properly maintained rain gauge installed onsite, a weather station that is within 1 mile of the site, or a weather reporting system that provides site specific rainfall data from radar summaries.
   f. If any discharge is observed to be occurring during the inspection, a record of all points of the property from which there is a discharge must be made, and the discharge should be described (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of pollutants) and photographed.
   g. Any amendments to the SWPPP proposed as a result of the inspection must be incorporated within 7 calendar days

RECORD RETENTION

1. This SWPPP including, all changes to it, and inspections and maintenance records must be kept at the site during construction in either the field office or in an on-site vehicle during normal working hours.
2. Upon request make this SWPPP (including all certificates, reports, records, or other information required by the CSW Permit) available to federal, state, and local officials within 72 hours for the duration of the permit and for 3 years following the NOT.

POLLUTION PREVENTION MANAGEMENT MEASURES

1. Minimize exposure to stormwater of the following products, materials, or wastes: building products that have potential to leach pollutants are not expected to be present on site, but if present exposure to stormwater will be minimized through coverage with plastic sheeting; pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials through coverage with plastic sheeting; hazardous materials and toxic waste (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) through proper storage in sealed containers in restricted access storage areas and in compliance with Minn. R. ch. 7045 including secondary containment as applicable; solid waste through proper storage, collection, and disposal in compliance with Minn. R. ch. 7035.
2. Position portable toilets so that they are secure and will not be tipped or knocked over.
3. Properly dispose of sanitary waste in accordance with Minn. R. ch. 7041.
4. Spill Prevention and Response: Take reasonable steps to prevent the discharge of spilled or leaked chemicals, ensure adequate supplies of absorbent and other dry clean-up materials are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials, report and clean up spills immediately as required by Minn. Stat. §115.061.
5. Fueling and maintenance of equipment and/or vehicles will not occur on-site.
6. Washing of vehicles and/or equipment will not occur on-site.
7. Washout of concrete and/or other similar wastes (such as stucco, paint, form release oils, curing compounds and other construction materials) will not occur on-site.

FINAL STABILIZATION

Ensure final stabilization of the site.
1. For final stabilization to be considered complete, the following must occur:
   - Complete all soil disturbing activities at the site.
   - Stabilize all soils with permanent cover.
   - Remove all temporary synthetic and structural erosion prevention and sediment control BMPs.
2. Permanent Cover will consist of seeding, erosion control blanket on slopes and diturbed areas, and seeding in all other disturbed areas.
3. Storm sewer culverts shall have flared sections and riprap to eliminate erosion.
4. Within 30 days after all activities for final stabilization have been completed, submit a Notice of Termination (NOT) form to the MPCA.

SWPPP AMENDEMENTS

Record of SWPPP Amendments

DATE	AMENDMENT	RESPONSIBLE INDIVIDUAL
August 2017	Initial Development of SWPPP	Patrick Brockamp, Barr Engineering Company

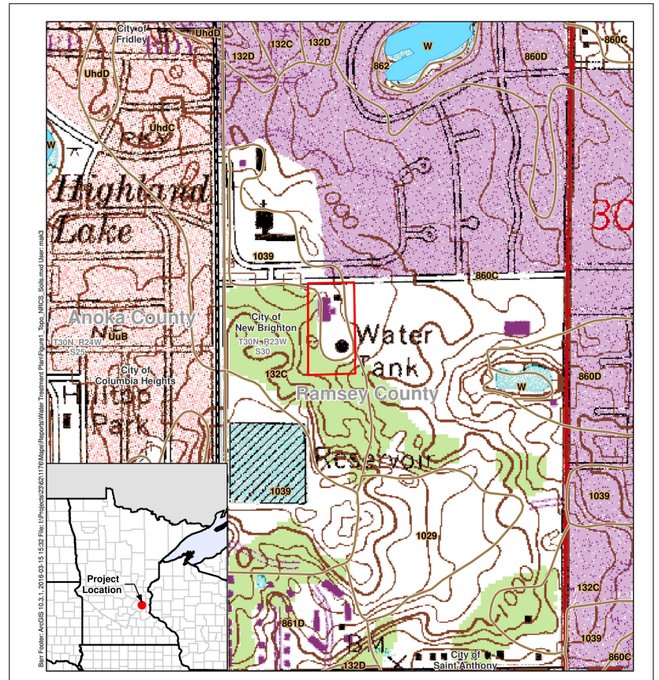

Figure 1

TOPOGRAPHIC MAP WITH
SURFACE WATERS AND SOIL TYPES
Stormwater Pollution Prevention Plan
Ramsey County, Minnesota

GOPHER STATE ONE CALL
GOPHER STATE ONE CALL:
CALL BEFORE YOU DIG.
1-800-252-1166

PRELIMINARY DESIGN

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	WMB	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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SIGNATURE _____

PRINTED NAME FRED J. ROZUMALSKI

DATE _____ REG. NO. 26559

	08/11/17						
CLIENT							
CITY							
BID							
CONSTRUCTION							
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	DATE RELEASED						

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

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Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
G-03	A

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_G-03_STORMWATER POLLUTION PREVENTION PLAN (SWPPP).DWG PLOT SCALE: 1:2 PLOT DATE: 8/14/2017 1:29 PM

TRAFFIC SIGNS			
QTY.	MNDOT SIGN NO.	SIGN SIZE	SIGN MESSAGE
2	M4-9MA (R, L, OR T)	30" x 24"	DETOUR
4	BARRICADE	8.2 FT WIDE	
2	G20-X1	24" x 38"	ROAD CLOSED

NOTES:

1. ALL TRAFFIC CONTROL DEVICES AND SIGNAGE SHALL CONFORM TO THE MN MUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
2. SIGNS NOT MOUNTED ON BARRICADES SHALL BE MOUNTED ON A TEMPORARY SUPPORT.
3. THE NUMBER OF BARRICADES REQUIRED AND PLACEMENT WILL BE SUBJECT TO APPROVAL BY THE CITY SIDEWALK INSPECTOR AND MAY ALSO BE SUBJECT TO APPROVAL BY THE CITY LAND USE ADMINISTRATOR.
4. ALL TRAFFIC CONTROL SIGNS SHALL BE PLACED BY CONTRACTOR AND APPROVED BY CITY.

1 – PLAN: TEMPORARY TRAFFIC CONTROL PLAN

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PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

	08/11/17						
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CONSTRUCTION							
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Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
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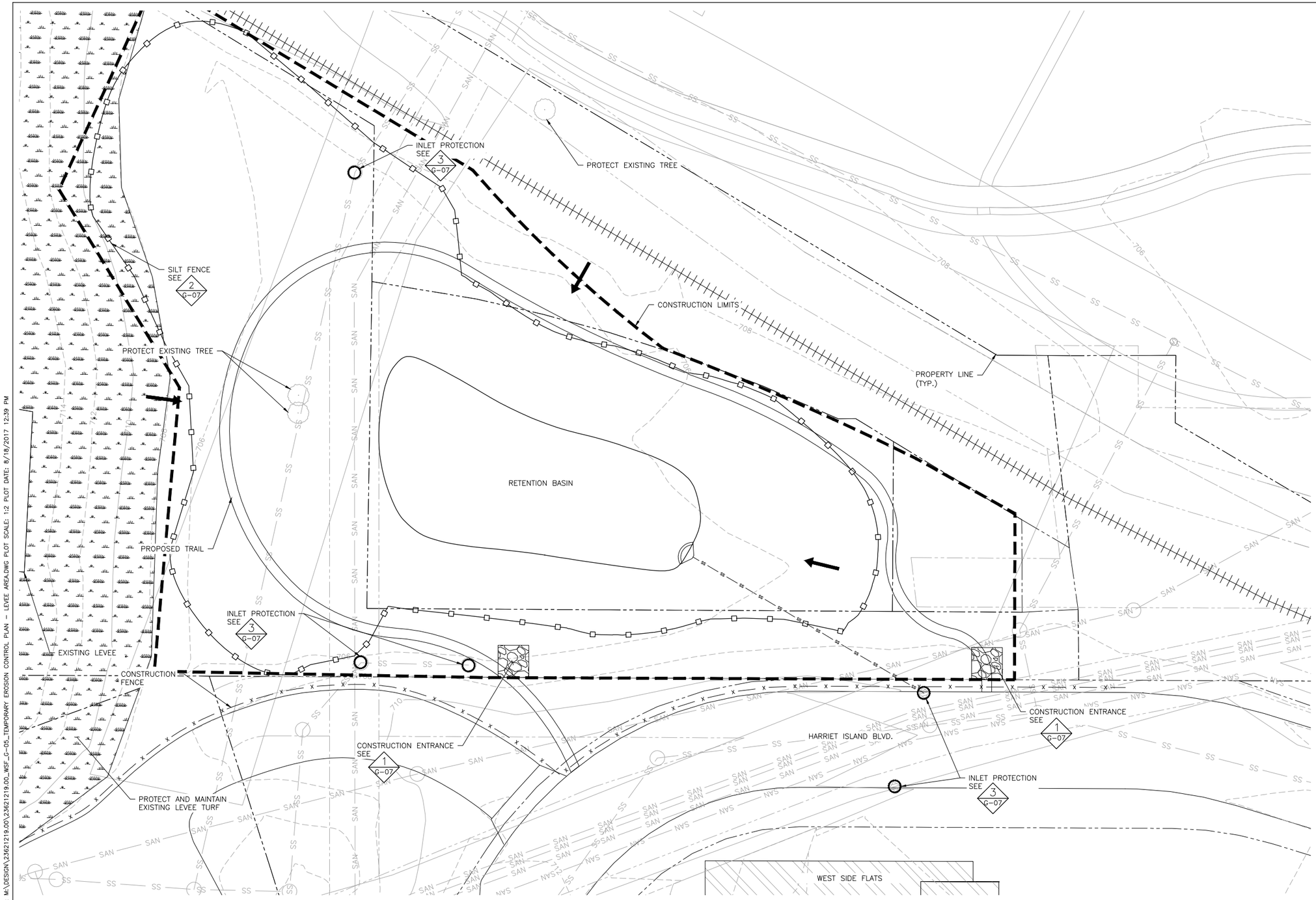
CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

TRAFFIC CONTROL PLAN

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
G-04	A



1 PLAN: EROSION CONTROL, SITE PROTECTION, AND TREE PROTECTION

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LEGEND

- CONSTRUCTION ENTRANCE
- INLET PROTECTION
- CONSTRUCTION FENCE
- SILT FENCE
- FLOW DIRECTION
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- RAILROAD TRACKS
- CONSTRUCTION LIMITS
- PARCEL BOUNDARY

GENERAL SITE PROTECTION AND STAGING NOTES:

1. CONTRACTOR SHALL HAVE LOCATED BY GOPHER ONE ALL EXISTING UTILITIES LOCATED WITHIN THE PROJECT LIMITS BEFORE REMOVAL BEGINS
2. IN AREAS TO BE CLEARED AND GRUBBED, ALL TREES NOT MARKED FOR REMOVAL BY THE LANDSCAPE ARCHITECT SHALL BE AVOIDED AND DAMAGE TO THE ROOT ZONES SHALL BE MINIMIZED.
3. ALL EXISTING STRUCTURES, CONCRETE, ASPHALT, TREES TO BE KEPT AND TREE ROOTS SHALL BE PROTECTED.
4. ANY DAMAGE TO THE EXISTING CONDITIONS SHALL BE CORRECTED TO THE OWNERS SATISFACTION AT THE CONTRACTOR'S EXPENSE.
5. LIMIT TRAFFIC TO THE CONSTRUCTION ACCESS ROUTE. ANY DAMAGE TO DRIVE SHOULDERS SHALL BE CORRECTED TO THE OWNERS SATISFACTION AT THE CONTRACTORS EXPENSE.
6. COORDINATE WITH OWNER TO ENSURE ACCEPTABLE TRAFFIC CONTROL, EQUIPMENT STORAGE AND STOCKPILING REQUIREMENTS.
7. INSTALL SEDIMENT CONTROL LOG IN LOCATION SHOWN ON PLAN, AS PER THE DETAIL BELOW AND AS MARKED IN THE FIELD. ONCE INSTALLED THE SEDIMENT CONTROL LOG LOCATION SHALL BE APPROVED BY OWNER. THE SEDIMENT CONTROL LOG SHALL NOT BE MOVED UNTIL WORK IS COMPLETED OR AS APPROVED BY OWNER.
8. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION AND PLANTING OPERATIONS. DO NOT COMPACT SOIL WITH HEAVY EQUIPMENT. ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.

GOPHER STATE ONE CALL

GOPHER STATE ONE CALL:
CALL BEFORE YOU DIG.
1-800-252-1166

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PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

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Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

TEMPORARY EROSION CONTROL PLAN
LEVEE AREA

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
G-05	A

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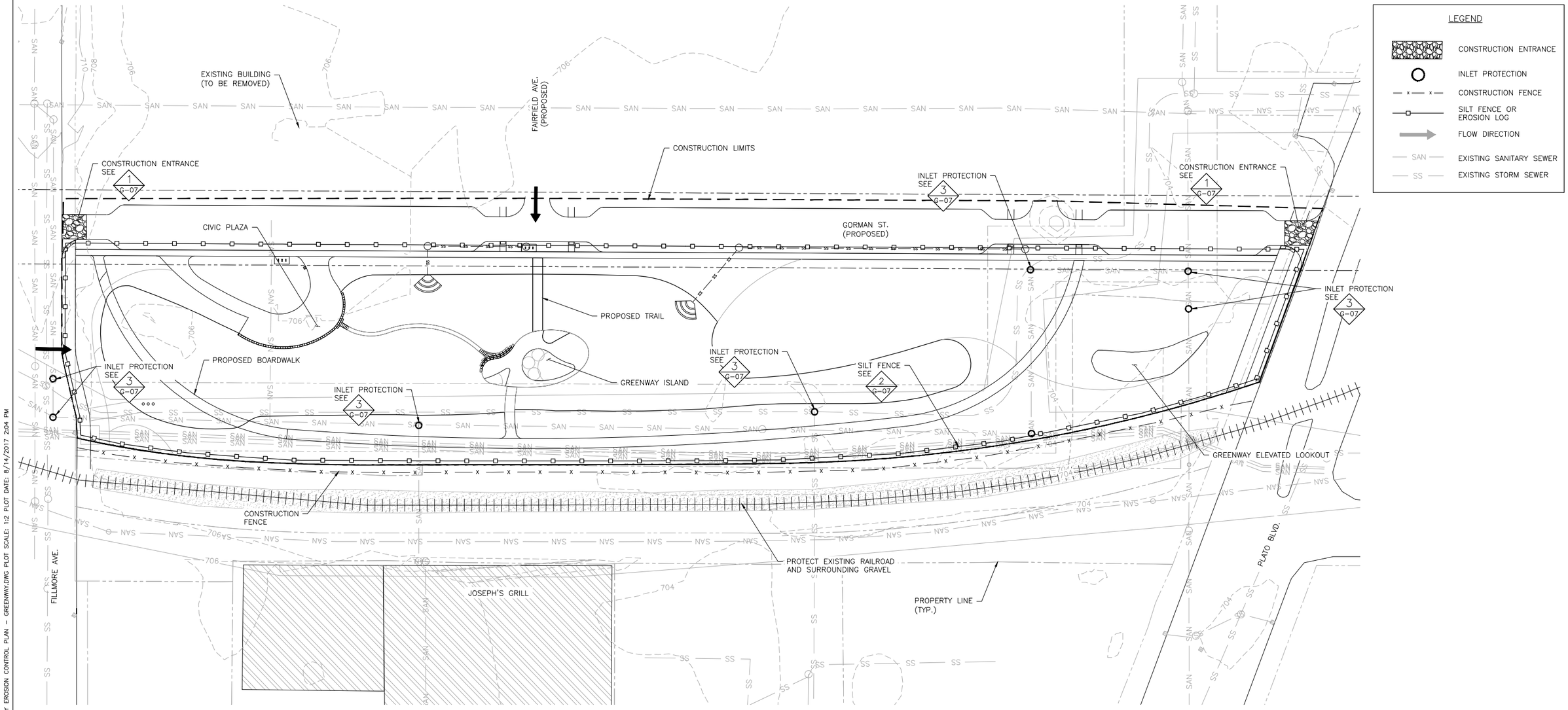

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1 – PLAN: EROSION CONTROL, SITE PROTECTION, AND TREE PROTECTION

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CONSTRUCTION							
DATE RELEASED							

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

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CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

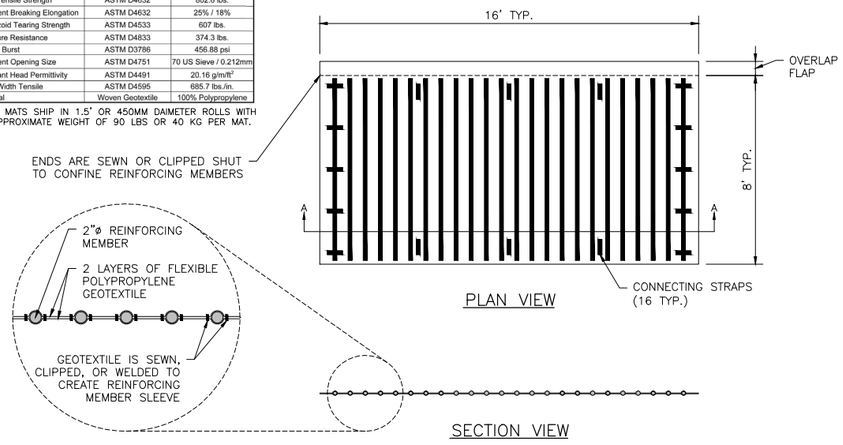
WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

TEMPORARY EROSION CONTROL PLAN
GREENWAY

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
G-06	A

PROPERTY	TEST PROCEDURE	VALUE
Grab Tensile Strength	ASTM D4632	802.6 lbs.
Apparent Breaking Elongation	ASTM D4632	25% / 18%
Trapezoid Tearing Strength	ASTM D4533	607 lbs.
Puncture Resistance	ASTM D4833	374.3 lbs.
Mullen Burst	ASTM D3786	456.88 psi
Apparent Opening Size	ASTM D4751	70 US Sieve / 0.212mm
Constant Head Permittivity	ASTM D4491	20.16 $g/m/ft^2$
Wide Width Tensile	ASTM D4595	685.7 lbs./in.
Material	Woven Geotextile	100% Polypropylene

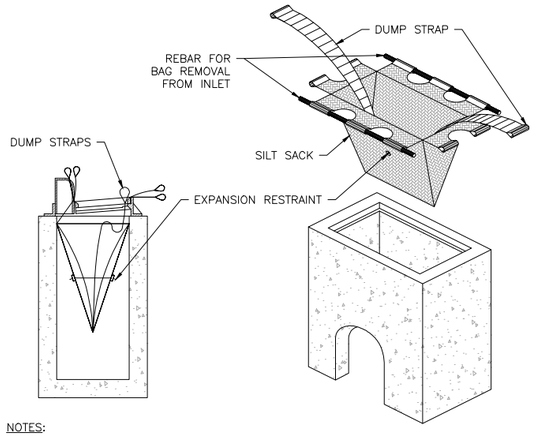
NOTE: MATS SHIP IN 1.5' OR 450MM DAIMETER ROLLS WITH AN APPROXIMATE WEIGHT OF 90 LBS OR 40 KG PER MAT.



NOTES:

1. ENTRANCE SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIRED OR REPLACED AS REQUIRED TO PREVENT TRACKING OFFSITE.
2. ENTRANCE SHALL BE REMOVED IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

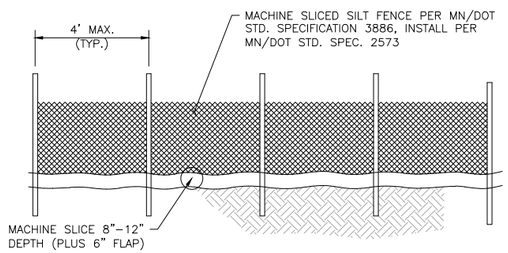
1 – DETAIL: CONSTRUCTION ENTRANCE – RUMBLE STRIP MAT
NOT TO SCALE



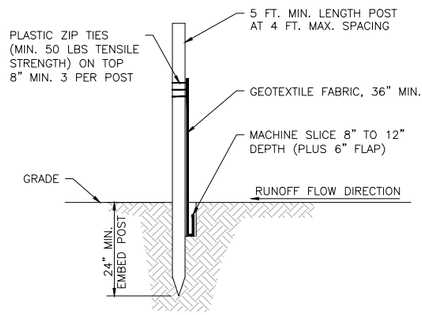
NOTES:

1. INSTALL INLET PROTECTION PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING ANY CATCHBASIN INSTALLATION AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/AROUND FILTER SACK.
3. CLEAN FILTER SACK AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO ALLOW FLOW INTO THE CATCHBASIN AND PREVENT SEDIMENT FROM LEAVING THE DEVICE.
4. REMOVE DEVICE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

3 – DETAIL: INLET PROTECTION – FILTER SACK
NOT TO SCALE



DOWNSTREAM VIEW

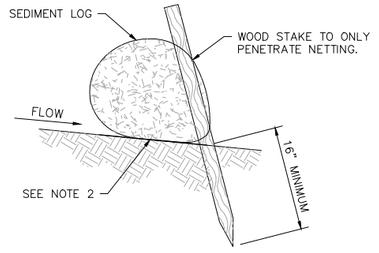


SECTION VIEW

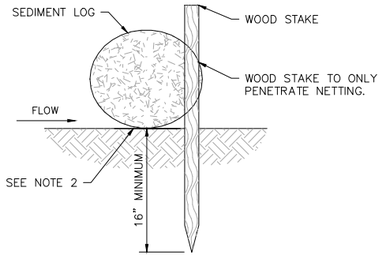
NOTES:

1. INSTALL SILT FENCE PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD.
2. SILT FENCE MATERIALS AND INSTALLATION SHALL MEET THE REQUIREMENTS OF MN/DOT SPECIFICATIONS 2573 AND 3886.
3. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SILT FENCE. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
4. REMOVE ACCUMULATED SEDIMENT WHEN BUILD UP REACHES 1/3 OF FENCE HEIGHT, OR INSTALL A SECOND SILT FENCE DOWNSTREAM OF THE ORIGINAL FENCE AT A SUITABLE DISTANCE.
5. WHEN SPLICES ARE NECESSARY MAKE SPLICE AT POST ACCORDING TO SPLICE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INCH FLAP, THEN DRIVE BOTH POSTS AND BURY THE FLAP AND COMPACT BACKFILL.
6. REMOVE SILT FENCE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

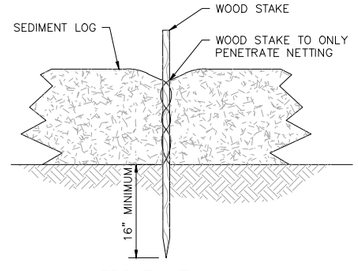
2 – DETAIL: SILT FENCE – MACHINE SLICED
NOT TO SCALE



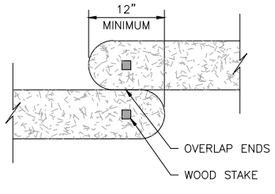
SIDE VIEW ON SLOPE



SIDE VIEW FLAT



FRONT VIEW



TOP VIEW

NOTES:

1. INSTALL SEDIMENT LOG ALONG CONTOURS (CONSTANT ELEVATION).
2. REMOVE ALL SOIL IRREGULARITIES SO EROSION LOG IS IN FULL CONTACT WITH THE GROUND (NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG).
3. REMOVE ACCUMULATED SEDIMENT WHEN REACHING 1/3 OF LOG HEIGHT.
4. MAINTAIN SEDIMENT LOG THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACED AS REQUIRED.

4 – DETAIL: EROSION LOG – STAKING
NOT TO SCALE

PRELIMINARY DESIGN

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PRINTED NAME FRED J. ROZUMALSKI
SIGNATURE
DATE LICENSE # 26559

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Ph: 1–800–632–2277
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4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1–800–632–2277
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Drawn	PEB
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

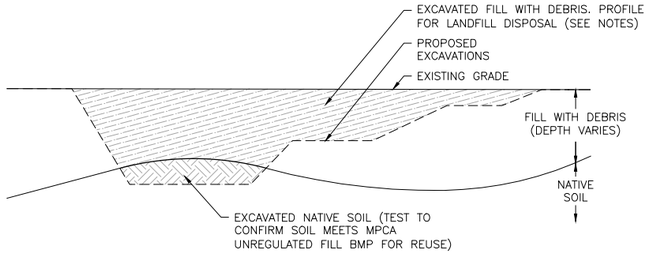
WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

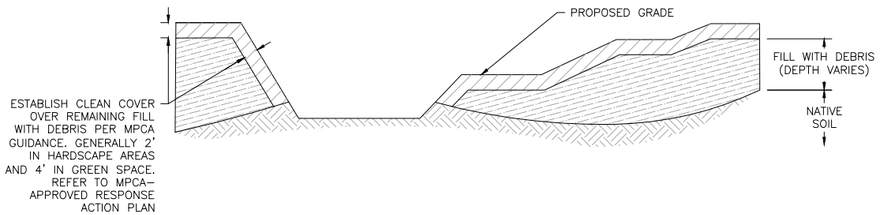
EROSION CONTROL DETAILS

BARR PROJECT No.	23/62–1219.00
CLIENT PROJECT No.	
DWG. No.	G–07
REV. No.	A

DEBRIS FILL EXCAVATION NOTES:

1. OSHA HAZWOPPER TRAINING FOR EARTHWORK CONTRACTOR REQUIRED
2. REFER TO MPCA – APPROVED RESPONSE ACTION PLAN
3. ENVIRONMENTAL FIELD SCREENING MAY IDENTIFY POTENTIAL DEBRIS FREE SOIL IN SOME AREAS. IF ENCOUNTERED, COLLECT ANALYTICAL SAMPLES TO ASSESS IF DEBRIS FREE SOIL CAN BE REUSED UNDER MPCA UNREGULATED FILL BMP.





1 – CONCEPTUAL CROSS SECTIONS
NOT TO SCALE

LEGEND

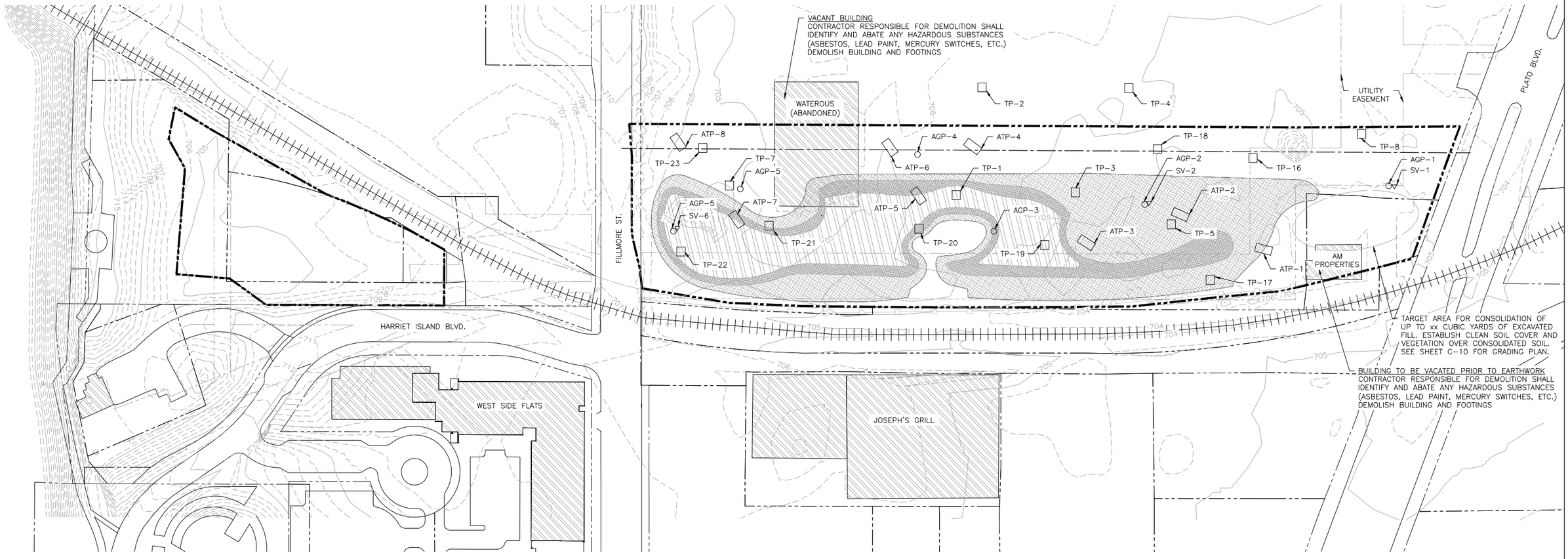
- 700 — EXISTING MAJOR CONTOURS
- 698 — EXISTING MINOR CONTOURS
- RAILROAD TRACKS
- PARCEL BOUNDARY
- CONSTRUCTION LIMITS
- AREA OF 11 FT. DEPTH EXCAVATION
- AREA OF 8 FT. DEPTH EXCAVATION
- AREA OF 4 FT. DEPTH EXCAVATION

SAMPLE LOCATIONS REFERENCED FROM AMERICAN ENGINEERING TESTING, INC. SAMPLING ANALYSIS TECHNICAL REPORT JANUARY 2017:

- APPROXIMATE TEST PIT LOCATION (AET 2016)
- APPROXIMATE VAPOR SAMPLE LOCATION (AET 2016)
- APPROXIMATE GEOPROBE LOCATION (AET 2016)

SAMPLE LOCATIONS REFERENCED FROM WENK ASSOCIATES, INC. RESPONSE ACTION PLAN AND CONSTRUCTION CONTINGENCY PLAN (WENK FILE # 5378–0001 (500) SEPTEMBER 2015:

- APPROXIMATE TEST PIT LOCATION (WENK 2015)



1 – PLAN: SITE REMEDIATION

0 60 120
SCALE IN FEET

NOTES:

1. CONTRACTOR SHALL HAVE UTILITIES LOCATED PRIOR TO BEGINNING WORK, AND IS RESPONSIBLE FOR PROTECTING UTILITIES FROM DAMAGE DURING PLANTING INSTALLATION.
2. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION AND PLANTING OPERATIONS. DO NOT COMPACT SOIL WITH HEAVY EQUIPMENT. ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.

PRELIMINARY DRAFT

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4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1–800–632–2277
Fax: (952) 832–2601
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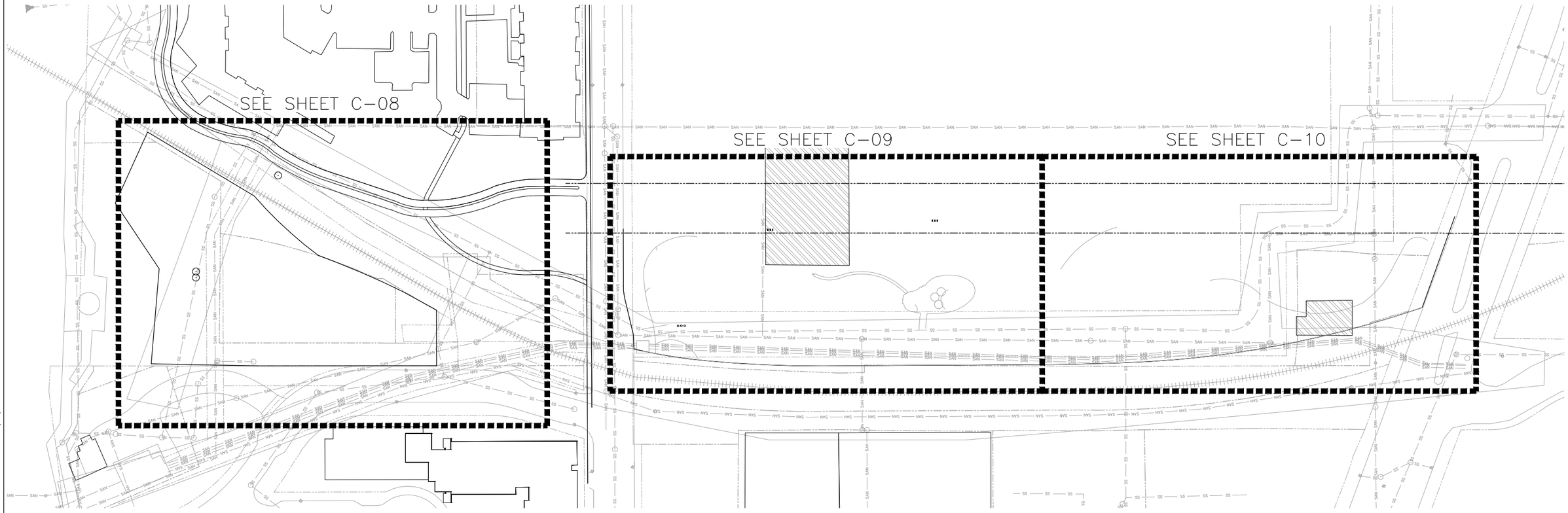
Date	08/11/2017
Drawn	EPF
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

SITE REMEDIATION PLAN

BARR PROJECT No.	
23/62–1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C–01	A



GENERAL NOTES

1. PRIOR TO COMMENCING WORK AT THE SITE, CONTRACTOR SHALL CONTACT GOPHER ONE-CALL (1-800-252-1166) AND HAVE ALL EXISTING UTILITIES, PUBLIC AND PRIVATE, FIELD LOCATED AND MARKED. EXISTING UTILITIES SHALL BE PROTECTED UNLESS OTHERWISE INDICATED. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED AT EXPENSE OF CONTRACTOR.
2. IF SITE CONDITIONS OR UTILITIES DIFFER SIGNIFICANTLY FROM THAT SHOWN, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
3. CONTRACTOR SHALL MINIMIZE DISTURBANCE OF EXISTING VEGETATION WHERE POSSIBLE, WITH EXCEPTION OF AREAS OF VEGETATION REMOVAL AS INDICATED ON THE PLAN.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE OF TREES NOT MARKED FOR REMOVAL, INCLUDING MINIMIZING DISTURBANCE OF SOILS WITHIN THE TREE DRIPLINE. CONTRACTOR SHALL NOT STOCKPILE MATERIALS OR DRIVE VEHICLES/EQUIPMENT WITHIN TREE DRIPLINE(S) UNLESS APPROVED BY ENGINEER.
5. PROTECT ALL STRUCTURES, UTILITIES AND TREES WHICH ARE NOT BEING REMOVED.
6. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED, MAINTAINED AND MONITORED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
7. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY AND ALL DAMAGE RESULTING FROM THE CONTRACTOR'S WORK.
8. CONTRACTOR SHALL REPAIR OR REMOVE ITEMS THAT ATE DAMAGED. REPAIR AND INSTALLATION OF DAMAGED ITEMS WILL BE PERFORMED TO THE CONDITION AT LEAST EQUAL TO THAT OF WHICH EXISTED PRIOR TO START OF WORK AT NO ADDITIONAL COST TO OWNER.
9. ALL DEBRIS SHALL BE RECYCLED PER THE SPECIFICATIONS OR DISPOSED OF AT AN OFF SITE LOCATION WITHIN ALL LOCAL, STATE AND FEDERAL GUIDELINES, LAWS AND REGULATIONS.
10. NO CONCRETE, RUBBLE, OR DEBRIS OF ANY KIND SHALL BE BACKFILLED ONSITE.
11. CONTRACTOR SHALL ESTABLISH AND MAINTAIN TRAFFIC AND PEDESTRIAN SAFETY CONTROL MEASURES. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE SITE PERIMETER SAFE FOR PEDESTRIANS, CHILDREN, PETS AND OTHER PASSER-BY FOR ALL DAYS AND NIGHTS DURING THE DURATION OF THE WORK, FOR BOTH WORKING AND NON-WORKING HOURS.
14. CONTRACTOR SHALL COORDINATE ALL WORK AND SITE ACCESS WITH ROADWAY WEIGHT RESTRICTION REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL TEMPORARY ACESS PERMITS IF REQUIRED.

1 PLAN: DEMOLITION DRAWING REFERENCE

0 60 120
SCALE IN FEET

PRELIMINARY DESIGN

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PRINTED NAME _____

SIGNATURE FRED J. ROZUMALSKI

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Suite 200
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Ph: 1-800-632-2277
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Approved	FJR

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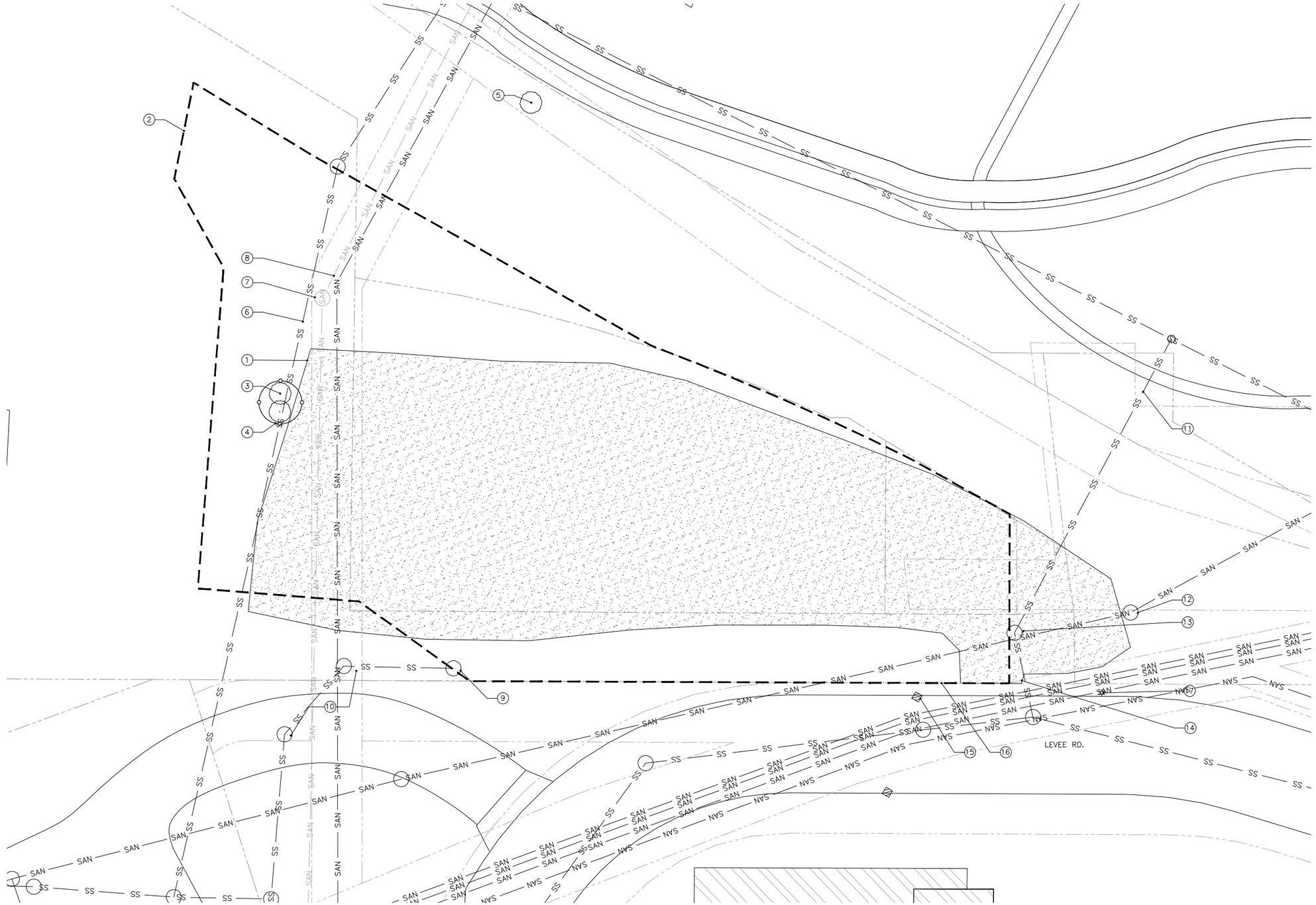
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

DEMOLITION PLAN
DRAWING REFERENCE

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-02
REV. No. A



SITE DEMOLITION NOTES

1. EXISTING GRAVEL WITH IN CONSTRUCTION LIMITS TO BE REMOVED AND DISPOSED OF.
2. EXISTING GROUNDCOVER WITH IN CONSTRUCTION LIMITS TO BE STRIPPED AND DISPOSED OF.
3. EXISTING TREE TO BE PROTECTED IN PLACE. DO NOT GO WITH IN TREE DRIP LINE (TYP).
4. EXISTING TREE PROPOSED PROTECTION FENCING. (TYP) SEE 2/-
5. EXISTING TREE TO BE REMOVED. CLEAR AND GRUB (TYP).
6. ACTIVE STORMWATER PIPE. DO NOT DISTURB. PROTECT IN PLACE.
7. ABANDONED MANHOLE TO BE REMOVED AND DISPOSED OF OFF SITE.
8. EXISTING SANITARY PER RECORD. REMOVE LINE AND CUT AND PLUG AT EDGE OF GRADING LIMITS. SEE SHEET C-XX FOR GRADING EXTENTS.
9. EXISTING STORMWATER MANHOLE PER RECORD. DO NOT DISTURB. PROTECT IN PLACE. VERIFY LOCATION ON SITE PRIOR TO EARTHWORK (TYP).
10. EXISTING MANHOLE PER RECORD. DO NOT DISTURB. PROTECT IN PLACE. VERIFY LOCATION ON SITE PRIOR TO EARTHWORK (TYP).
11. EXISTING STORMWATER PIPE PER RECORDS. DO NOT DISTURB. PROTECT IN PLACE.
12. EXISTING SANITARY MANHOLE PER RECORD. PROTECT IN PLACE. VERIFY LOCATION ON SITE PRIOR TO EARTHWORK (TYP).
13. EXISTING SIGN, DISCONNECT POWER AND SALVAGE. COORDINATE SALVAGE OF SIGN WITH OWNER.
14. CONCRETE APRON AND BASE TO BE REMOVED AND RECYCLED.
15. EXISTING CATCH BASIN TO PROTECTED IN PLACE. SEE EROSION CONTROL NOTES ON SHEET C-XX.
16. EXISTING CURB AND ROAD. DO NOT DISTURB. PROTECT IN PLACE (TYP).
17. EXISTING STREET LIGHT. DO NOT DISTURB. PROTECT IN PLACE (TYP).

1/- PLAN: REMOVALS AND DEMOLITION

0 30 60
SCALE IN FEET

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SAINT PAUL, MINNESOTA

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GRADING PLAN
LEVEE AREA

BARR PROJECT No. 23/62-1219.00
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DWG. No. C-02
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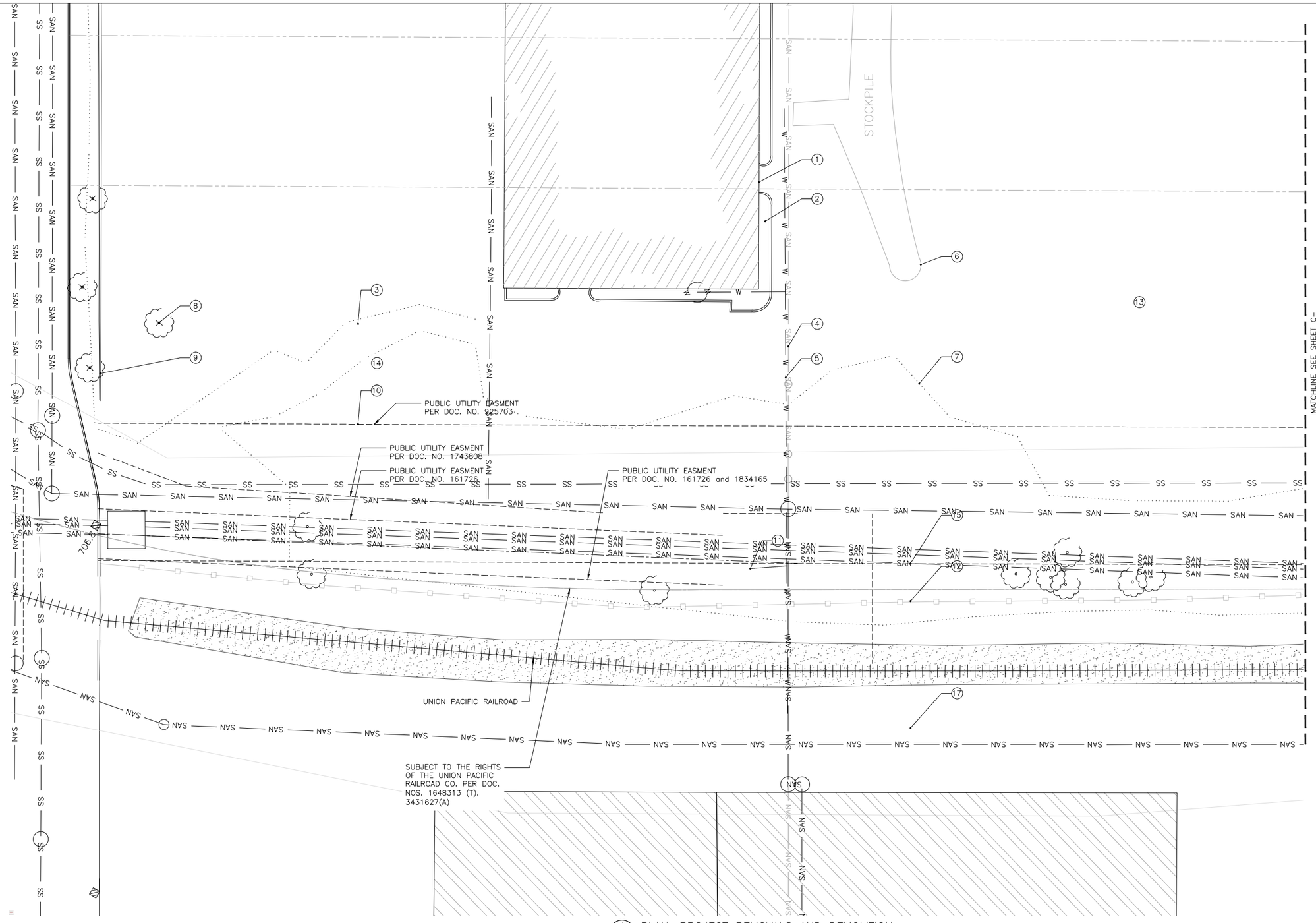

SITE DEMOLITION REFERENCE NOTES

1. EXISTING BUILDING TO BE DEMOLISHD BY OTHERS UNDER OTHER CONTRACT. COORDINATE WITH OWNER FOR BUILDING DEMOLITION SCHEDULE.
2. EXISTING CONCRETE, PAVEMENT, CURB, AND BASE TO BE REMOVED AND REPLACED.
3. EXISTING PAVEMENT AND BASE TO BE REMOVED AND RECYCLED. REMENANT PAVEMENT FOUND IS TO BE DISPOSED OF (TYP).
4. ABANDONED SANITARY LINE. REMOVE AND DISPOSE OF ALL PIPE AND FITTINGS WITH IN CONSTRUCTION LIMITS.
5. EXISTING WATER LINE (POSSIBLY ABANDONED) TO BE CUT AND PLUGGED AT EDGE OF CONSTRUCTION LIMITS. CORDINATE WITH OWNER PRIOR TO REMOVAL.
6. MATERIALS STOCKPILE SHALL BE REMOVED AND DISPOSED OF OFF SITE (TYP). SALVAGE GRANITE STONE AND CORDINATE MATERIALS STOCKPILE WITH OWNER.
7. EDGE OF EXISTING TREE LINE. CLEAR AND GRUB ALL TREES NOT MARKED (FOR KEEPING) BY LANDSCAPE ARCHITECT (TYP).
8. EXISTING TREE TO BE REMOVED. CLEAR AND GRUB (TYP).
9. EXISTING CONCRETE WALL (APPROX. 1–2' TALL) AND BASE TO BE REMOVED AND RECYCLED.
10. EXISTING PUBLIC UTILITIES TO REMAIN. DO NOT DISTURB.
11. EXISTING HYDRANT TO BE REMOVED.
12. EXISTING 6' CHAIN LINK FENCE TO BE REMOVED AND RECYCLE.
13. ALL EXISTING WOODY MATERIAL WITH IN CONSTRUCTION LIMITS CLEARED AND GRUBBED, AND DISPOSED OF OFF SITE.
14. ANY TRASH ON WITH IN CONSTRUCTION LIMITS SHALL BE REMOVED AND DISPOSED OF.
15. EXISTING RAILROAD RIGHT OF WAY. DO NOT DISTURB VEGETATION WITHIN LIMITS.
16. EXISTING WATER LINE PER RECORD. REMOVE LINE AND CUT AND PLUG AT EDGE OF CONSTRUCTION LIMITS.
17. EXISTING 4'CHAIN LINK FENCE TO REMAIN. DO NOT DAMAGE.

1 – PLAN: PROJECT REMOVALS AND DEMOLITION

0 20 40
SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-04_DEMOLITION PLAN – GRENNWAY NORTH.DWG PLOT SCALE: 1:2 PLOT DATE: 8/14/2017 2:50 PM

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Designed	BARR
Approved	FJR

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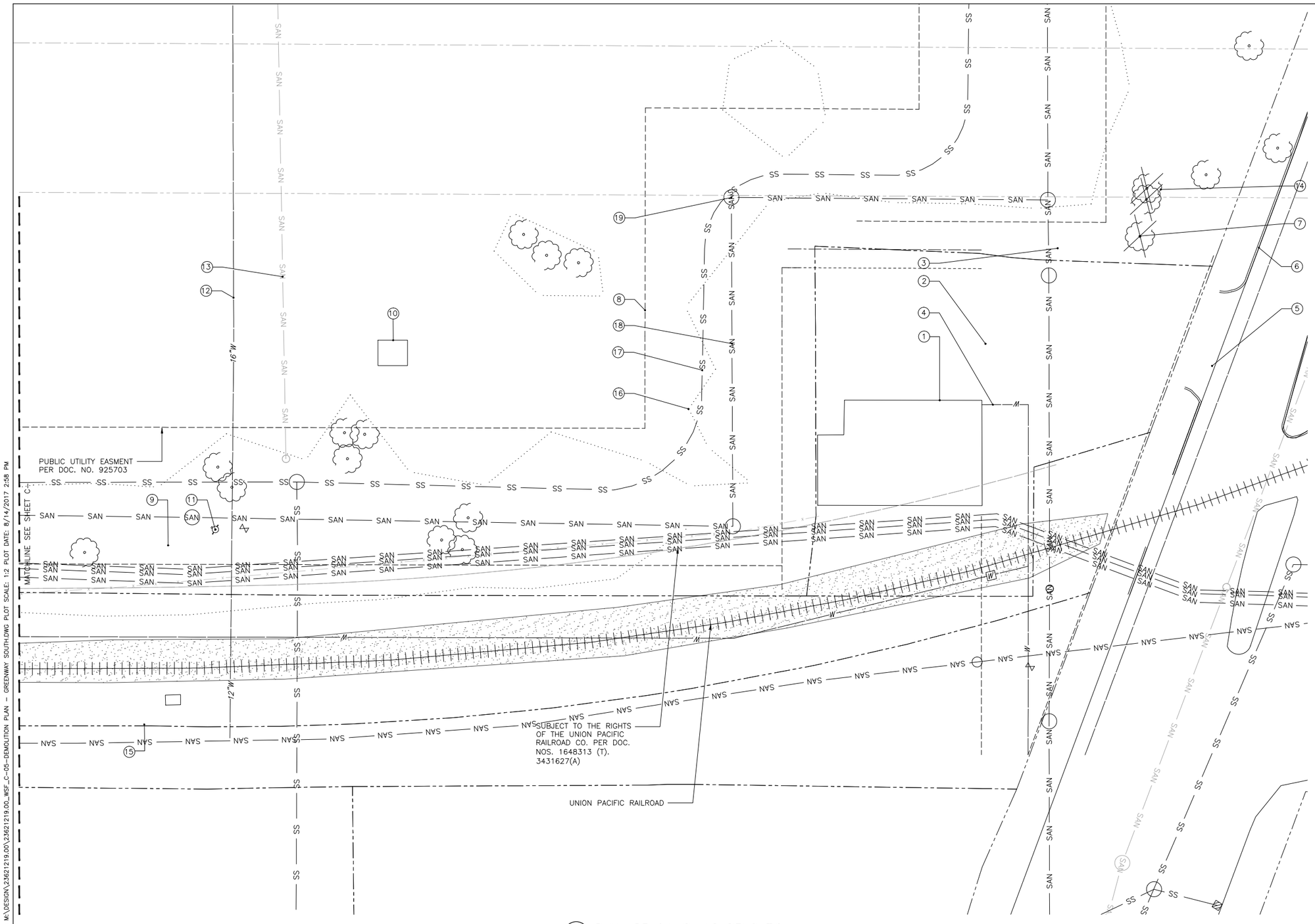
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

DEMOLITION PLAN
GREENWAY NORTH

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-04
REV. No. A



1 PLAN: REMOVALS AND DEMOLITION

0 20 40

SCALE IN FEET

SITE DEMOLITION NOTES

1. EXISTING BUILDING TO BE DEMOLISHD BY OTHERS UNDER OTHER CONTRACT. COORDINATE WITH OWNER FOR BUILDING DEMOLITION SCHEDULE.
2. EXISTING CONCRETE, PAVEMENT, CURB, AND BASE TO BE REMOVED AND REPLACED.
3. EXISTING 4' FENCE AND FOOTINGS TO BE REMOVED AND RECYCLED
4. EXISTING WATER LINE PER RECORD TO BE REMOVED. CUT AND PLUG LINE AT EDGE OF CONSTRUCTION LIMITS. COORDINATE WITH OWNER PRIOR TO REMOVAL.
5. CONCRETE APRON, SIDEWALK, AND AGGREGATE BASE TO BE REMOVED AND RECYCLED.
6. EXISTING CURB AND ROAD TO REMAIN. DO NOT DAMAGE
7. EXISTING TREE TO BE REMOVED. CLEAR AND GRUB. (TYP).
8. EXISTING PUBLIC UTILITY EASEMENT. PROTECT UTILITIES TO REMAIN. DO NOT DISTURB.
9. EXISTING 6' FENCE AND FOOTINGS TO BE REMOVED AND RECYCLED.
10. EXISTING CONCRETE SLAB TO BE REMOVED AND RECYCLED. LOCATE AND VERIFY EXTENTS OF SLAB IN FIELD (APPROX. 10'X10').
11. EXISTING HYDRANT TO BE REMOVED.
12. EXISTING WATER LINE PER RECCORD TO BE REMOVED. CUT AND PLUG LINE AT EDGE OF CONSTRUCTION LIMITS.
13. EXISTING ABANDONED SANITARY PIPE TO BE REMOVED AND DISPOSED OF. CUT AND PLUG PIPE AT CONSTRUCTION LIMITS.
14. CONCRETE WALL AND BASE TO BE REMOVED WITH IN CONSTRUCTION LIMITS. REMAINING WALL TO BE REMOVED BY OTHERS, UNDER OTHER CONTRACT.
15. EXISTING 4' FENCE TO REMAIN. DO NOT DAMAGE
16. EDGE OF EXISTING TREE LINE. CLEAR AND GRUB ALL TREES NOT MARKED FOR KEEPING BY LANDSCAPE ARCHITECT (TYP).
17. EXISTING STORMWATER PIPE PER RECORD. DO NOT DISTURB.
18. EXISTING SANITARY SEWER PER RECORD. DO NOT DISTURB.
19. EXISTING MANHOLE (TYP) PER RECORD. DO NOT DISTURB.

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Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

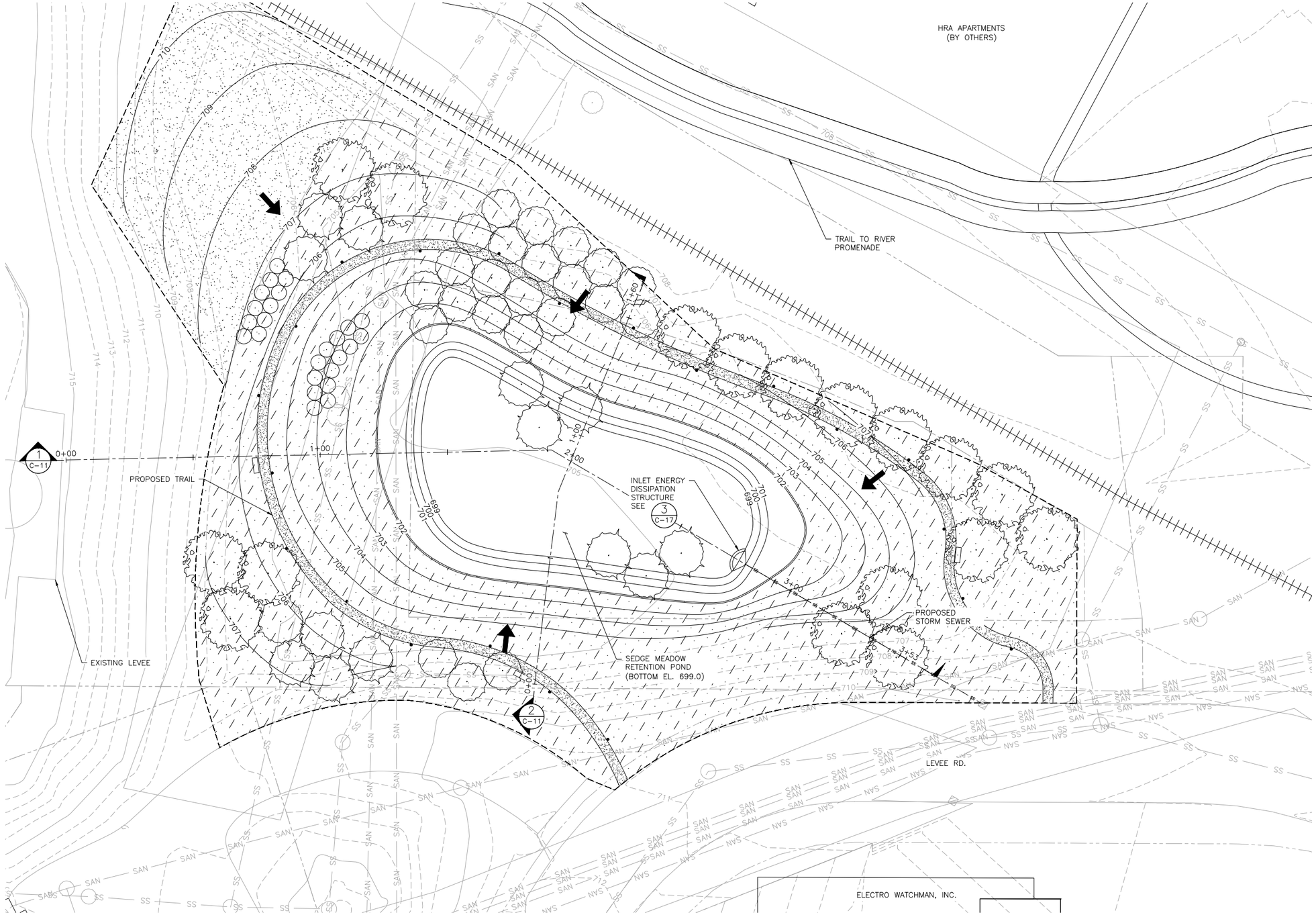
Scale	AS SHOWN
Date	08/11/2017
Drawn	EPF
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

DEMOLITION PLAN
GREENWAY SOUTH

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C-05	A



LEGEND

- 700 — EXISTING MAJOR CONTOURS
- 698 — EXISTING MINOR CONTOURS
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- EXISTING CATCHBASIN
- EXISTING MANHOLE
- RAILROAD TRACKS
- EXISTING PAVED AREA
- PROPERTY LINE
- CONSTRUCTION LIMITS
- 700 — PROPOSED MAJOR CONTOURS
- 698 — PROPOSED MINOR CONTOURS
- ASPHALT PAVEMENT
- DRAINAGE FLOW ARROW

NOTES

1. TOPOGRAPHIC SURVEY CONDUCTED BY SUNDE LAND SURVEYING, LLC IN APRIL 2015 IN RAMSEY COUNTY FEET PROJECTION.
2. PARCELS AND STORM SEWER LINE WORK PROVIDED BY CITY OF SAINT PAUL.
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5. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF WORK.
6. ALL GROUND DISTURBANCE SHALL BE STABILIZED AND RESTORED WITH TOPSOIL AND SEED WITH EROSION CONTROL BLANKET.

1 GRADING PLAN: LEVEE AREA
SCALE IN FEET 0 20 40

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME FRED J. ROZUMALSKI
SIGNATURE
DATE 08/11/2017 LICENSE # 26559

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

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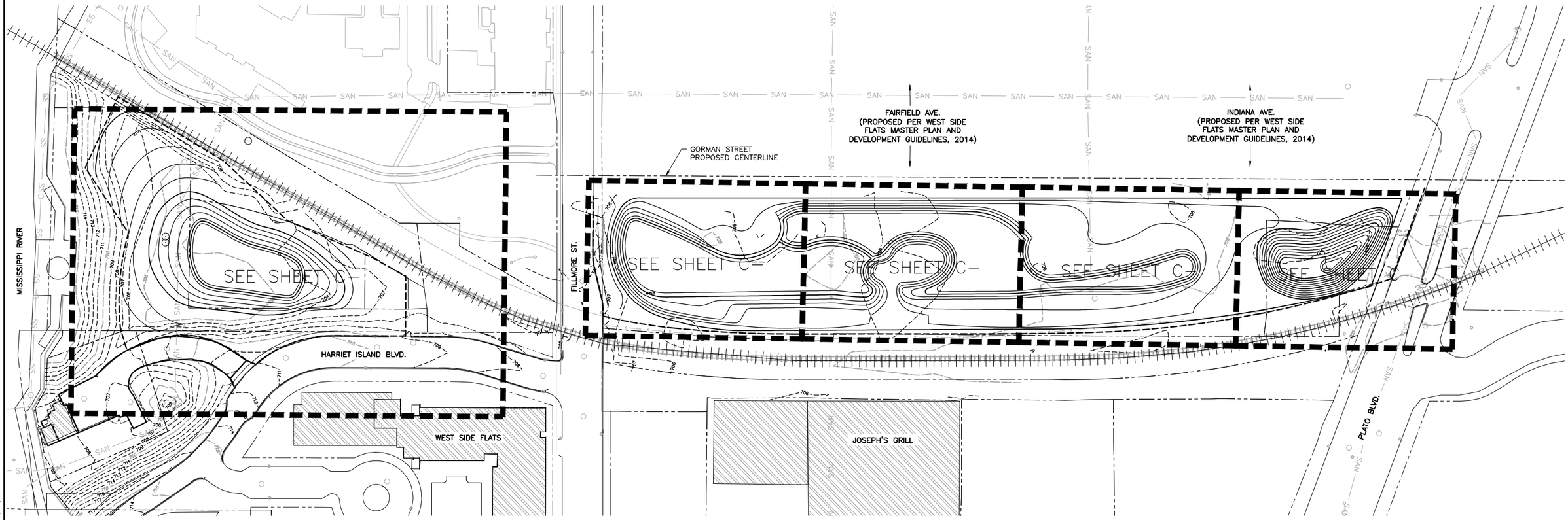
Scale	AS SHOWN
Date	08/11/2017
Drawn	EPF
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

GRADING PLAN
LEVEE AREA

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C-06	A



NOTES:

1. CONTRACTOR SHALL HAVE UTILITIES LOCATED PRIOR TO BEGINNING WORK, AND IS RESPONSIBLE FOR PROTECTING UTILITIES FROM DAMAGE DURING PLANTING INSTALLATION.
2. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION AND PLANTING OPERATIONS. DO NOT COMPACT SOIL WITH HEAVY EQUIPMENT. ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
3. TOPOGRAPHIC SURVEY CONDUCTED BY SUNDE LAND SURVEYING, LLC IN APRIL 2015 IN RAMSEY COUNTY FEET PROJECTION.
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8. ALL GROUND DISTURBANCE SHALL BE STABILIZED AND RESTORED WITH TOPSOIL AND SEED WITH EROSION CONTROL BLANKET.

1 / – PLAN: SITE GRADING DRAWING REFERENCE

0 60 120
SCALE IN FEET

LEGEND

- 700 — EXISTING MAJOR CONTOURS
- 698 — EXISTING MINOR CONTOURS
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- EXISTING CATCHBASIN
- EXISTING MANHOLE
- RAILROAD TRACKS
- PROPERTY LINE
- CONSTRUCTION LIMITS
- 700 — PROPOSED MAJOR CONTOURS
- 698 — PROPOSED MINOR CONTOURS

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

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CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

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www.barr.com

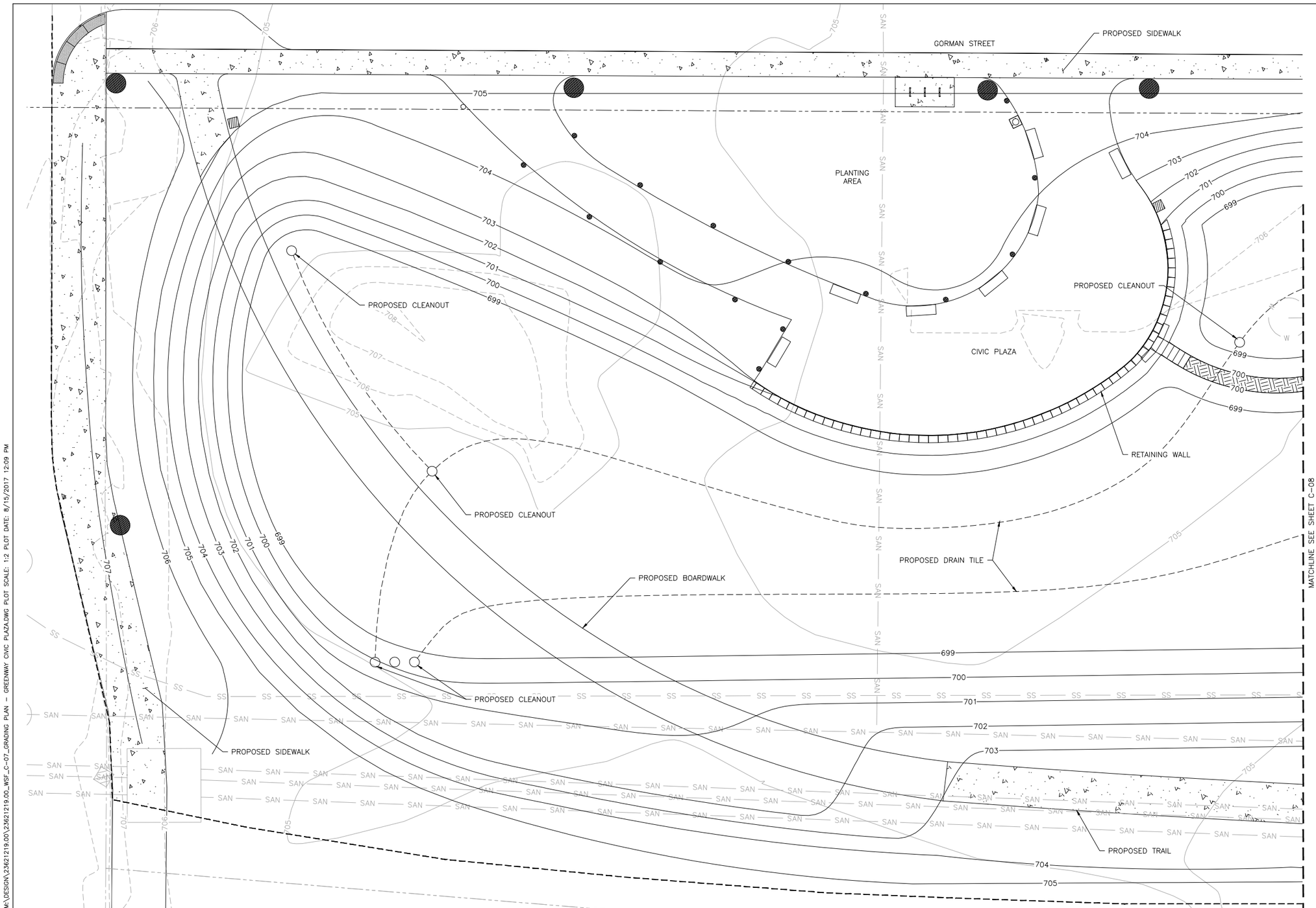
Scale	AS SHOWN
Date	8/14/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

SITE GRADING DRAWING REFERENCE
DRAWING REFERENCE

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-06
REV. No. A



LEGEND

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- SAN — EXISTING SANITARY SEWER
- EXISTING CATCHBASIN
- EXISTING MANHOLE
- RAILROAD TRACKS
- EXISTING PAVED AREA
- PROPERTY LINE
- CONSTRUCTION LIMITS
- 700 — PROPOSED MAJOR CONTOURS
- 698 — PROPOSED MINOR CONTOURS
- ASPHALT PAVEMENT
- DRAINAGE FLOW ARROW

NOTES

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1 GRADING PLAN: GREENWAY CIVIC PLAZA

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

CLIENT 08/11/17
BID
CONSTRUCTION

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Scale	AS SHOWN
Date	08/11/2017
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Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

GRADING PLAN
GREENWAY CIVIC PLAZA

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-13
REV. No. A

PROPOSED 72" MANHOLE

PROPOSED 72" MANHOLE

GORMAN STREET

PROPOSED SIDEWALK

PROPOSED STORM SEWER

PROPOSED TRAIL

INLET ENERGY DISSIPATION STRUCTURE SEE 3 C-17

PROPOSED DRAIN TILE

INLET ENERGY DISSIPATION STRUCTURE SEE 3 C-17

PROPOSED ROCK ACCESS TRAIL

GREENWAY ISLAND

PROPOSED DRAIN TILE

PROPOSED CLEANOUT

PROPOSED CLEANOUT

PROPOSED TRAIL

MATCHLINE SEE SHEET C-07

MATCHLINE SEE SHEET C-09

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING CATCHBASIN
- EXISTING MANHOLE
- RAILROAD TRACKS
- EXISTING PAVED AREA
- PROPERTY LINE
- CONSTRUCTION LIMITS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- ASPHALT PAVEMENT
- DRAINAGE FLOW ARROW

NOTES

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1 GRADING PLAN: GREENWAY STORMWATER PLAZA

1" = 20' SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-08_GRADING PLAN - GREENWAY STORMWATER PLAZA.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 12:00 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

BARR

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www.barr.com

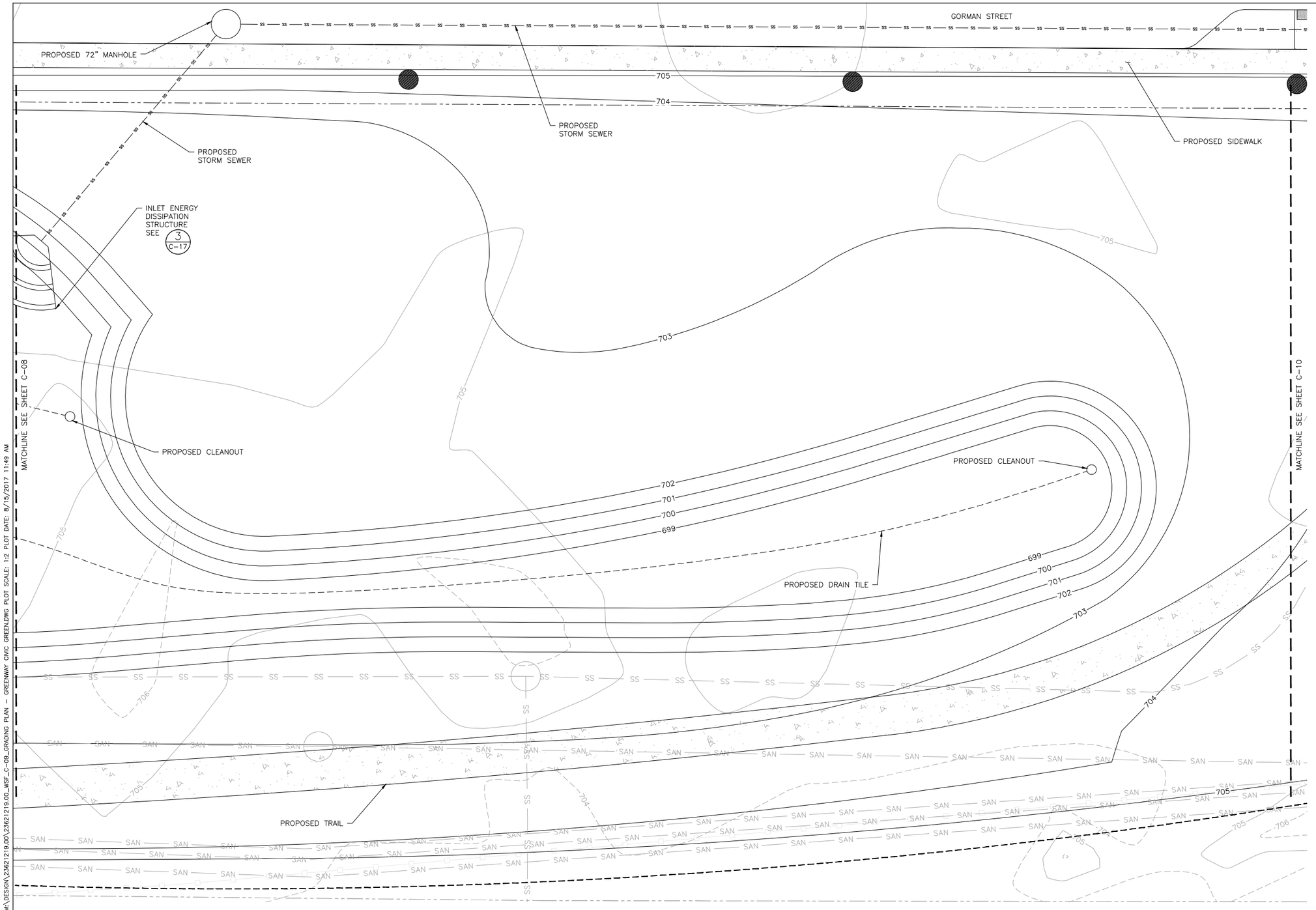
Scale	AS SHOWN
Date	08/11/2017
Drawn	EPF
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

GRADING PLAN
GREENWAY STORMWATER PLAZA

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-08
REV. No. A



LEGEND

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- 698 — EXISTING MINOR CONTOURS
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- EXISTING CATCHBASIN
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- EXISTING PAVED AREA
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- 700 — PROPOSED MAJOR CONTOURS
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1 — GRADING PLAN: GREENWAY CIVIC GREEN

0 10 20

SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-09_GRADING PLAN - GREENWAY CIVIC GREEN.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 11:49 AM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

RELEASED TO/FOR

DATE RELEASED

BARR
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Scale	AS SHOWN
Date	08/11/2017
Drawn	EPF
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

GRADING PLAN
GREENWAY CIVIC GREEN

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-09
REV. No. A

PROPOSED 72" MANHOLE

PROPOSED STORM SEWER

PROPOSED SIDEWALK

GORMAN STREET

PROPOSED TRAIL

705

706

707

708

709

710

711

712

713

714

715

716

717

704

ELEVATED LOOKOUT

ELEVATED PICNIC AREA

PROPOSED SIDEWALK

PLATO BLVD.

EXISTING RAILROAD

MATCHLINE SEE SHEET C-09

LEGEND

- 700 — EXISTING MAJOR CONTOURS
- 698 — EXISTING MINOR CONTOURS
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- EXISTING CATCHBASIN
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- EXISTING PAVED AREA
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- ASPHALT PAVEMENT
- DRAINAGE FLOW ARROW

NOTES

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1 GRADING PLAN: GREENWAY CIVIC GREEN

0 10 20

SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Eric P. Fitzgerald FILE: W:\DESIGN\23621219.00\23621219.00_WSF_C-10_GRADING PLAN - GREENWAY ELEVATED LOOKOUT.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 12:16 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

	08/11/17
CLIENT	
BID	
CONSTRUCTION	

RELEASED TO/FOR

A	B	C	0	1	2	3
DATE RELEASED						

BARR

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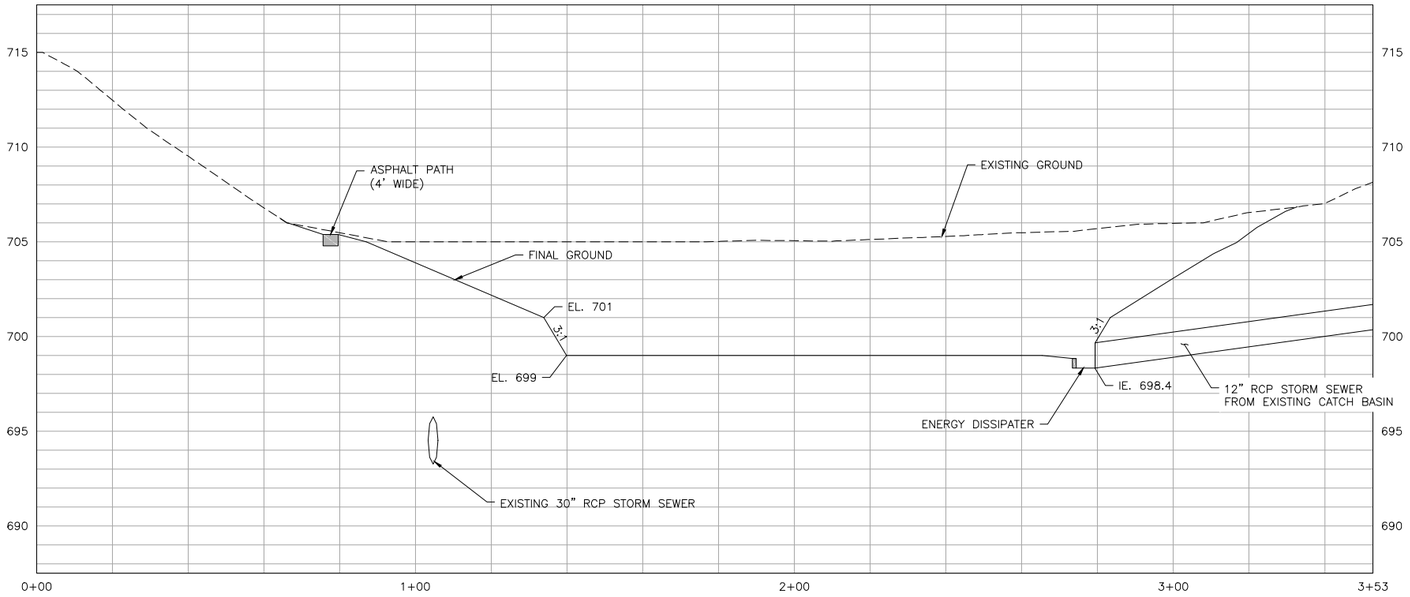
Scale	AS SHOWN
Date	08/11/2017
Drawn	EPF
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

GRADING PLAN
GREENWAY ELEVATED LOOKOUT

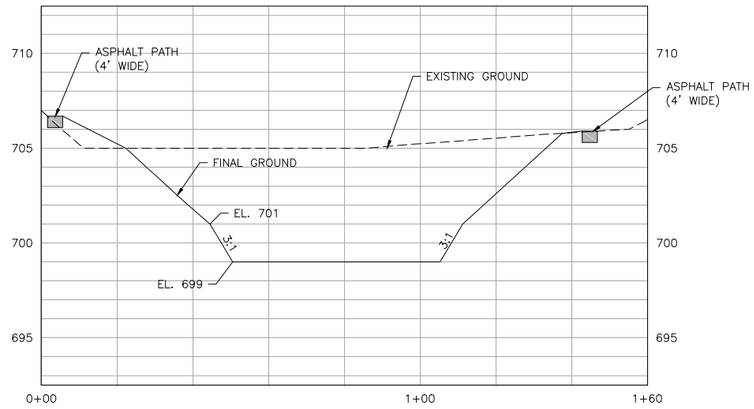
BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C-10	A



1 – SECTION: LEVEE RETENTION POND

0 20 40 HORIZONTAL SCALE IN FEET

0 5 10 VERTICAL SCALE IN FEET



2 – SECTION: LEVEE RETENTION POND

0 20 40 HORIZONTAL SCALE IN FEET

0 5 10 VERTICAL SCALE IN FEET

PRELIMINARY DRAFT

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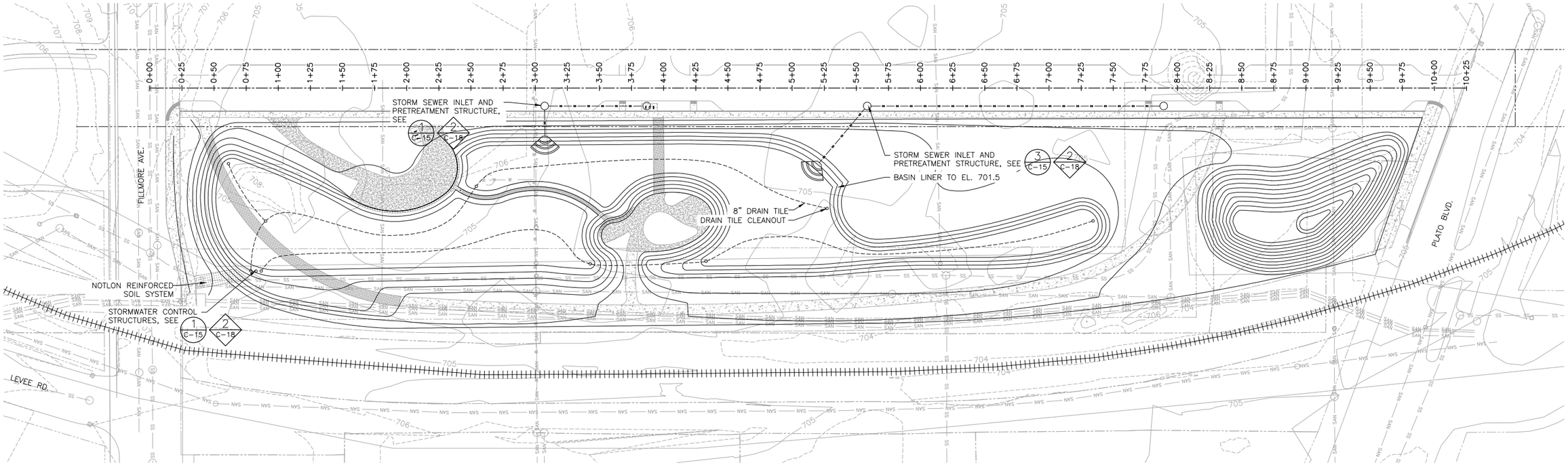
CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

LEVEE AREA SECTIONS

BARR PROJECT No.	23/62-1219.00
CLIENT PROJECT No.	
DWG. No.	C-11
REV. No.	A



1 – PLAN: GREENWAY BASIN SECTION REFERENCE

0 40 80
SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Brendan H. Dougherty FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-12_GRADING SECTIONS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/17/2017 12:26 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	ISSUED FOR REVIEW

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CONSTRUCTION								
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	DATE RELEASED							

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Scale	AS SHOWN
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Designed	BARR
Approved	FJR

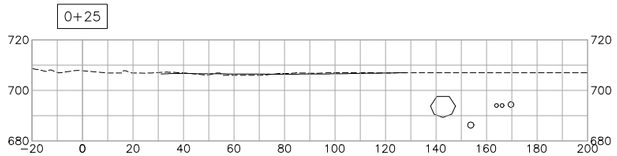
CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

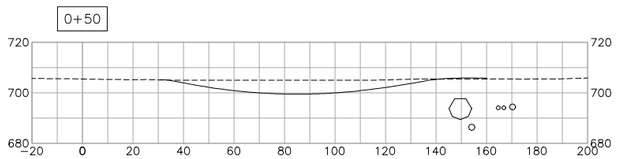
WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

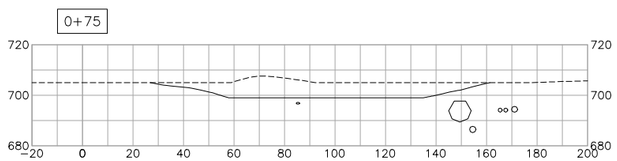
GREENWAY BASIN
SECTION REFERENCE

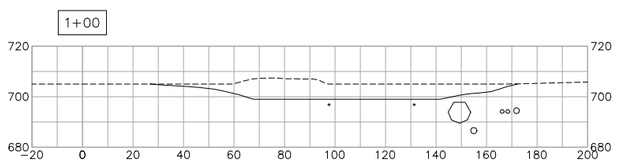
BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.

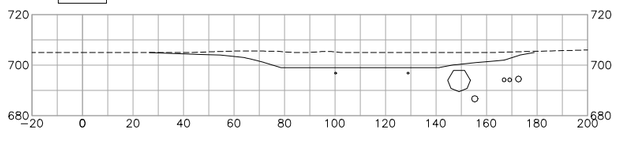
DWG. No. C-12
REV. No. A

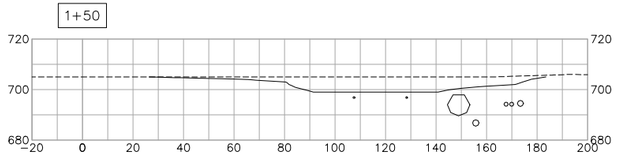


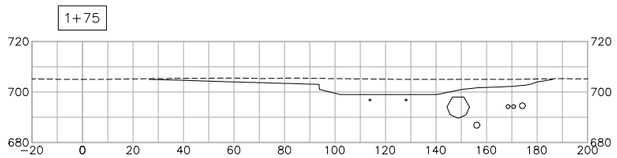


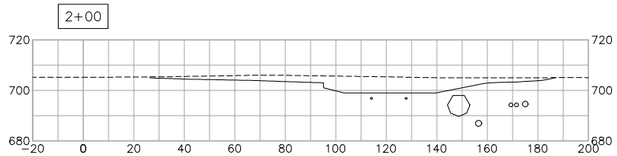


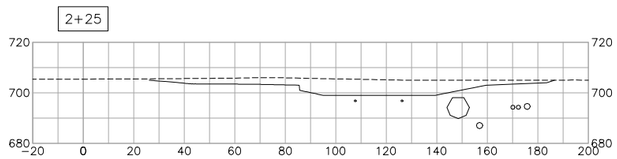


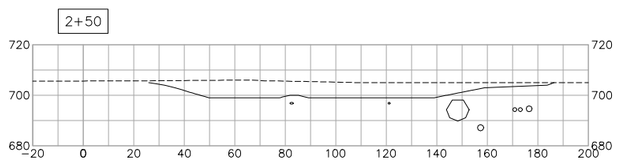


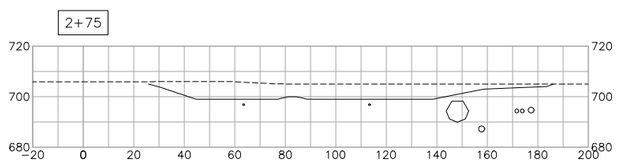


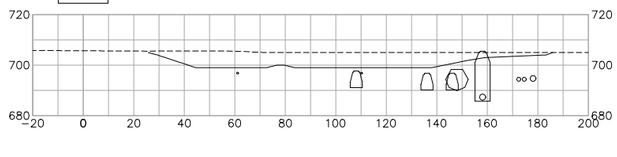


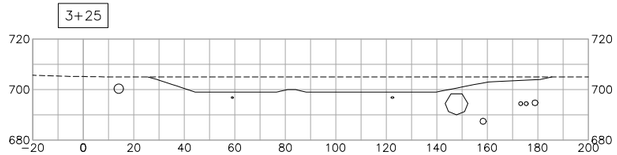


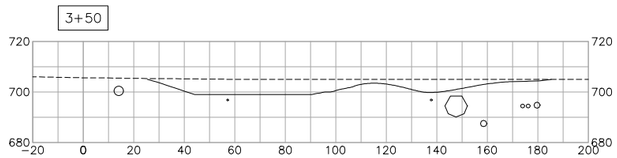


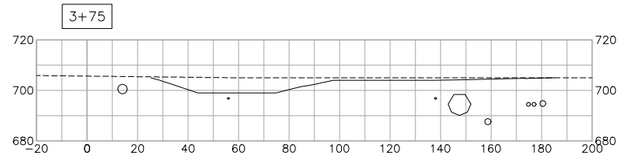


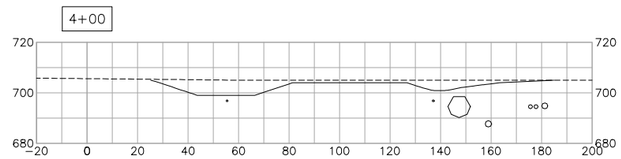


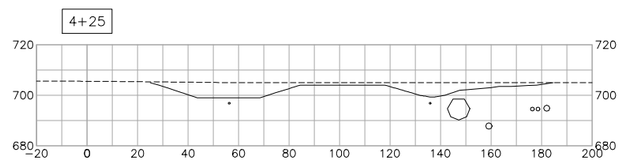


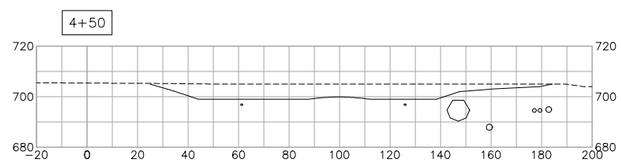


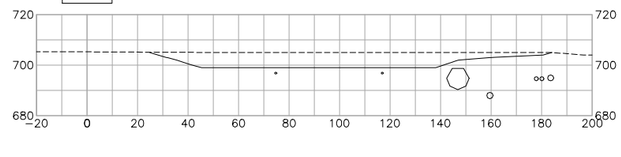


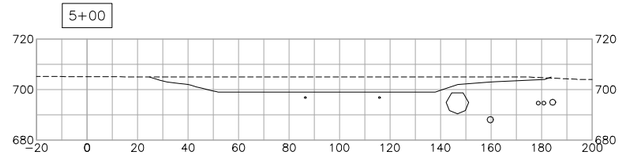


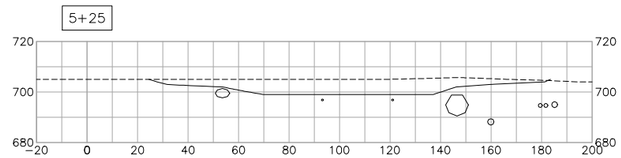












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SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-12_GRADING SECTIONS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 12:33 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	ISSUED FOR REVIEW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

		A	B	C	0	1	2	3
CLIENT	08/11/17							
BID								
CONSTRUCTION								
RELEASED TO/FOR	DATE RELEASED							

BARR

Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
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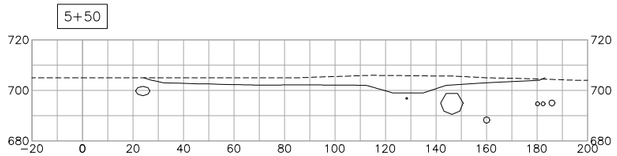
Scale	AS SHOWN
Date	08/11/2017
Drawn	PEB
Checked	FJR
Designed	BARR
Approved	FJR

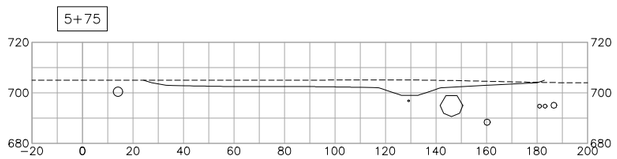
CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

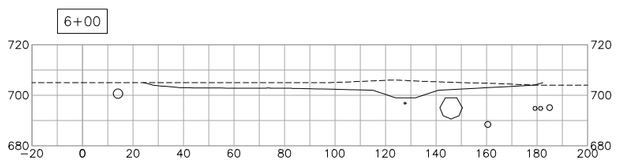
WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

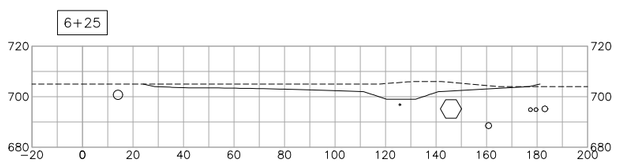
GREENWAY BASIN
SECTIONS

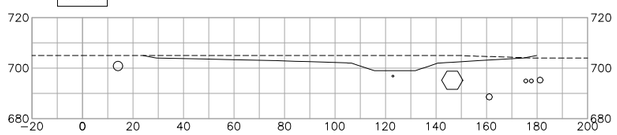
BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-13
REV. No. A

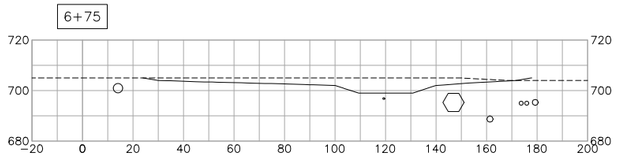


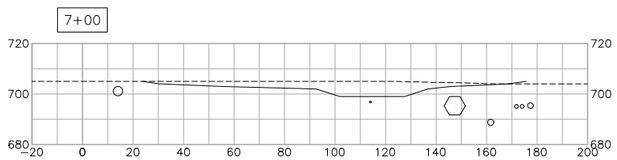


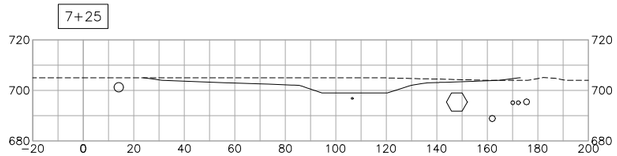


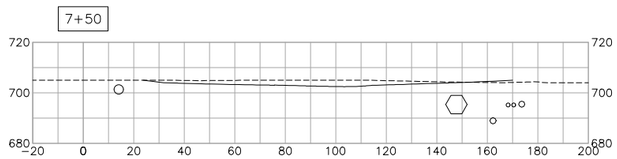


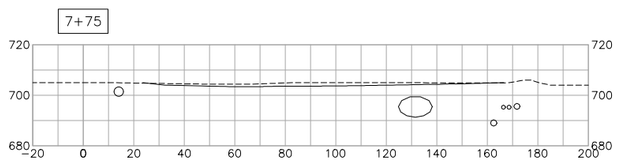


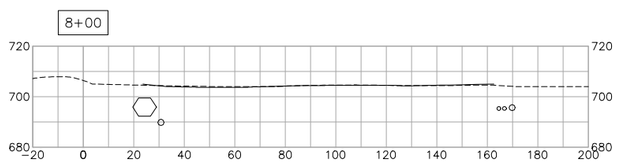


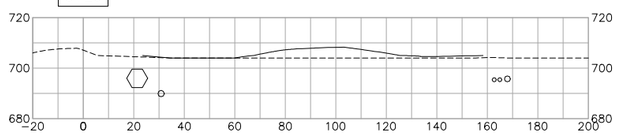


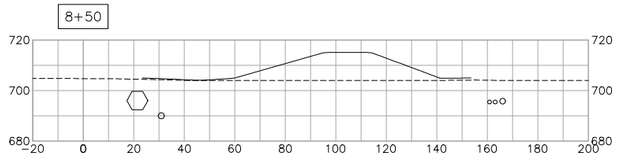


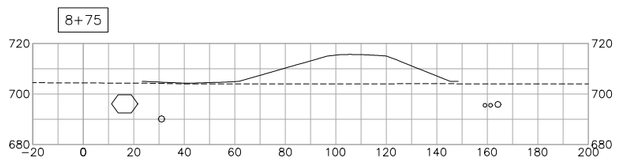


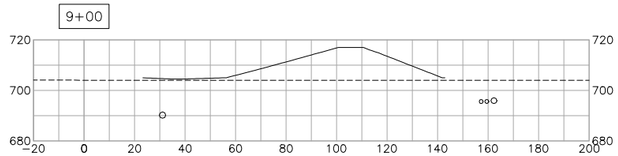


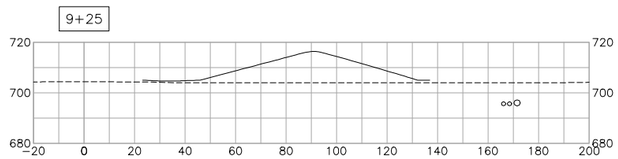


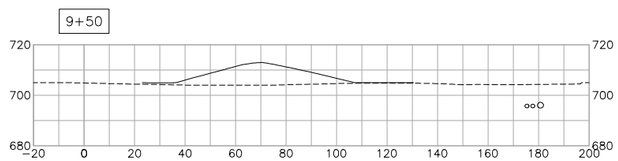


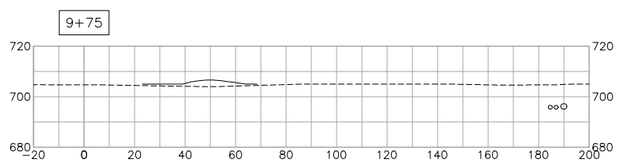


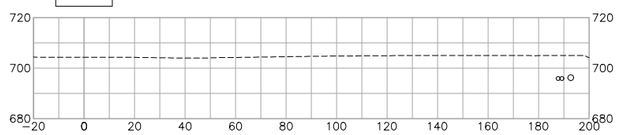












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PRELIMINARY DRAFT

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-12_GRADING SECTIONS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 12:33 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	ISSUED FOR REVIEW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

		A	B	C	0	1	2	3
CLIENT	08/11/17							
BID								
CONSTRUCTION								
RELEASED TO/FOR	DATE RELEASED							

BARR
Corporate Headquarters:
Minneapolis, Minnesota
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4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
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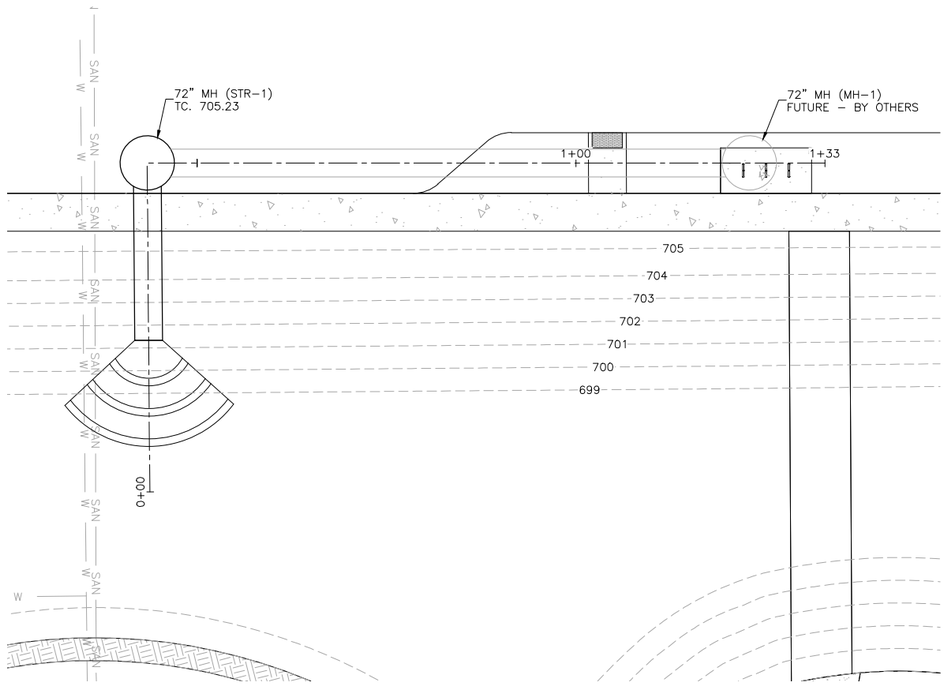
Scale	AS SHOWN
Date	08/11/2017
Drawn	PEB
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

GREENWAY BASIN
SECTIONS

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-14
REV. No. A



1 PLAN: STORM SEWER INLET

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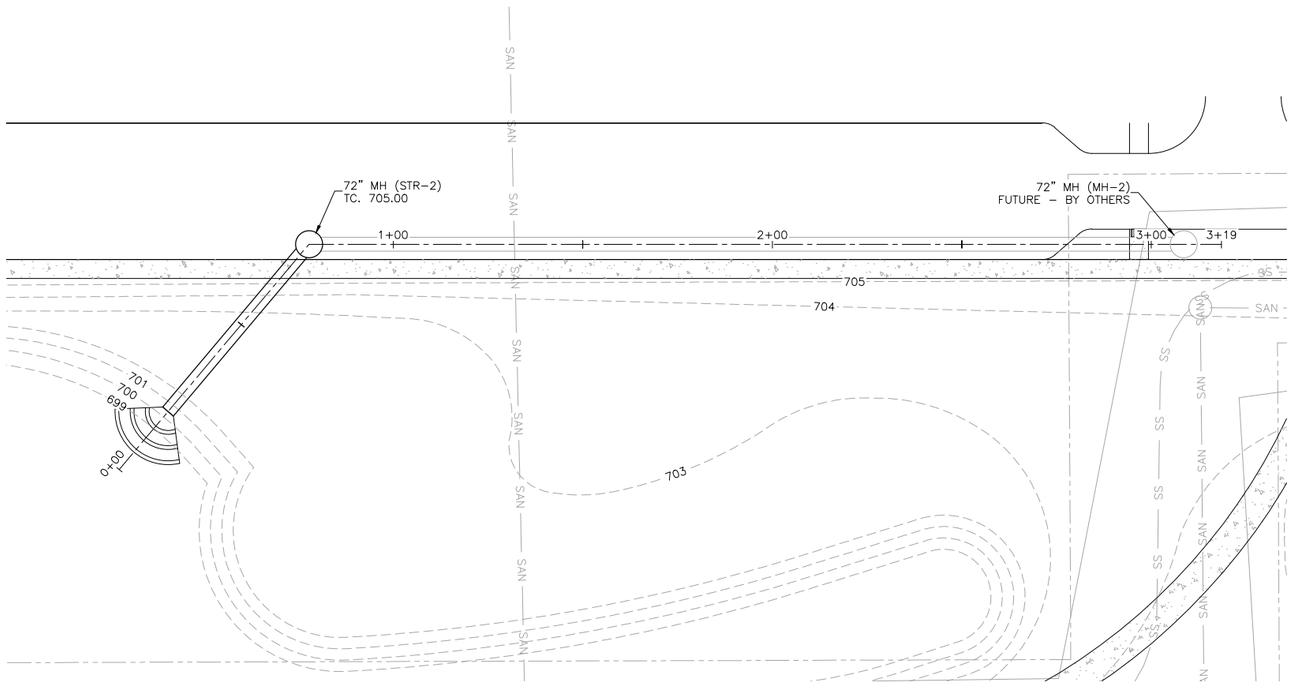
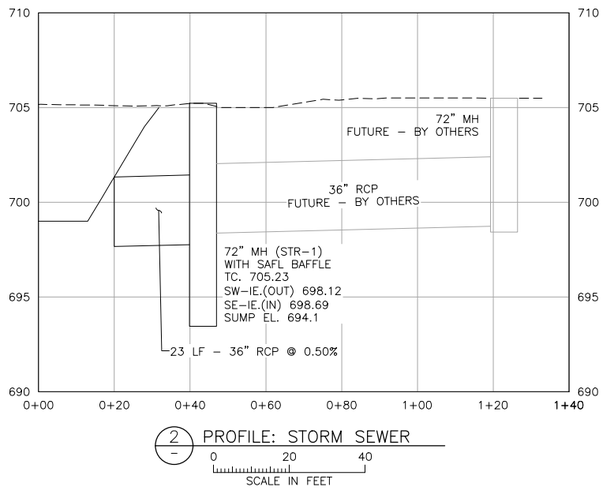
SCALE IN FEET



3 PLAN: STORM SEWER INLET

0 20 40

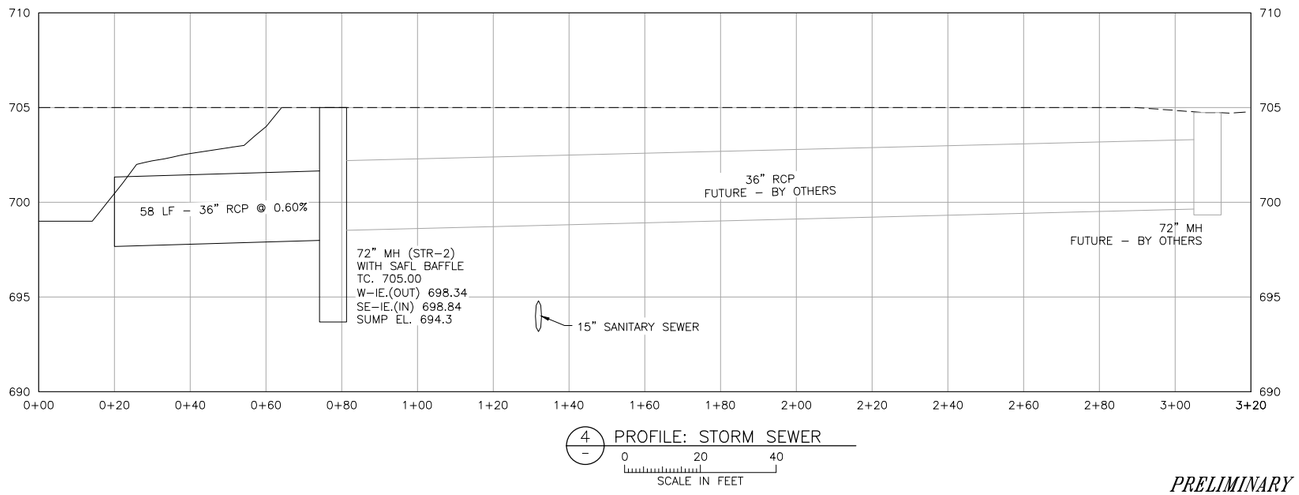
SCALE IN FEET



2 PROFILE: STORM SEWER

0 20 40

SCALE IN FEET



4 PROFILE: STORM SEWER

0 20 40

SCALE IN FEET

PRELIMINARY DESIGN

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	PEB	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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SIGNATURE

PRINTED NAME FRED J. ROZUMALSKI

DATE 08/11/2017 REG. NO. 26559

RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

CLIENT	08/11/17
BID	
CONSTRUCTION	

BARR

Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN 55435

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

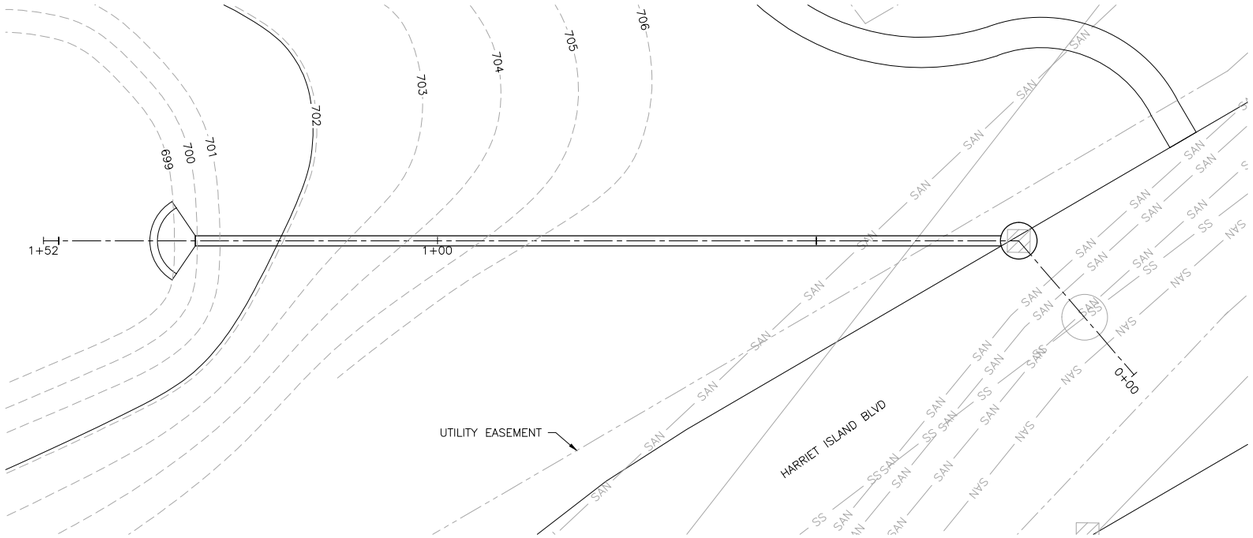
Scale	AS SHOWN
Date	08/11/2017
Drawn	PEB
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

STORM SEWER
PLAN AND PROFILES

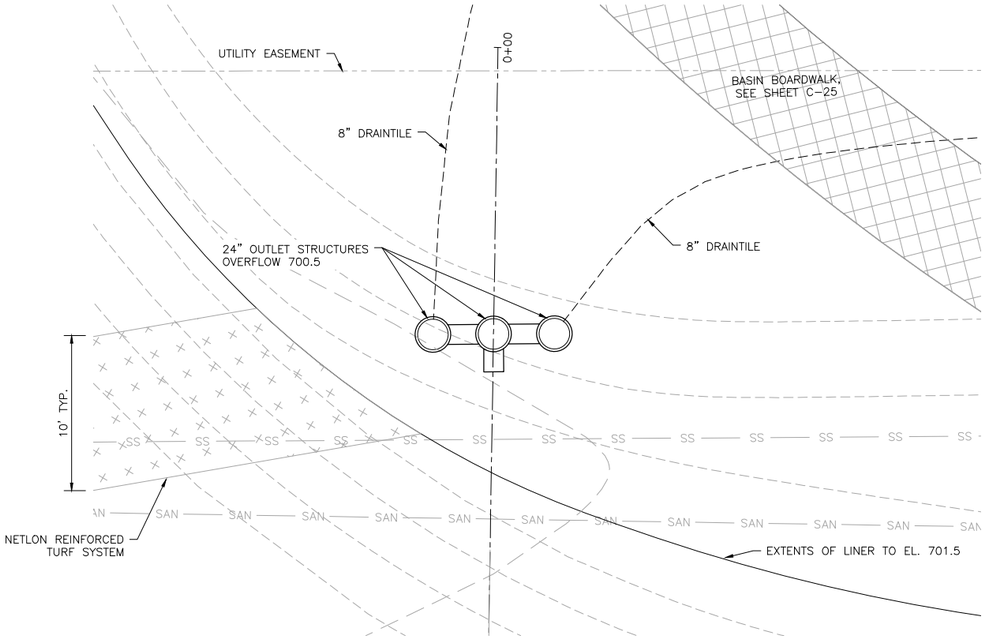
BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C-15	0



1 – PLAN: STORM SEWER INLET

0 10 20

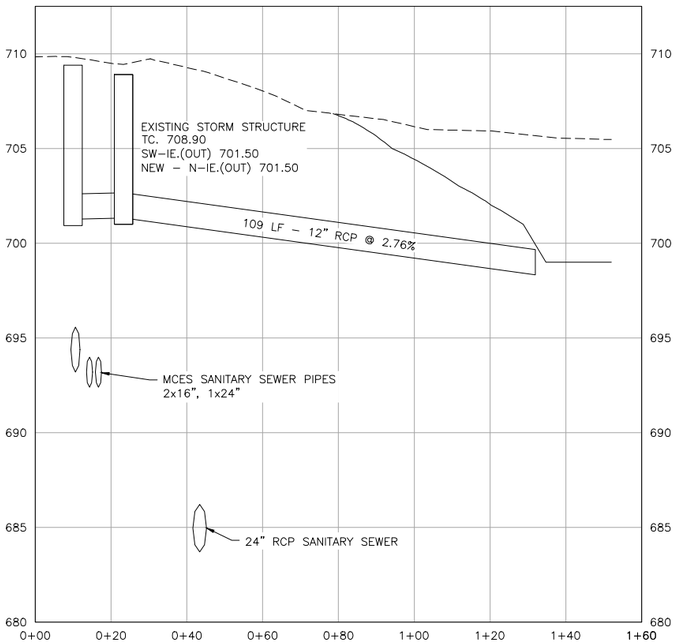
SCALE IN FEET



3 – PLAN: STORM SEWER INLET

0 5 10

SCALE IN FEET



2 – PROFILE: STORM SEWER

0 20 40

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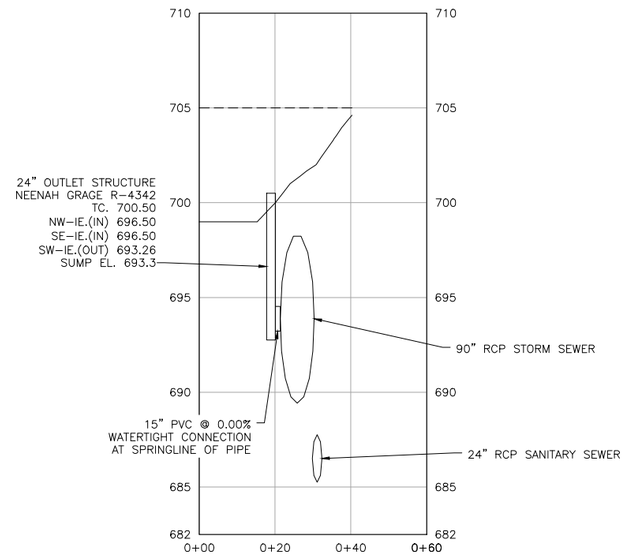

4 – PROFILE: STORM SEWER

0 20 40

SCALE IN FEET

PRELIMINARY DESIGN

CADD USER: Brendan H. Dougherty FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-16_STORM SEWER PLAN AND PROFILES.DWG PLOT SCALE: 1:2 PLOT DATE: 8/17/2017 9:26 AM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	PEB	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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SIGNATURE

PRINTED NAME FRED J. ROZUMALSKI

DATE 08/11/2017 REG. NO. 26559

		A	B	C	0	1	2	3
CLIENT	08/11/17							
BID								
CONSTRUCTION								
RELEASED TO/FOR	DATE RELEASED							

BARR

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4700 WEST 77TH STREET
MINNEAPOLIS, MN 55435

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Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	08/11/2017
Drawn	PEB
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL

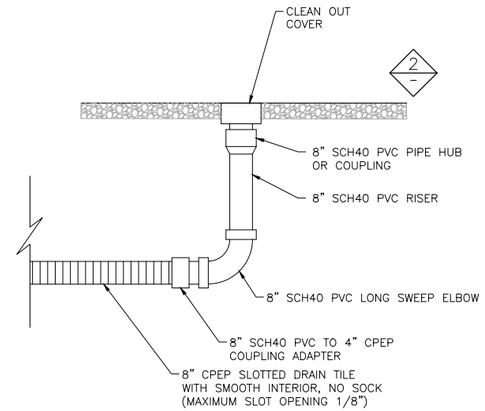
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN

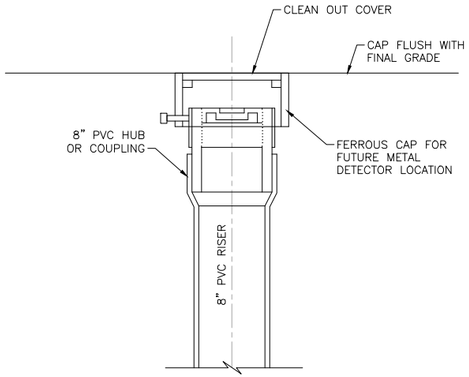
SAINT PAUL, MN

STORM SEWER
PLAN AND PROFILES

BARR PROJECT No.	23/62-1219.00
CLIENT PROJECT No.	
DWG. No.	C-16
REV. No.	A



1 – DETAIL: UNDERDRAIN SYSTEM – CLEAN OUT
NOT TO SCALE



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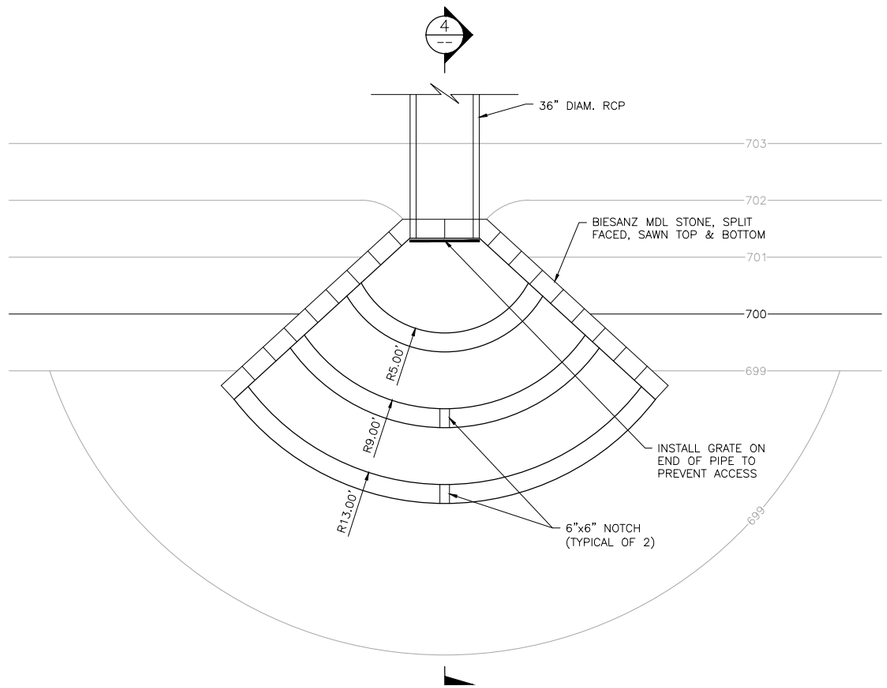
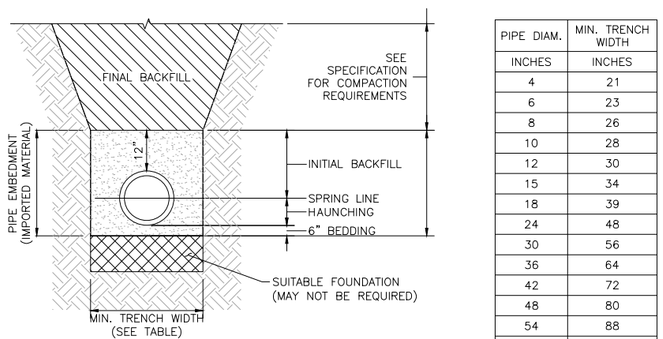
NOT TO SCALE



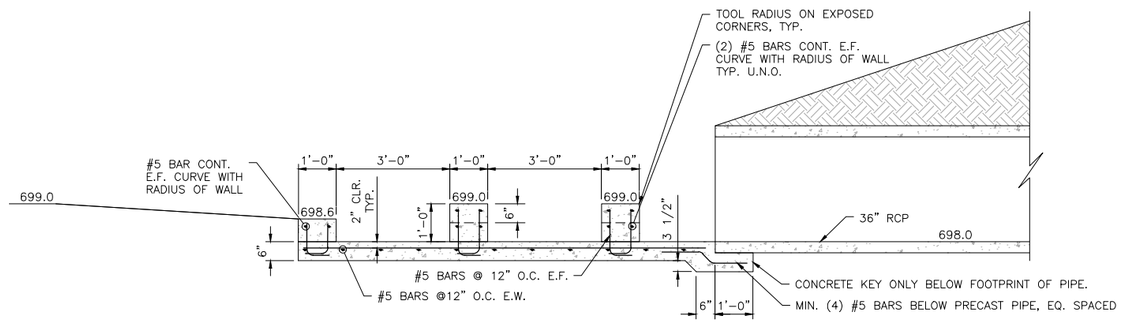
4 – PLAN: INLET ENERGY DISSIPATION STRUCTURE
0 4 8
SCALE IN FEET



PIPE DIAM.	MIN. TRENCH WIDTH
INCHES	INCHES
4	21
6	23
8	26
10	28
12	30
15	34
18	39
24	48
30	56
36	64
42	72
48	80
54	88
60	96

1. IMPORTED PIPE EMBEDMENT MATERIAL PER MnDOT SPEC. 3149.2F GRANULAR BEDDING, 100% PASSING THE 1" SIEVE AND NOT MORE THAN 10.5% WILL PASS THE #200 SIEVE.
2. IMPORTED PIPE EMBEDMENT MATERIAL SHALL BE COMPACTED IN UNIFORM LIFTS, 8" OR LESS IN DEPTH, LOOSE MEASURE, TO 95% STANDARD PROCTOR DENSITY FROM THE BEDDING TO A MINIMUM DEPTH OF AT LEAST 12" ABOVE THE CROWN OF THE PIPE.

3 – DETAIL: NON–RIGID STORM SEWER TRENCH
NOT TO SCALE



5 – SECTION: INLET ENERGY DISSIPATION STRUCTURE
1/2"=1'–0"

PRELIMINARY DESIGN

CADD USER: Patrick E. Brockamp FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-17_STORM SEWER DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/16/2017 9:12 AM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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SIGNATURE
PRINTED NAME FRED J. ROZUMALSKI
DATE 08/11/2017 REG. NO. 26559

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CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

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MINNEAPOLIS, MN 55435
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Scale	AS SHOWN
Date	08/11/2017
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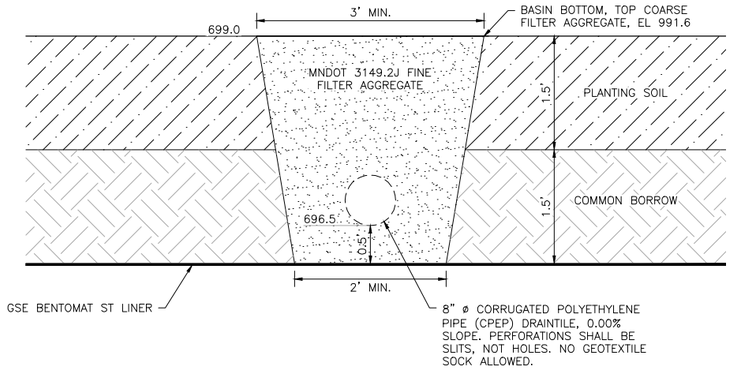
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

STORM SEWER DETAILS

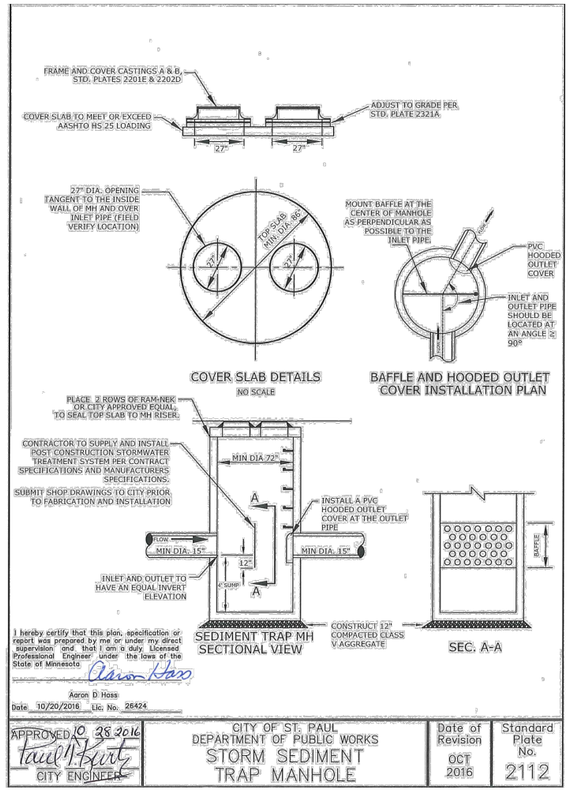
BARR PROJECT No.	
23/62–1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C–17	A



1 – SECTION: DRAINTILE TRENCH

0 1 2

SCALE IN FEET



I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Aaron D Hoss

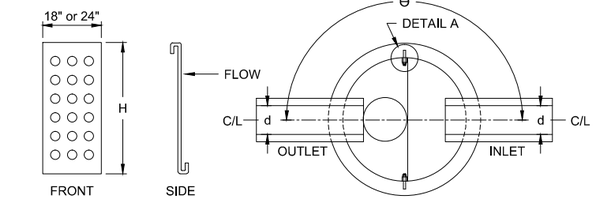
Date 10/20/2016 Lic. No. 26424

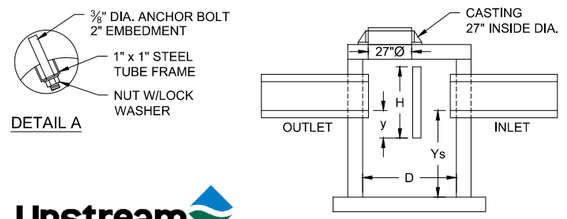
APPROVED 10-28-2016 Paul V. Burtz CITY ENGINEER	CITY OF ST. PAUL DEPARTMENT OF PUBLIC WORKS STORM SEDIMENT TRAP MANHOLE	Date of Revision OCT 2016	Standard Plate No. 2112

2 – DETAIL: STANDARD PLATE STORM SEDIMENT TRAP MANHOLE

NOT TO SCALE

d (IN.)	H (IN.)	Θ (DEG.) MIN.	Θ (DEG.) MAX.	y (IN.)	Ys	D
12	34	130	230	12	MIN. 4 FT.	VARIES
15	34	130	230	12		
18	34	130	230	12		
21	44	140	220	12		
24	44	140	220	12		
27	44	140	220	12		
30	54	150	210	12		
36	54	150	210	12		





Upstream Technologies

UPSTREAM TECHNOLOGIES INC. IS THE EXCLUSIVE LICENSEE OF THE SAFL BAFFLE

This generic detail does not encompass the sizing, fit, and applicability of the SAFL Baffle for this specific project. It is the ultimate responsibility of the design engineer to assure that the design is in compliance with all applicable laws and regulations. The SAFL Baffle is patent pending technology of the University of Minnesota and Upstream Technologies, Inc. Neither the University of Minnesota nor Upstream Technologies approves plans, sizing, or system designs.

SAFL BAFFLE STRUCTURE
STANDARD SUMP MANHOLE W/BAFFLE

SAFL BAFFLE

3 – DETAIL: SAFL BAFFLE AND MANHOLE STRUCTURE

NOT TO SCALE

PRELIMINARY DESIGN

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	EPF	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

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SIGNATURE

PRINTED NAME FRED J. ROZUMALSKI

DATE 08/11/2017 REG. NO. 26559

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CONSTRUCTION	
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Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	08/11/2017
Drawn	PEB
Checked	FJR
Designed	BARR
Approved	FJR

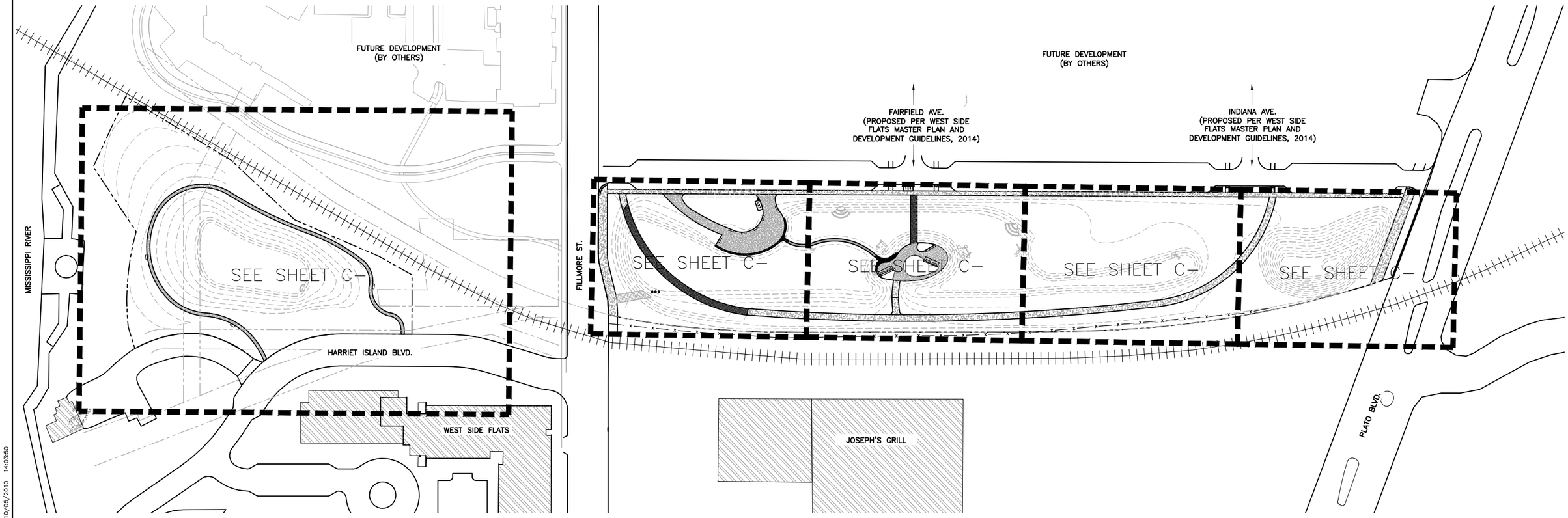
CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

STORM SEWER DETAILS

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-18
REV. No. A

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-22_STORM SEWER DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 11:18 AM



NOTES:
1. CONTRACTOR SHALL HAVE UTILITIES LOCATED PRIOR TO BEGINNING WORK, AND IS RESPONSIBLE FOR PROTECTING UTILITIES FROM DAMAGE DURING PLANTING INSTALLATION.
2. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION AND PLANTING OPERATIONS. DO NOT COMPACT SOIL WITH HEAVY EQUIPMENT. ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.

1 — PLAN: SITE MATERIALS & LAYOUT DRAWING REFERENCE

0 60 120
SCALE IN FEET

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME
SIGNATURE
DATE ____ LICENSE # ____

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MINNEAPOLIS, MN 55435
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Date	8/14/2017
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THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

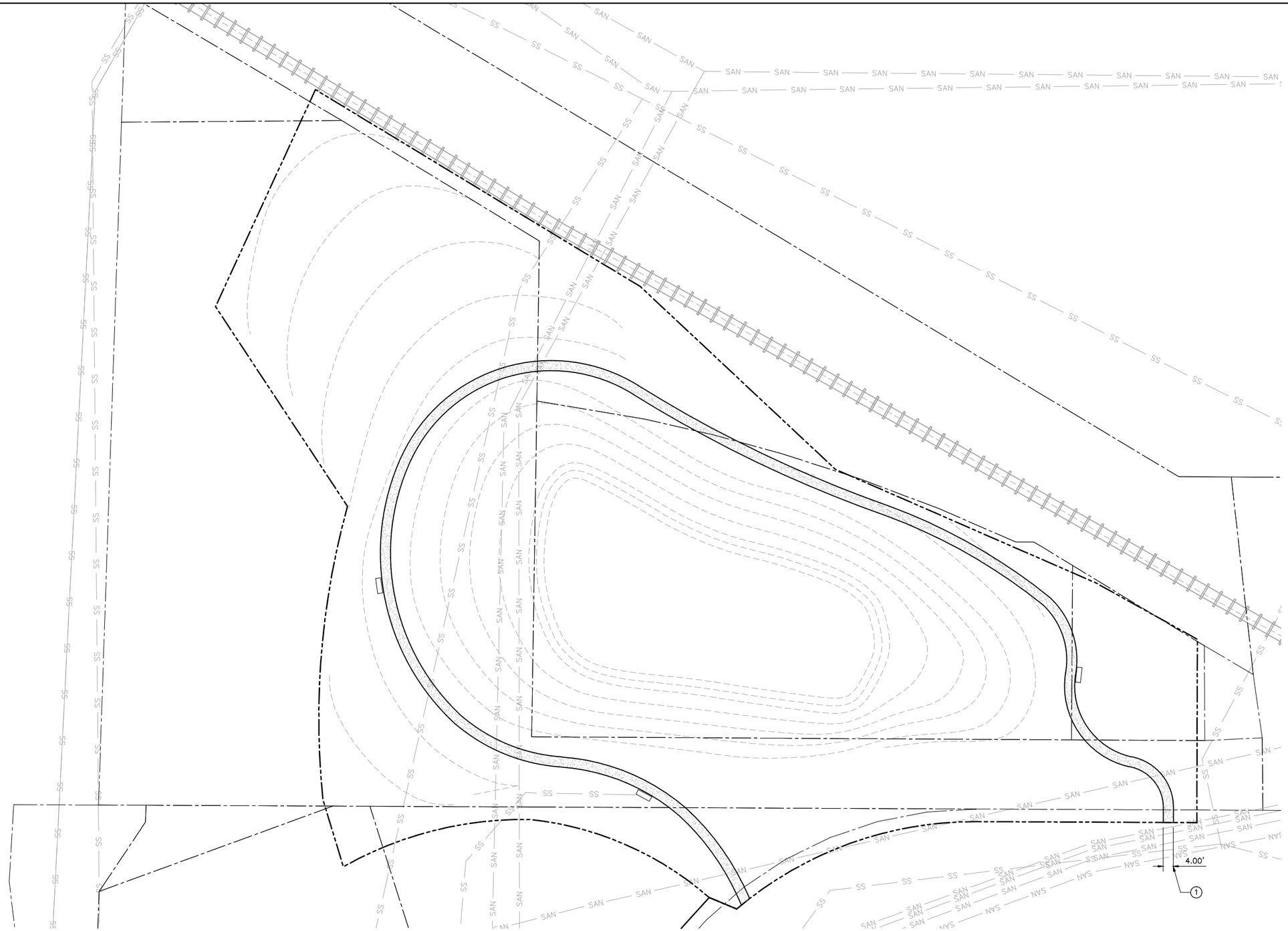
MATERIALS AND LAYOUT
DRAWING REFERENCE

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-23
REV. No. 0

CADD USER: Brendan H. Dougherty FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-23_SITE MATERIALS-DRAWING REFERENCE.DWG PLOT SCALE: 1:2 PLOT DATE: 8/18/2017 12:45 PM
BAR M:\AutoCAD 2011\AutoCAD 2011 Support\enu\Template\Barr_2011_Template.dwt Plot at 1 10/05/2010 14:03:50

SITE MATERIALS REFERENCE NOTES

(1) KAFKA DECOMPOSED GRANITE PATH. 4' WIDE. SEE 3/C-31



LEGEND

- 700 PROPOSED CONTOURS
- RAILROAD TRACKS
- CONSTRUCTION LIMITS
- DECOMPOSED GRANITE
- SAN SAN SANITARY SEWER
- SS SS STORMWATER SEWER
- BENCH
- PARCEL BOUNDARY

1 PLAN: MATERIALS AND LAYOUT LEVEE AREA

0 20 40
SCALE IN FEET

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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Scale	AS SHOWN
Date	8/14/2017
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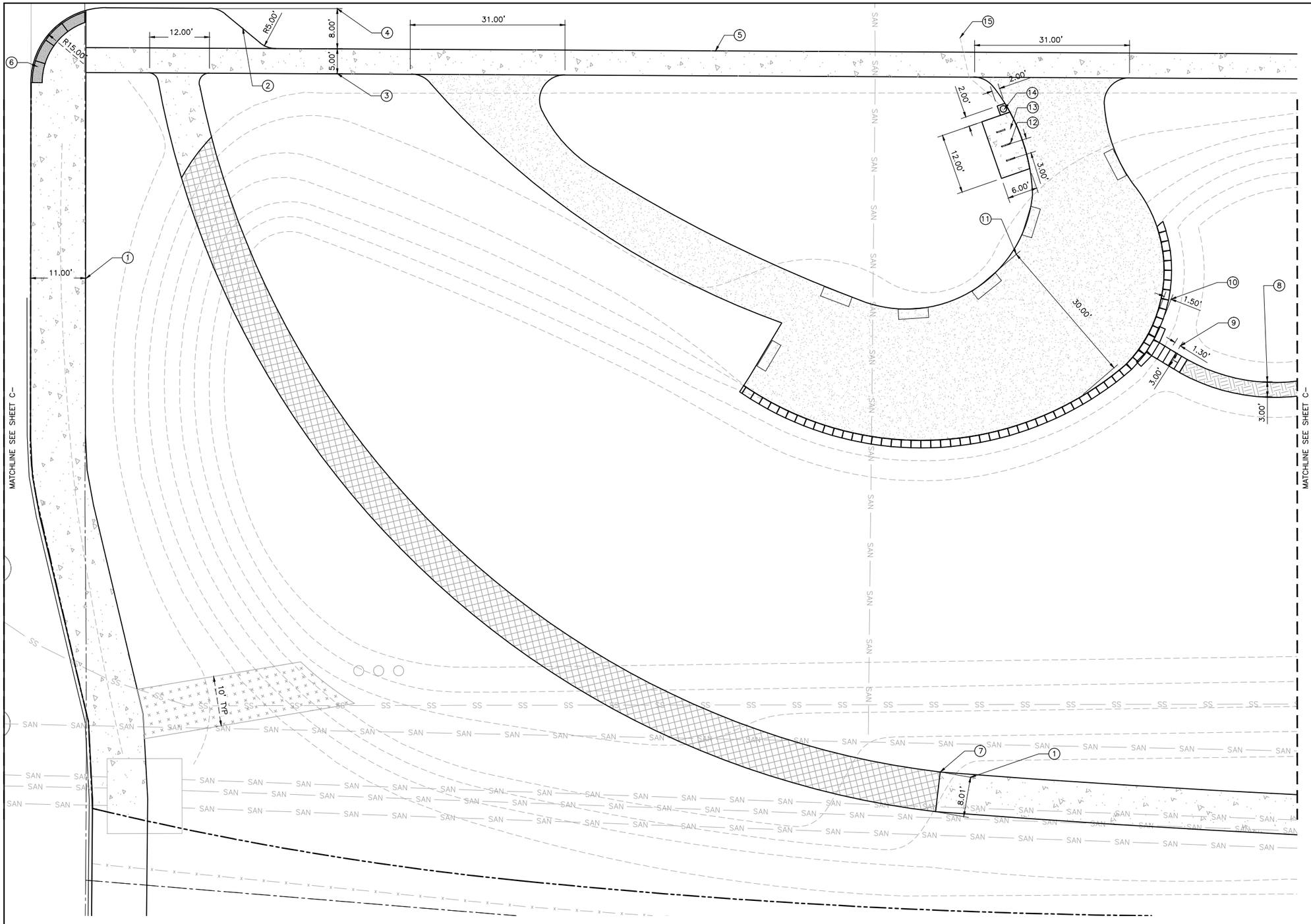
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

MATERIALS AND LAYOUT
LEVEE AREA

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-24
REV. No.



SITE MATERIALS REFERENCE NOTES

1. COMBINED MULTI–USE TRAIL (TWO WAY)
2. BOULEVARD BUMPOUT.
3. RESIDENTIAL PATH (TYP.) SEE 1/C–30
4. ON–STREET PARKING LANE
5. STANDARD SAINT PAUL 6" CURB AND GUTTER PLATE. SEE 3/C–30
6. STANDARD SAINT PAUL CURB RAMP PLATE (3005E) SEE 4/C–30
7. CEDAR BOARDWALK WITH ADA CURB RAIL. SEE 1/C–31
8. BASIN GRAVEL PATH. SEE 3/C–31
9. BIENSANZ MDL STONE STEPS. SEE 1/C–33
10. BIENSANZ MDL STONE WALL. SEE 1/C–32
11. KAFKA DECOMPOSED GRANITE PLAZA. SEE 3/C–31
12. PROPOSED BIKE RACK LOCATION
13. BIKE RACK MOUNTING SLAB
14. WATER FOUNTAIN
15. WATER FOUNTAIN CONNECTION, CONNECT TO EXISTING WATER MAIN. COORDINATE WITH OWNER.

LEGEND

- 700 PROPOSED CONTOURS
- CONSTRUCTION LIMITS
- DECOMPOSED GRANITE
- CONCRETE
- NETLON ATS
- SAN SANITARY SEWER
- SS STORMWATER SEWER
- BENCHES
- WATER FOUNTAIN
- PARCEL BOUNDARY

PRELIMINARY DRAFT

1/C–25 PLAN: MATERIALS AND LAYOUT CIVIC PLAZA

0 10 20
SCALE IN FEET

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SIGNATURE _____

DATE _____ LICENSE # _____

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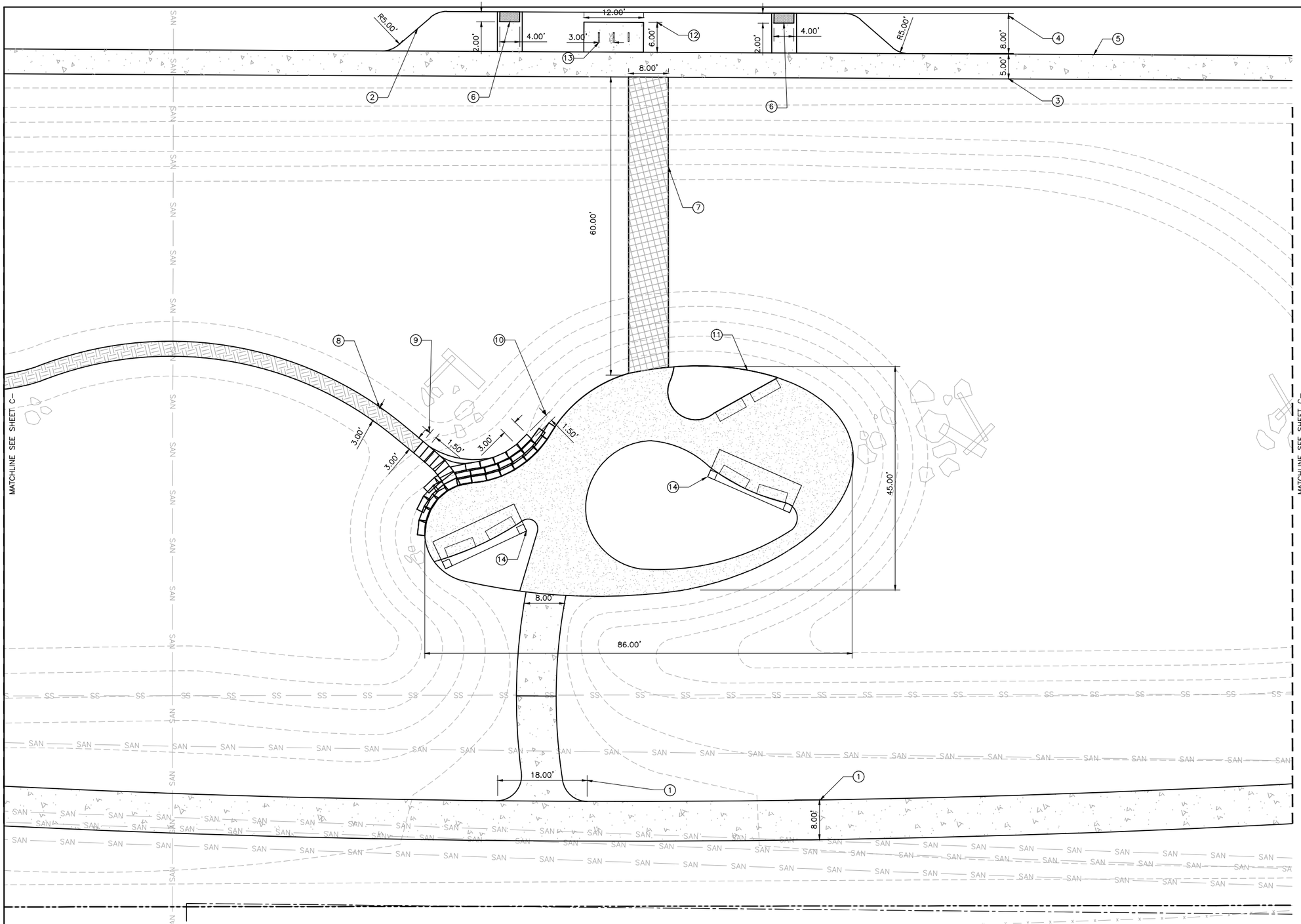
Scale	AS SHOWN
Date	8/14/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

MATERIALS AND LAYOUT
GREENWAY CIVIC PLAZA

BARR PROJECT No. 23/62–1219.00
CLIENT PROJECT No.
DWG. No. C–25
REV. No.



SITE MATERIALS REFERENCE NOTES

1. COMBINED MULTI–USE TRAIL (TWO WAY)
2. BOULEVARD BUMPOUT.
3. RESIDENTIAL PATH (TYP.) SEE 1/C–30
4. ON–STREET PARKING LANE
5. STANDARD SAINT PAUL 6" CURB AND GUTTER PLATE. SEE 3/C–30
6. STANDARD SAINT PAUL CURB RAMP PLATE (3005E) SEE 4/C–30
7. CEDAR BOARDWALK WITH HANDRAIL. SEE 1/C–31
8. BASIN GRAVEL PATH. SEE 3/C–31
9. BIENSANZ MDL STONE STEPS. SEE 2/C–33
10. BIENSANZ MDL STONE WALL. SEE 4/C–32
11. KAFKA DECOMPOSED GRANITE PLAZA. SEE 3/C–31
12. PROPOSED BIKE RACK LOCATION
13. BIKE RACK MOUNTING SLAB
14. PROPOSED ARBOR LOCATIONS

LEGEND

- PROPOSED CONTOURS
- CONSTRUCTION LIMITS
- DECOMPOSED GRANITE
- CONCRETE
- SANITARY SEWER
- STORMWATER SEWER
- BENCH
- PARCEL BOUNDARY

1 – PLAN: MATERIALS AND LAYOUT STORMWATER PLAZA

0 10 20 SCALE IN FEET

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME

SIGNATURE

DATE LICENSE #

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Suite 200
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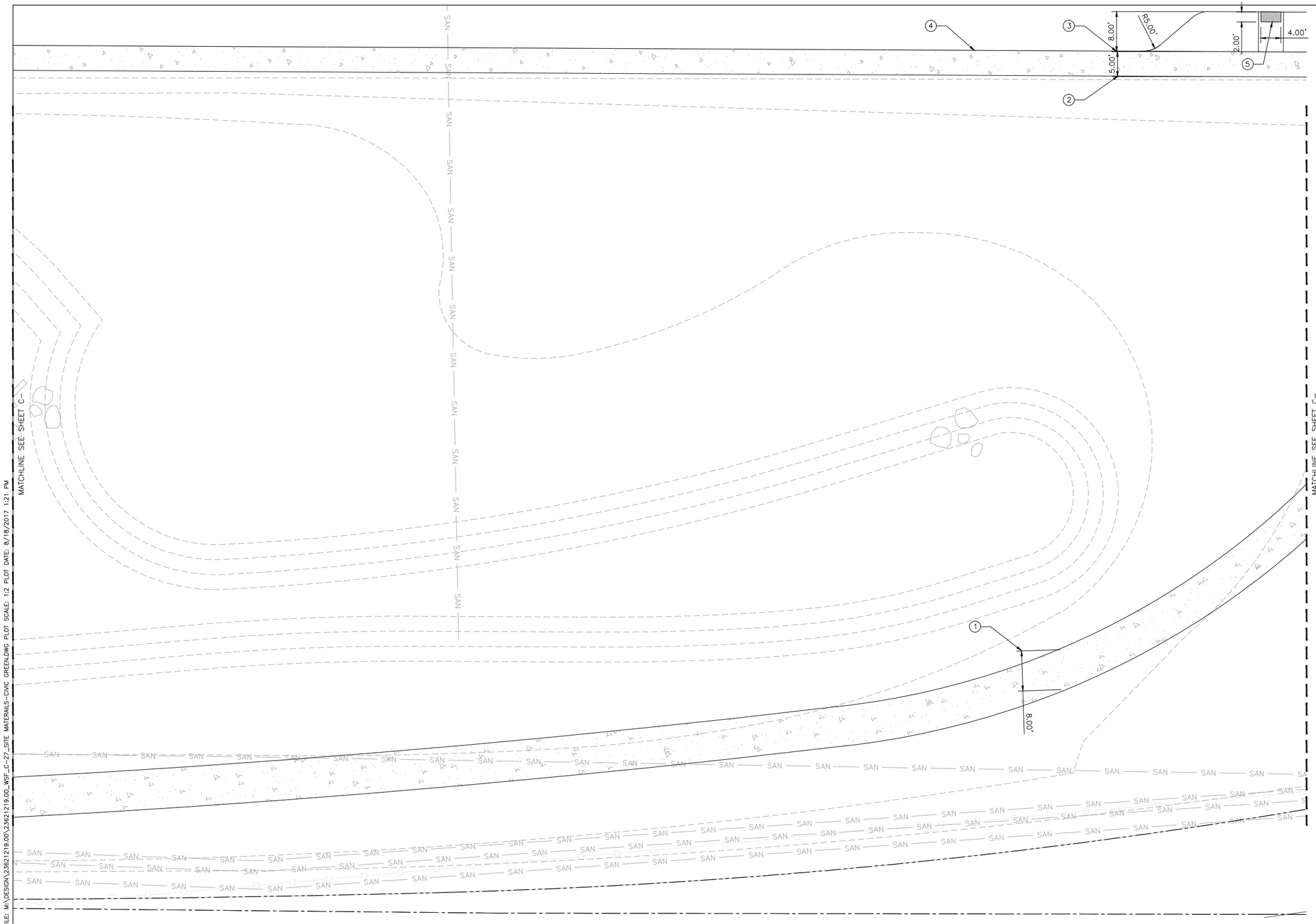
Scale	AS SHOWN
Date	7/21/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

MATERIALS AND LAYOUT
GREENWAY STROMWATER PLAZA

BARR PROJECT No. 23/62–1219.00
CLIENT PROJECT No.
DWG. No. C–26
REV. No. 0



SITE MATERIAL REFERENCE NOTES

1. COMBINED MULTI-USE TRAIL (TWO WAY)
2. RESIDENTIAL PATH (TYP.) SEE 1/C-30
3. ON-STREET PARKING LANE
4. STANDARD SAINT PAUL 6" CURB AND GUTTER PLATE. SEE 3/C-30
5. STANDARD SAINT PAUL CURB RAMP PLATE (3005E) SEE 4/C-30

LEGEND

- 700 PROPOSED CONTOURS
- CONSTRUCTION LIMITS
- CONCRETE WALKWAYS
- SAN SAN SANITARY SEWER
- SS SS STORMWATER SEWER
- PARCEL BOUNDARY

1/– PLAN: MATERIALS AND LAYOUT CIVIC GREEN

0 10 20
SCALE IN FEET

PRELIMINARY DRAFT

CADD USER: Brendan H. Dougherty FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-27_SITE MATERIALS-CIVIC GREEN.DWG PLOT SCALE: 1:2 PLOT DATE: 8/18/2017 1:21 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

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CLIENT							
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Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

MATERIALS AND LAYOUT
GREENWAY CIVIC GREEN

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No. C-27	REV. No.

SITE MATERIALS REFERENCE NOTES

1. COMBINED MULTI-USE TRAIL (TWO WAY)
2. VEGETATED BOULEVARD.
3. RESIDENTIAL PATH (TYP.) SEE 1/C-30
4. ON-STREET PARKING LANE
5. STANDARD SAINT PAUL 6" CURB AND GUTTER PLATE. SEE 3/C-30
6. STANDARD SAINT PAUL CURB RAMP PLATE (3005E) SEE 4/C-30

LEGEND

- 700 PROPOSED CONTOURS
- RAILROAD TRACKS
- CONSTRUCTION LIMITS
- CONCRETE WALKWAYS
- SAN SANITARY SEWER
- SS STORMWATER SEWER
- PARCEL BOUNDARY

MATCHLINE SEE SHEET C-

1/- PLAN: MATERIALS AND LAYOUT ELEVATED LOOK OUT

SCALE IN FEET 0 10 20

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

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CLIENT							
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CONSTRUCTION							
DATE RELEASED							

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Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	8/14/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

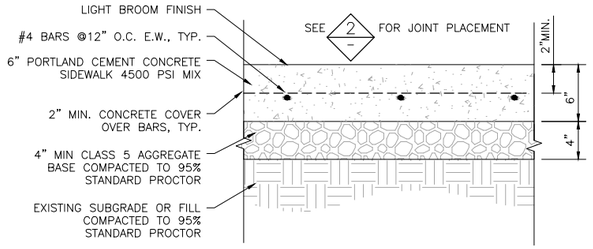
THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

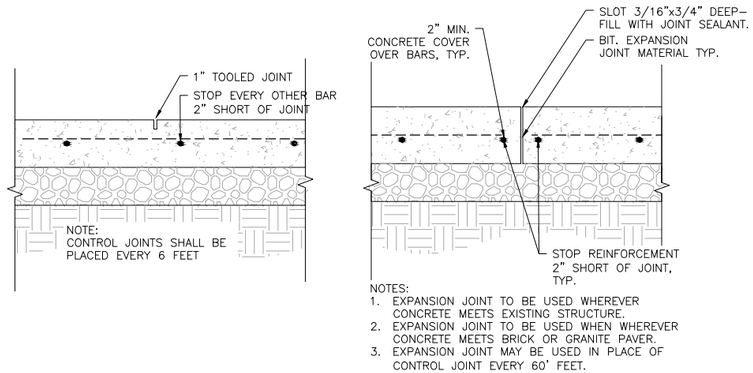
MATERIALS AND LAYOUT
GREENWAY ELEVATED LOOKOUT

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No. C-28	REV. No.

CADD USER: Brendan H. Dougherty FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-28_SITE MATERIALS-ELEVATED LOOKOUT.DWG PLOT SCALE: 1:2 PLOT DATE: 8/18/2017 1:33 PM



1 DETAIL: 5" REINFORCED CONCRETE PAVEMENT
NOT TO SCALE



NOTES:
1. EXPANSION JOINT TO BE USED WHEREVER CONCRETE MEETS EXISTING STRUCTURE.
2. EXPANSION JOINT TO BE USED WHEN WHEREVER CONCRETE MEETS BRICK OR GRANITE PAVER.
3. EXPANSION JOINT MAY BE USED IN PLACE OF CONTROL JOINT EVERY 60' FEET.

2 DETAIL: CONCRETE EXPANSION AND CONTROL JOINTS
NOT TO SCALE

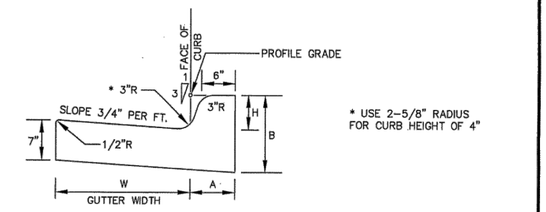
APPROVED
CITY ENGINEER

CITY OF ST. PAUL
DEPARTMENT OF PUBLIC WORKS
CONCRETE CURB AND GUTTER
DESIGN B

Date of Revision
JULY 2002

Standard Plate No.
3100C

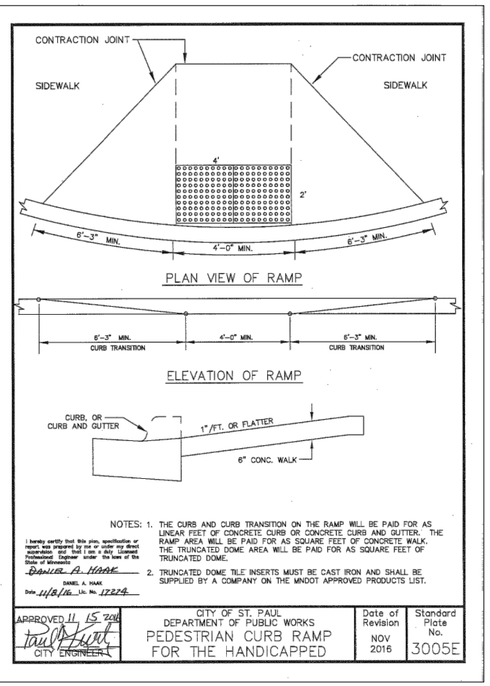
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
DANIEL A. HAAK
Date 11/8/16 Lic. No. 12274



* USE 2–5/8" RADIUS FOR CURB HEIGHT OF 4"

DIMENSIONS			W = 12"			W = 18"			W = 24"			W = 30"		
				CONCRETE			CONCRETE			CONCRETE			CONCRETE	
H	A	B	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.	DESIGN NO.	CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.
4	7–3/8"	11–1/2"	B412	0.0421	23.8	B418	0.0529	18.9	B424	0.0637	15.7	B430	0.0745	13.4
6	8"	13–1/2"	B612	0.0474	21.1	B618	0.0582	17.2	B624	0.0690	14.5	B630	0.0798	12.5
8	8–5/8"	15–1/2"	B812	0.0529	18.9	B818	0.0637	15.7	B824	0.0745	13.4	B830	0.0853	11.7
9	9"	16–3/8"	B912	0.0559	17.9	B918	0.0667	15.0	B924	0.0775	12.9	B930	0.0883	11.3
10	9–3/8"	17–5/8"	B1012	0.0589	17.0	B1018	0.0697	14.4	B1024	0.0805	12.4	B1030	0.0913	11.0

3 DETAIL: SAINT PAUL STANDARD CURB AND GUTTER
NOT TO SCALE



NOTES:
1. THE CURB AND CURB TRANSITION ON THE RAMP WILL BE PAID FOR AS LINEAR FEET OF CONCRETE CURB OR CONCRETE CURB AND GUTTER. THE RAMP AREA WILL BE PAID FOR AS SQUARE FEET OF CONCRETE WALK. THE TRUNCATED DOME AREA WILL BE PAID FOR AS SQUARE FEET OF TRUNCATED DOME.
2. TRUNCATED DOME TILE INSERTS MUST BE CAST IRON AND SHALL BE SUPPLIED BY A COMPANY ON THE MNDOT APPROVED PRODUCTS LIST.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
DANIEL A. HAAK
Date 11/8/16 Lic. No. 12274

APPROVED 11/15/2016
CITY ENGINEER

CITY OF ST. PAUL
DEPARTMENT OF PUBLIC WORKS
PEDESTRIAN CURB RAMP FOR THE HANDICAPPED

Date of Revision
NOV 2016

Standard Plate No.
3005E

4 DETAIL: SAINT PAUL STANDARD PEDESTRIAN CURB RAMP
NOT TO SCALE

PRELIMINARY DESIGN

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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SIGNATURE
PRINTED NAME FRED J. ROZUMALSKI
DATE REG. NO. 26559

CLIENT	CITY	BID	CONSTRUCTION	
RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

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Ph: 1–800–632–2277
Project Office:
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4700 WEST 77TH STREET
MINNEAPOLIS, MN 55435
Ph: 1–800–632–2277
Fax: (952) 832–2601
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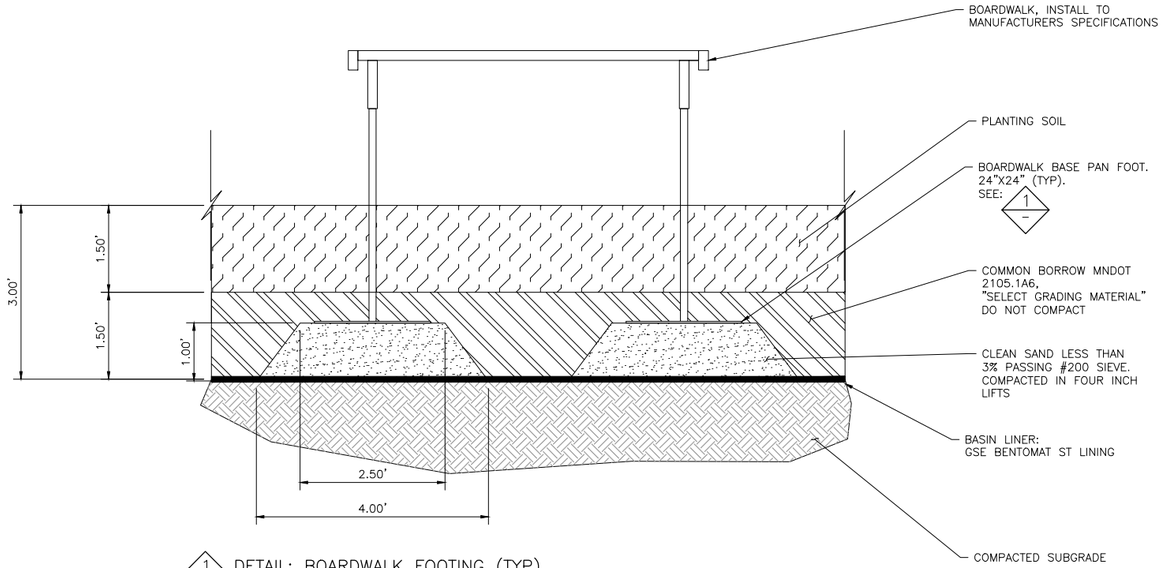
Scale	AS SHOWN
Date	07/17/2017
Drawn	WMB
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

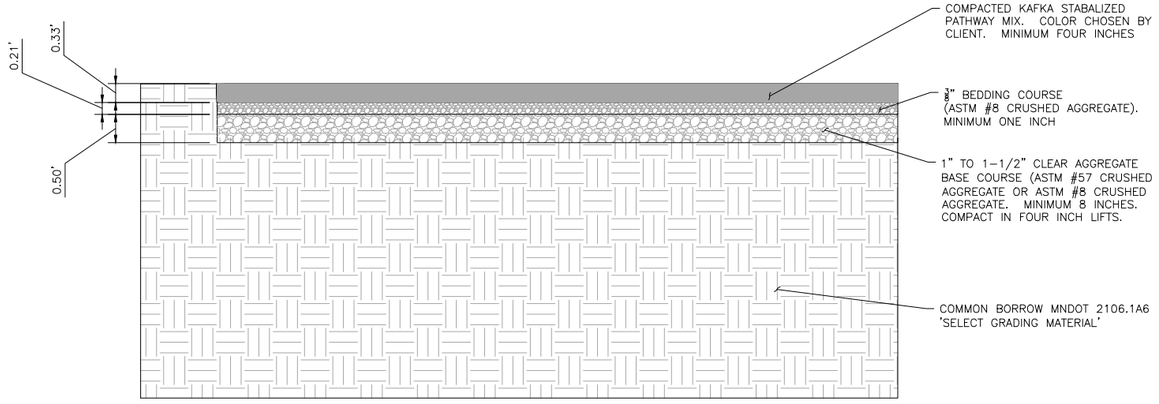
WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

SITE MATERIALS
PAVING DETAILS

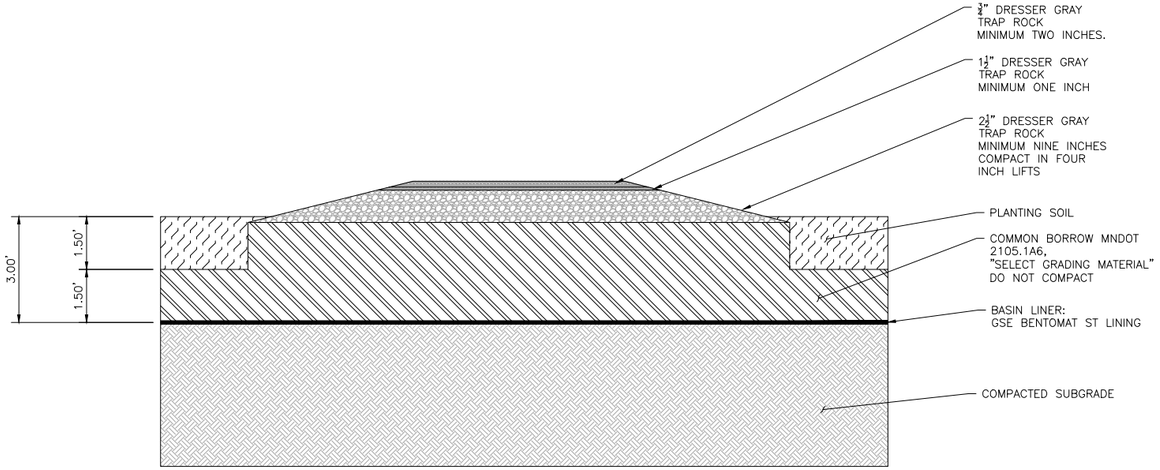
BARR PROJECT No. 23/62–1219.00
CLIENT PROJECT No.
DWG. No. C–30
REV. No. A



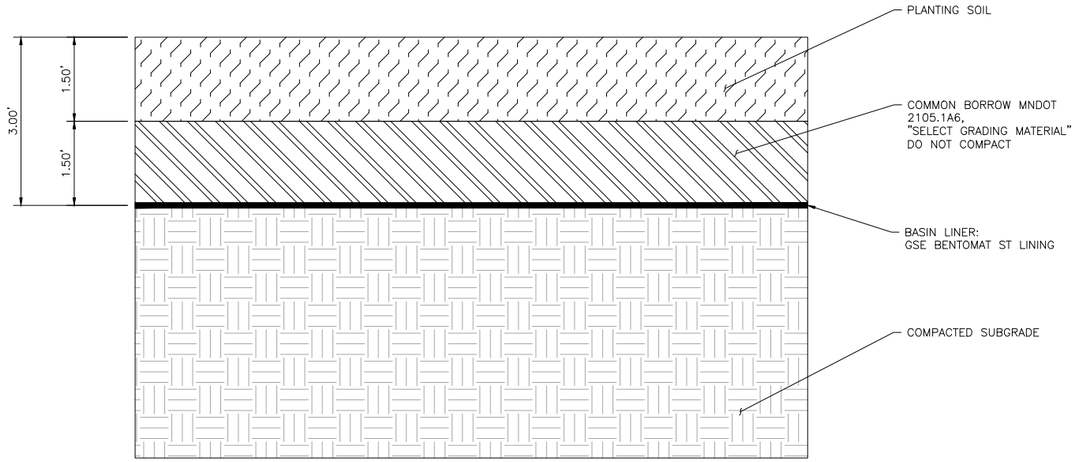
1/– DETAIL: BOARDWALK FOOTING (TYP)
NOT TO SCALE



2/– DETAIL: DECOMPOSED GRANITE PLAZA (TYP)
NOT TO SCALE



3/– DETAIL: BASIN PATH (TYP)
NOT TO SCALE



4/– DETAIL: BASIN BOTTOM (TYP)
NOT TO SCALE

PRELIMINARY DESIGN

CADD USER: Bill M. Brohman FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-31_SITE MATERIALS - DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 2:06 PM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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SIGNATURE

PRINTED NAME FRED J. ROZUMALSKI

DATE _____ REG. NO. 26559

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CITY								
BID								
CONSTRUCTION								
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	DATE RELEASED							

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MINNEAPOLIS, MN 55435
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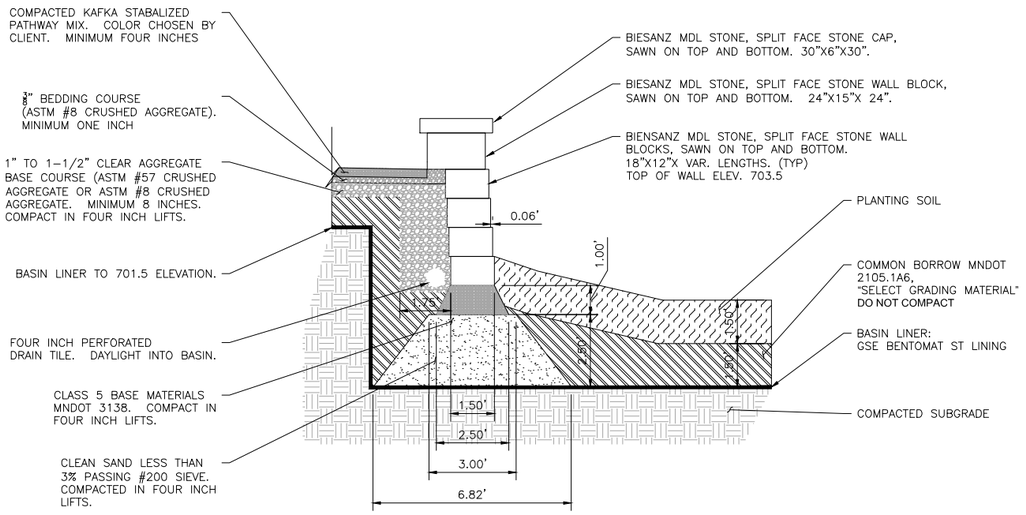
Scale	AS SHOWN
Date	08/10/2017
Drawn	WMB
Checked	FJR
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

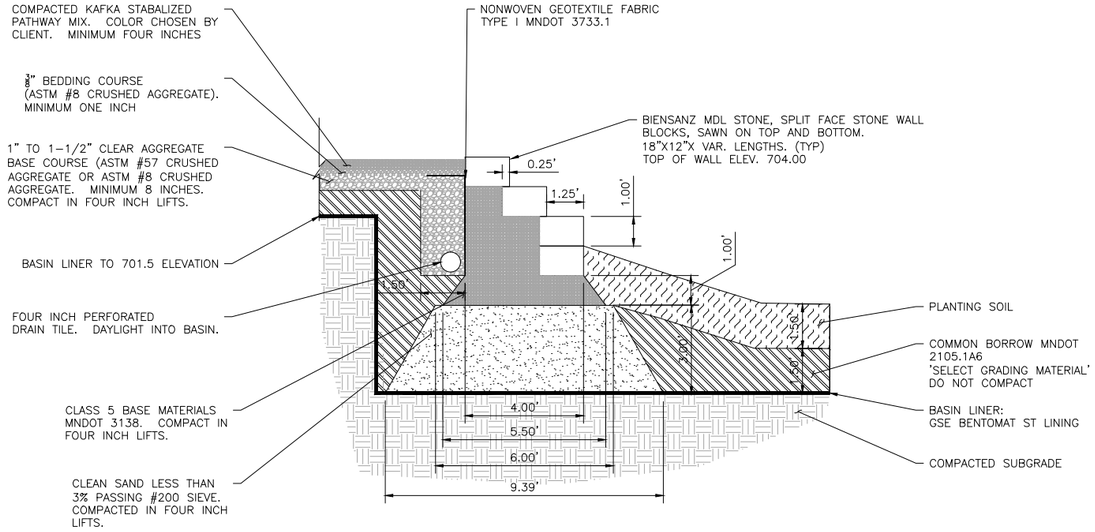
WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

SITE MATERIALS
DETAILS

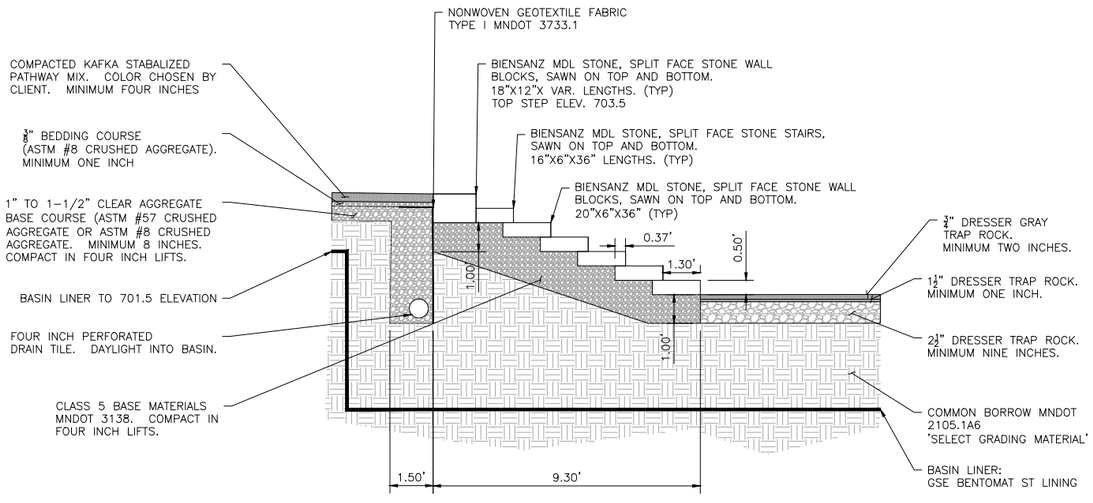
BARR PROJECT No.	23/62–1219.00
CLIENT PROJECT No.	
DWG. No.	C–31
REV. No.	A



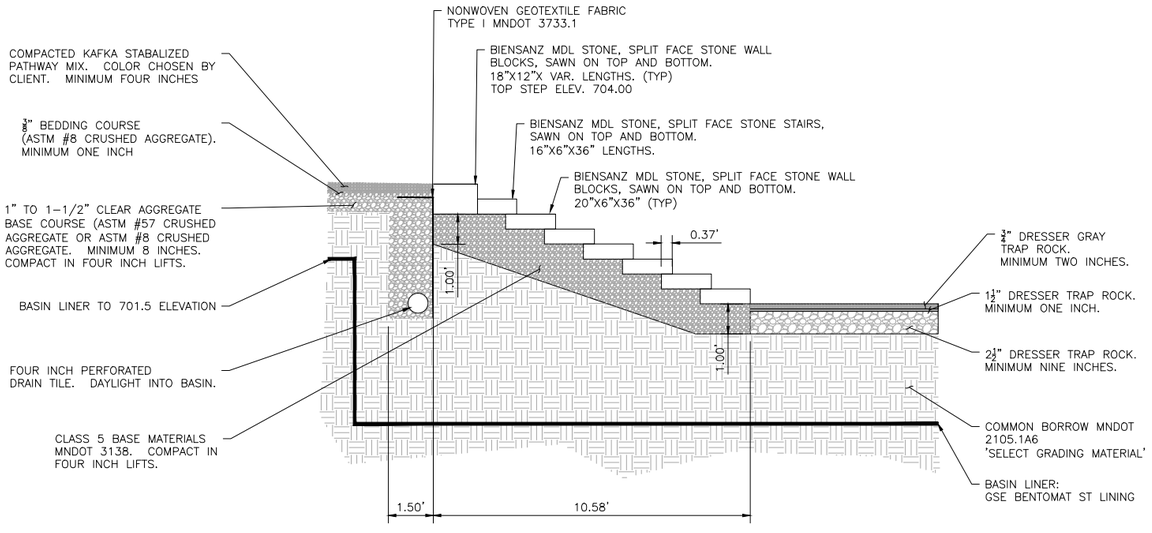
1 DETAIL: CIVIC PLAZA SEAT WALL
NOT TO SCALE



3 DETAIL: STORMWATER PLAZA STEP WALL
NOT TO SCALE



2 DETAIL: CIVIC PLAZA STEPS
NOT TO SCALE



4 DETAIL: STORMWATER PLAZA STEPS
NOT TO SCALE

PRELIMINARY DESIGN

CADD USER: Bill M. Brohman FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-32_SITE MATERIALS - DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 2:06 PM

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SIGNATURE _____

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Scale	AS SHOWN
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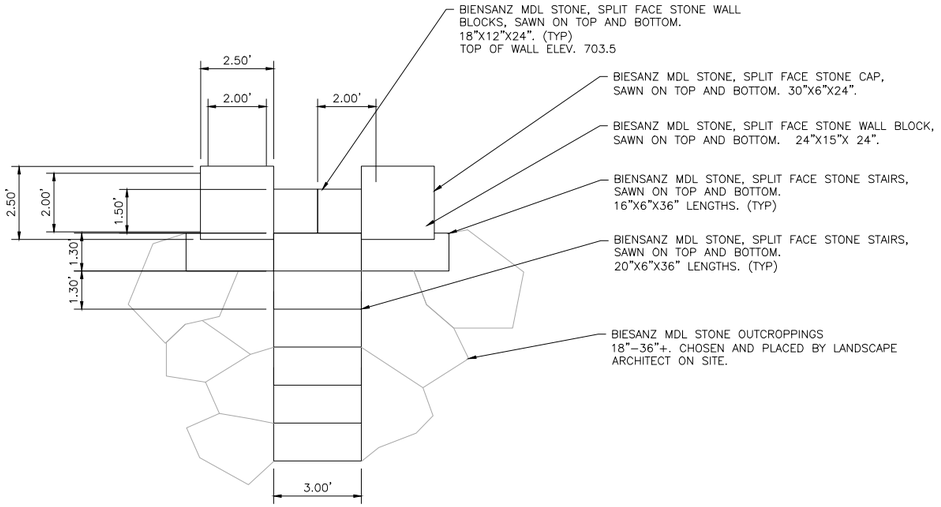
Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

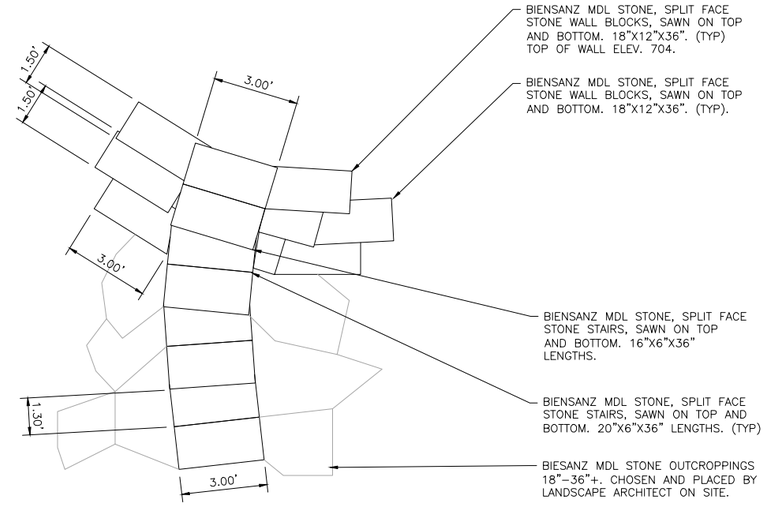
WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

SITE MATERIALS DETAILS

BARR PROJECT No.	23/62-1219.00
CLIENT PROJECT No.	
DWG. No.	C-32
REV. No.	A



1 – PLAN: CIVIC PLAZA STEPS
NOT TO SCALE



2 – PLAN: STORMWATER PLAZA STEPS
NOT TO SCALE

PRELIMINARY DESIGN

CADD USER: Bill M. Brohman FILE: M:\DESIGN\23621219.00\23621219.00_WSF_C-33_SITE MATERIALS - DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 2:08 PM

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SIGNATURE _____

PRINTED NAME FRED J. ROZUMALSKI

DATE _____ REG. NO. 26559

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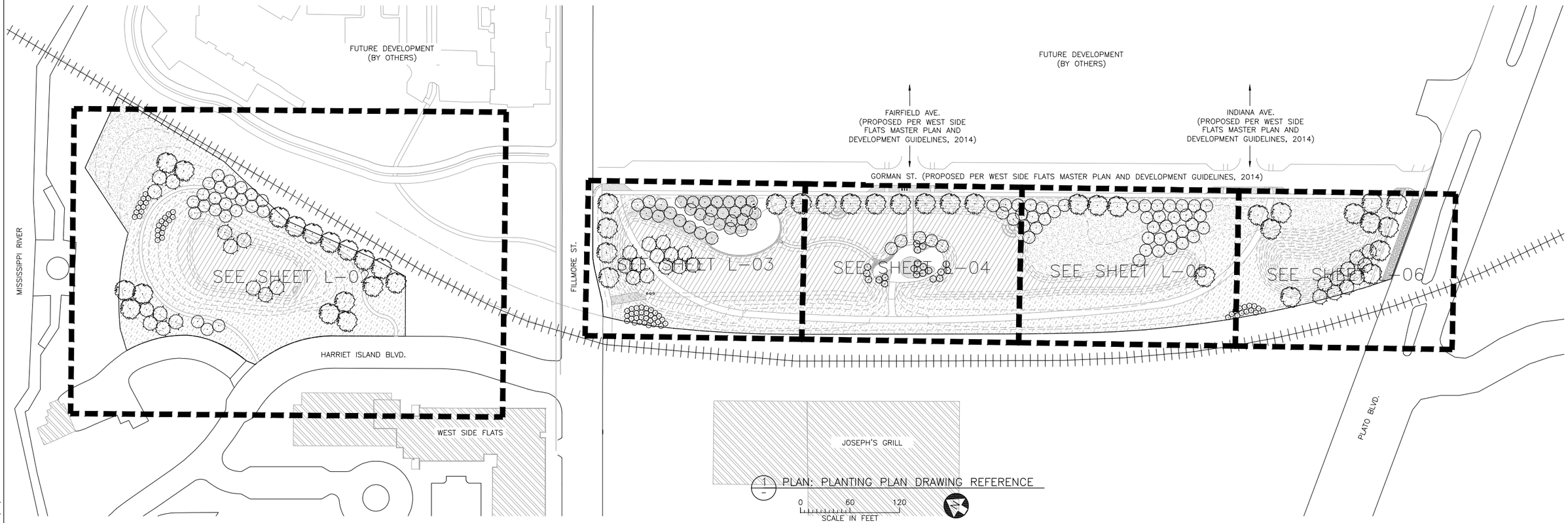
Scale	AS SHOWN
Date	08/11/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

SITE MATERIALS
DETAILS

BARR PROJECT No.	
23/62–1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
C–33	A



PLANTING NOTES:

SITE EXAMINATION AND PREPARATION

1. CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID TO INSPECT SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING THE NATURE AND SCOPE OF WORK.
2. CONTRACTOR SHALL HAVE UTILITIES LOCATED PRIOR TO BEGINNING WORK, AND IS RESPONSIBLE FOR PROTECTING UTILITIES FROM DAMAGE DURING PLANTING INSTALLATION.
3. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION AND PLANTING OPERATIONS. AVOID COMPACTING SOIL WITH HEAVY EQUIPMENT. ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
4. TOPSOIL BORROW USED IN THE PLANTING PROCESS SHALL MEET MNDOT SPECIVIDATION3877-3; PREMIUM TOPSOIL BORROW REQUIREMENTS.

MATERIALS AND HANDLING

5. ALL PLANTS SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.
6. NO PLANT OR PRODUCT SUBSTITUTIONS ARE ACCEPTABLE WITHOUT PRIOR APPROVAL OF LANDSCAPE ARCHITECT.
7. PROVIDE PLANTS AS SPECIFIED IN PLANT LIST.
8. PROTECT PLANTS AT SITE FROM STRESS PRIOR TO INSTALLATION BY PLACING IN SHADE, HEELING IN TO MULCH, WATERING, AND OTHER APPROPRIATE MEASURES.

INSTALLATION

9. STAKE ALL PROPOSED PLANT BEDS AS SHOWN ON PLAN, DETAILS, AND PLANT SCHEDULE. SOME FIELD ADJUSTMENT MAY BE NECESSARY. LANDSCAPE ARCHITECT TO REVIEW PLANT LAYOUT PRIOR TO PLANTING. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY (FRED ROZUMALSKI 952-832-2733)
10. ANY EXISTING GRASS OR WEEDS WITHIN THE PLANTING BED AREAS SHALL BE SPRAYED WITH HERBICIDE 14 DAYS PRIOR TO TILLING.
11. ALL HERBICIDE APPLICATION SHALL BE BY A CERTIFIED APPLICATOR.
12. PREPARE PLANTING AREA WITH SOIL AMENDMENT PRIOR TO PLANTING, SEE SPECIFICATIONS.
13. PLACE SHREDDED HARDWOOD MULCH (MN/DOT SPEC 3882.2 TYPE 6 – WEED SEED FREE SHREDDED HARDWOOD.) TO A DEPTH OF 3" WITHIN ALL SHRUB PLANTING AREAS.
14. INSTALL PLANTS PER PLANTING DETAILS AND PLANT SCHEDULE.
15. THOROUGHLY WATER ALL PLANTINGS AFTER INSTALLATION.
16. SOD ALL DISTURBED AREAS OUTSIDE OF TREE, SHRUB, AND HERBACEOUS PLANTING AREAS UNLESS OTHERWISE NOTED ON PLANS.

CLEANUP

17. AFTER PLANTING IS COMPLETE RESTORE ENTIRE AREA AROUND PLANTINGS TO ORIGINAL CONDITION. REPLACE ANY DAMAGED SOD.
18. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT WHEN INSTALLATION IS COMPLETE. LANDSCAPE ARCHITECT WILL MEET WITH CONTRACTOR ON SITE FOR A FINAL WALK-THROUGH TO APPROVE SOIL PREPARATION AND PLANTINGS. IF NECESSARY A PUNCH LIST WILL FOLLOW, LISTING ITEMS NEEDING REPAIR, REPLACEMENT, CLEANING, ETC. WHEN ITEMS ON LIST ARE CORRECTED, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR ANOTHER INSPECTION OF SITE. THIS PROCESS WILL CONTINUE UNTIL ALL ITEMS ON PUNCH LIST ARE CORRECTED.
19. UPON COMPLETION OF SATISFACTORY INSPECTION, EITHER INITIALLY OR AFTER CORRECTION OF PUNCH LIST ITEMS, THE LANDSCAPE DESIGNER WILL RECOMMEND ACCEPTANCE OF THE WORK BY THE OWNER.

MAINTENANCE AND WARRANTY

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SODDED AREAS IN A HEALTHY GROWING CONDITION FOR 30 DAYS AFTER INSTALLATION. AFTER THIS TIME, ANY SOD NOT SHOWING DEFINITE GROWTH AND ESTABLISHMENT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
21. ALL PLANTS PROVIDED BY THE CONTRACTOR SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF OWNER ACCEPTANCE. AT THE END OF THE ONE-YEAR GUARANTEE PERIOD ALL PLANTS SHALL BE IN SATISFACTORY CONDITION, EXCLUDING INSTANCES OF VANDALISM, AS DETERMINED BY OWNER. SEE PLANTING DETAILS ON SHEET 5 FOR WARRANTY NOTES.
22. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR A FINAL INSPECTION AFTER THE END OF THE TREE AND SHRUB GUARANTEE PERIOD, AND AGAIN AFTER ANY AND ALL REPLACEMENTS ARE PLANTED.

IRRIGATION NOTES

23. CONTRACTOR SHALL PREPARE IRRIGATION PLAN FOR PLANTING AREAS AND SUBMIT FOR APPROVAL OF OWNER AND LANDSCAPE ARCHITECT.
24. CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING IRRIGATION ZONES, MATERIALS, CONTROLS, AND WATER AND ELECTRICAL CONNECTIONS.

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	WMB	FJR	FJR	08/11/2017	PRELIMINARY DRAFT

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME FRED J. ROZUMALSKI

SIGNATURE

DATE 08/11/2017 LICENSE # 26559

	08/11/17
CLIENT	
BID	
CONSTRUCTION	

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A	B	C	0	1	2	3

DATE RELEASED

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Corporate Headquarters:
Minneapolis, Minnesota
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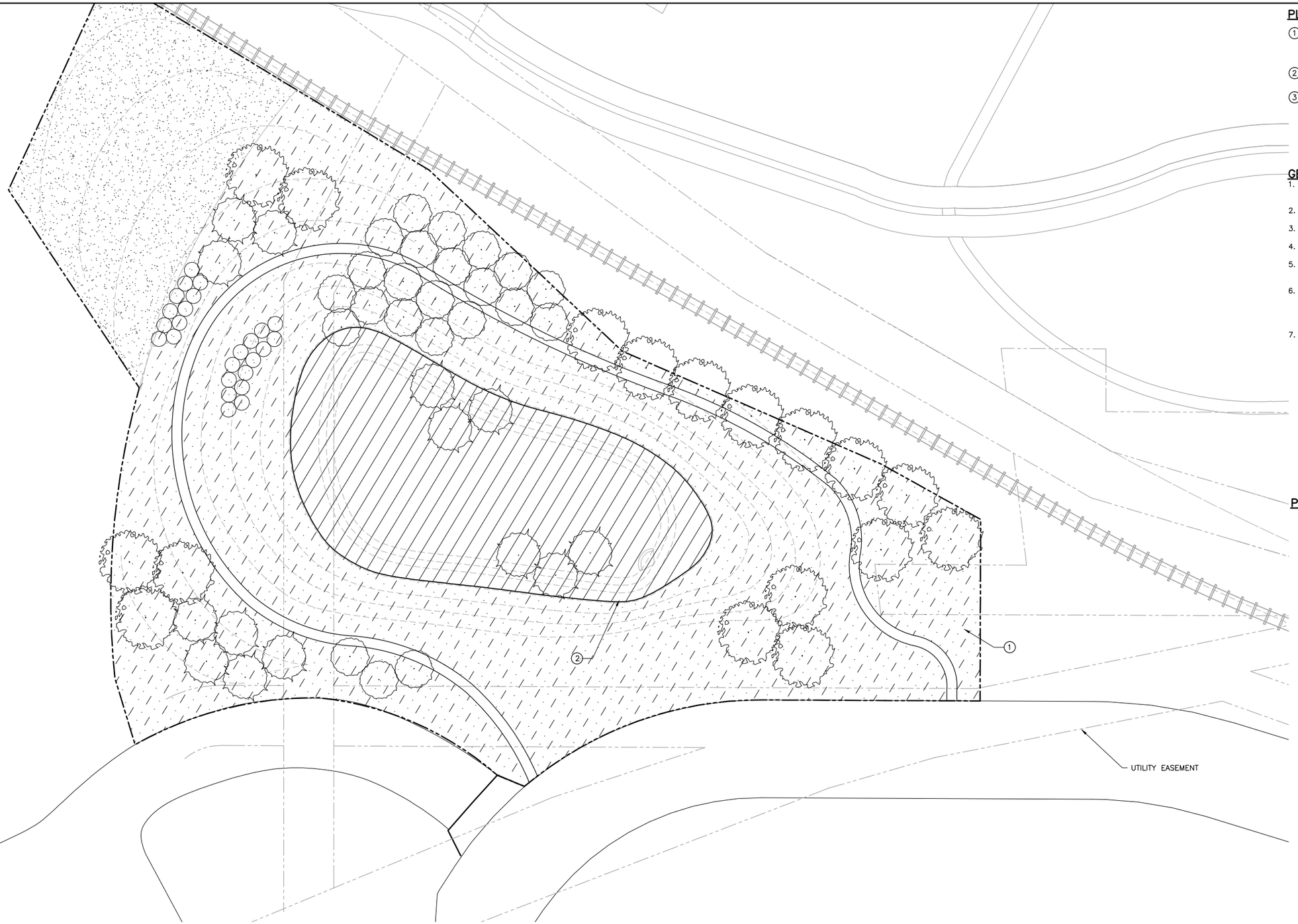
Scale	AS SHOWN
Date	08/11/2017
Drawn	WMB
Checked	FJR
Designed	BARR
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PLANTING PLAN
DRAWING REFERENCE

BARR PROJECT No.	23/62-1219.00
CLIENT PROJECT No.	
DWG. No.	L-01
REV. No.	A



PLANTING REFERENCE NOTES

1. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION, SEE SHEEET C–XX THROUGH C–XX FOR TOPSOIL PLACEMENT
2. LINER EXTENTS TO EL. 701.86, SEE —/C–XX
3.

GENERAL NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
2. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY.
3. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
4. SEE SHEET C–xx FOR HERBACEOUS PLUG, SHRUB, AND TREE PLANTING DETAILS
5. CONTRACTOR SHALL POTHOLE AND HAVE LOCATED BY GOPHER ONE ALL EXISTING UTILITIES LOCATED WITHIN THE PROJECT LIMITS BEFORE EARTHWORK BEGINS.
6. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION, CONCRETE, AND PLANTING OPERATIONS. AVOID COMPACTING SOIL WITH HEAVY EQUIPMENT, ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
7. CONTRACTOR WILL BE RESPONSIBLE FOR WATERING PLANTS (REGARDLESS OF NOTIFICATION) DURING ENTIRE WARRANTY PERIOD. CONTRACTOR WILL WATER PLANTS WITHIN 24 HOURS OF RECEIPT OF NOTIFICATION FROM OWNER. WATERING WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT. OWNER SHALL MAKE WATER AVAILABLE FOR THE CONTRACTOR TO USE.

PLANT SCHEDULE:

LARGE DECIDUOUS TREE

SMALL DECIDUOUS TREE

CONIFEROUS TREE

SHRUB

LEGEND

700 PROPOSED CONTOURS

UTILITY EASEMENT, NO TREES WITHIN LIMITS

RAILROAD TRACKS

CONSTRUCTION LIMITS

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 LOW MAINTENANCE TURF SEED MIX 25–131.

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH SHORT GRASS PRAIRIE MIX (SEE SPECIFICATIONS)

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH BASIN WET MEADOW MIX (SEE SPECIFICATIONS) AND PLANT HERBACEOUS PLUGS 2' O.C. (SEE PLANTING SCHEDULE ON SHEET L–XX)

PRELIMINARY DRAFT

1 — PLANTINT PLAN: GREENWAY CIVIC GREEN

0 20 40

SCALE IN FEET

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

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BARR ENGINEERING CO.
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Suite 200
MINNEAPOLIS, MN 55435
Ph: 1–800–632–2277
Fax: (952) 832–2601
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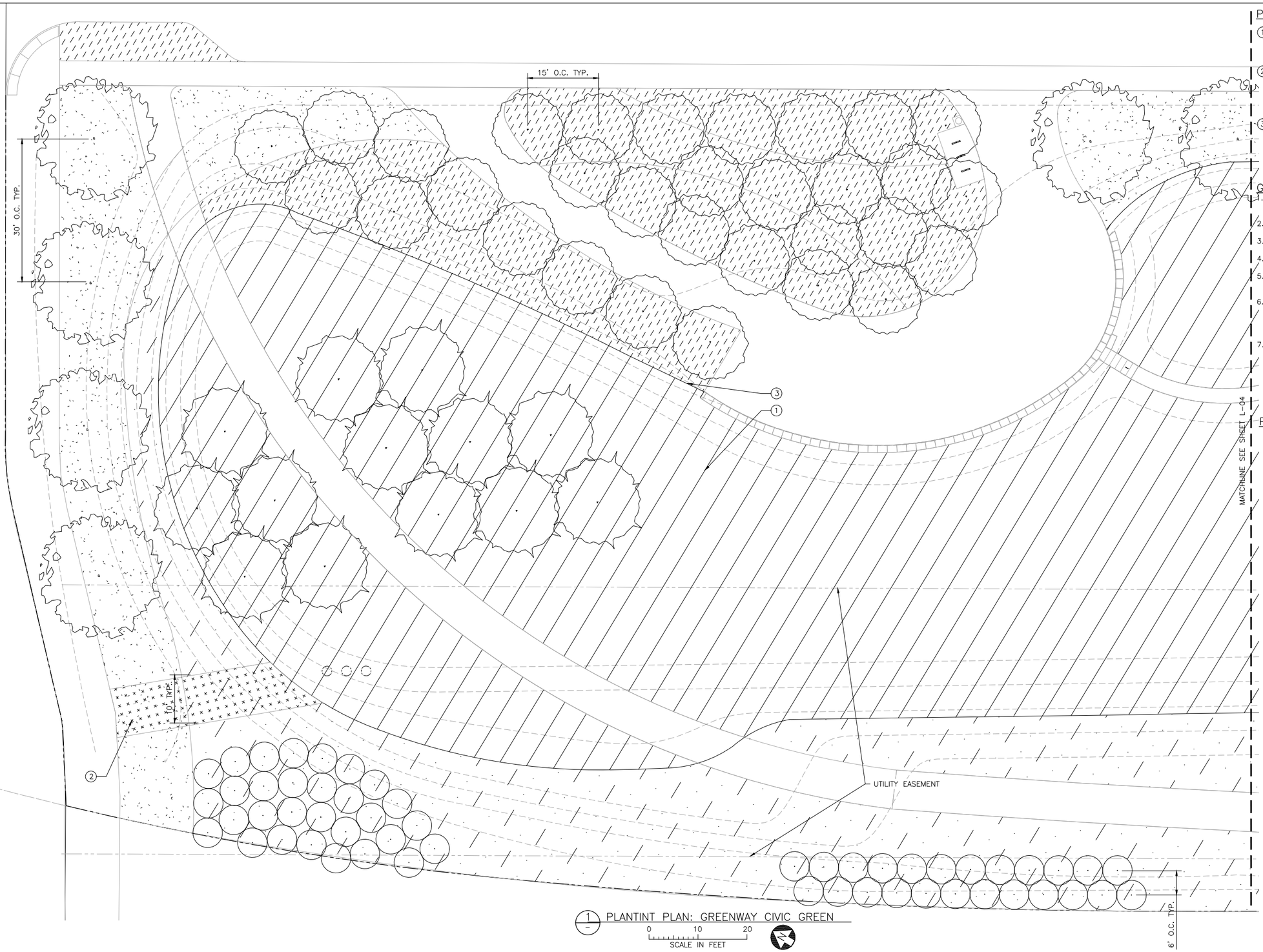
Scale	AS SHOWN
Date	8/07/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PLANTING PLAN
LEVEE AREA

BARR PROJECT No. 23/62–1219.00
CLIENT PROJECT No.
DWG. No. L–02
REV. No. 0



1 PLANTINT PLAN: GREENWAY CIVIC GREEN

0 10 20

SCALE IN FEET

PLANTING REFERENCE NOTES

1. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION, SEE SHEEET C-XX THROUGH C-XX FOR TOPSOIL PLACEMENT
2. NETLON ATS TO BE INSTALLED 6" DEEP AT DENSITY OF ONE BALE PER FIVE (5) CY OF MIX INTO APPROVED WASHED SAND/COMPOST MIX, SEE —/C-XX
3. LINER EXTENTS TO EL. 701.5, SEE —/C-XX

GENERAL NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
2. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY.
3. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
4. SEE SHEET C-xx FOR HERBACEOUS PLUG, SHRUB, AND TREE PLANTING DETAILS
5. CONTRACTOR SHALL POTHOLE AND HAVE LOCATED BY GOPHER ONE ALL EXISTING UTILITIES LOCATED WITHIN THE PROJECT LIMITS BEFORE EARTHWORK BEGINS.
6. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION, CONCRETE, AND PLANTING OPERATIONS. AVOID COMPACTING SOIL WITH HEAVY EQUIPMENT, ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
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PLANT SCHEDULE:

LARGE DECIDUOUS TREE

SMALL DECIDUOUS TREE

CONIFEROUS TREE

SHRUB

LEGEND

700 PROPOSED CONTOURS

UTILITY EASEMENT, NO TREES WITHIN LIMITS

RAILROAD TRACKS

CONSTRUCTION LIMITS

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 LOW MAINTENANCE TURF SEED MIX 25-131.

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH SHORT GRASS PRAIRIE MIX (SEE SPECIFICATIONS)

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH BASIN WET MEADOW MIX (SEE SPECIFICATIONS) AND PLANT HERBACEOUS PLUGS 2' O.C. (SEE PLANTING SCHEDULE ON SHEET L-XX)

PERENNIAL PLANTING AREA

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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CLIENT								
BID								
CONSTRUCTION								
	DATE RELEASED							

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Date	8/07/2017
Drawn	WMB
Checked	FJR
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PLANTING PLAN
GREENWAY CIVIC PLAZA

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
L-03	0

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_L-05_PLANTING PLAN_GREENWAY_CIVIC PLAZA.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 1:44 PM
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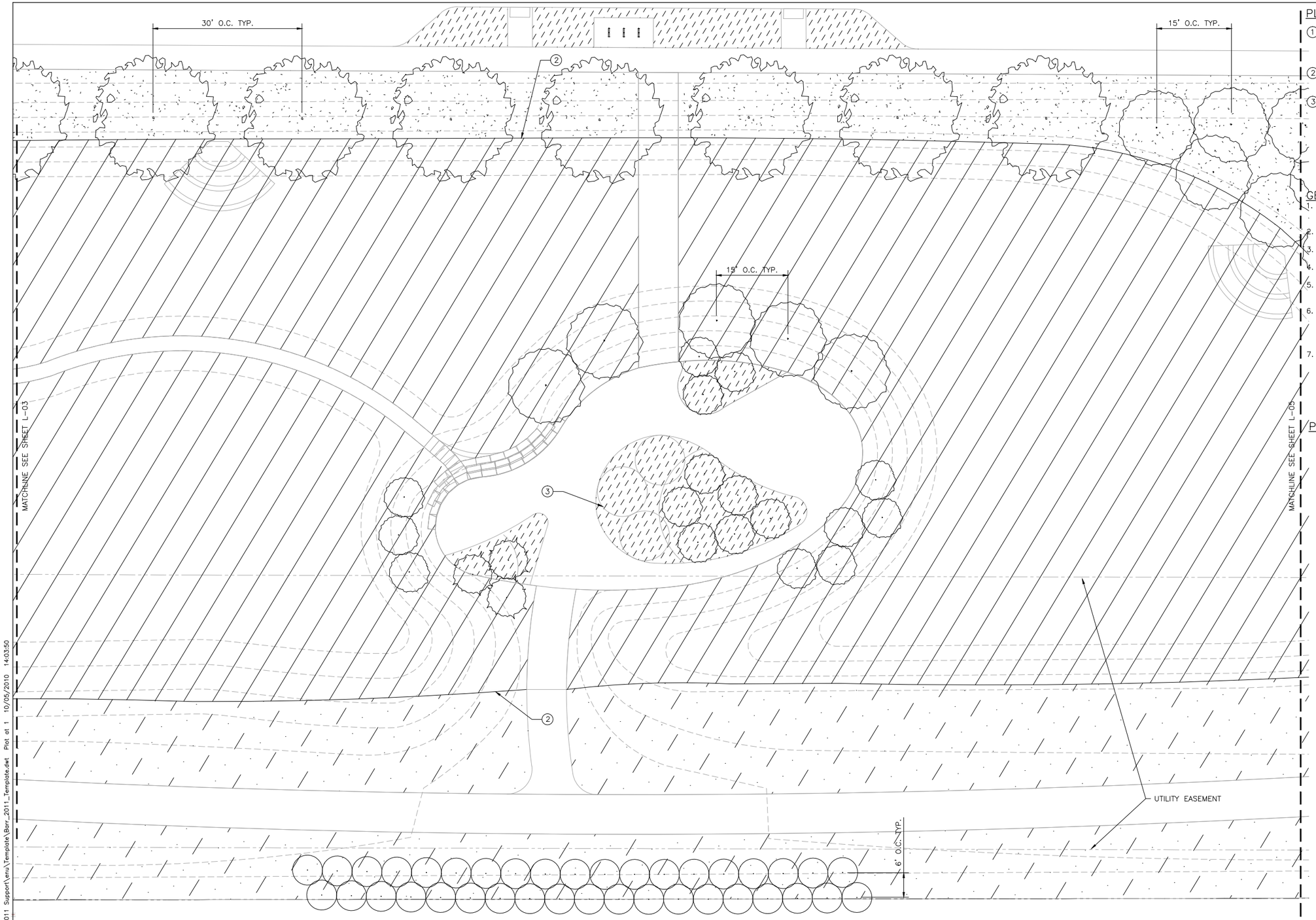

1 PLANTINT PLAN: GREENWAY STORMWATER PLAZA

0 10 20

SCALE IN FEET

PLANTING REFERENCE NOTES

1. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION, SEE SHEEET C-XX THROUGH C-XX FOR TOPSOIL PLACEMENT
2. LINER EXTENTS TO EL. 701.5, SEE —/C-XX
3. ARTISTIC TRELLIS FEATURE, SEE —/C-XX

GENERAL NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
2. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY.
3. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
4. SEE SHEET C-xx FOR HERBACEOUS PLUG, SHRUB, AND TREE PLANTING DETAILS
5. CONTRACTOR SHALL POTHOLE AND HAVE LOCATED BY GOPHER ONE ALL EXISTING UTILITIES LOCATED WITHIN THE PROJECT LIMITS BEFORE EARTHWORK BEGINS.
6. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION, CONCRETE, AND PLANTING OPERATIONS. AVOID COMPACTING SOIL WITH HEAVY EQUIPMENT, ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
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PLANT SCHEDULE:

LARGE DECIDUOUS TREE

SMALL DECIDUOUS TREE

CONIFEROUS TREE

SHRUB

LEGEND

700 PROPOSED CONTOURS

UTILITY EASEMENT, NO TREES WITHIN LIMITS

RAILROAD TRACKS

CONSTRUCTION LIMITS

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 LOW MAINTENANCE TURF SEED MIX 25-131.

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH SHORT GRASS PRAIRIE MIX (SEE SPECIFICATIONS)

SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH BASIN WET MEADOW MIX (SEE SPECIFICATIONS) AND PLANT HERBACEOUS PLUGS 2' O.C. (SEE PLANTING SCHEDULE ON SHEET L-XX)

PERENNIAL PLANTING AREA

PRELIMINARY DRAFT

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CLIENT	BID	CONSTRUCTION	RELEASED TO/FOR

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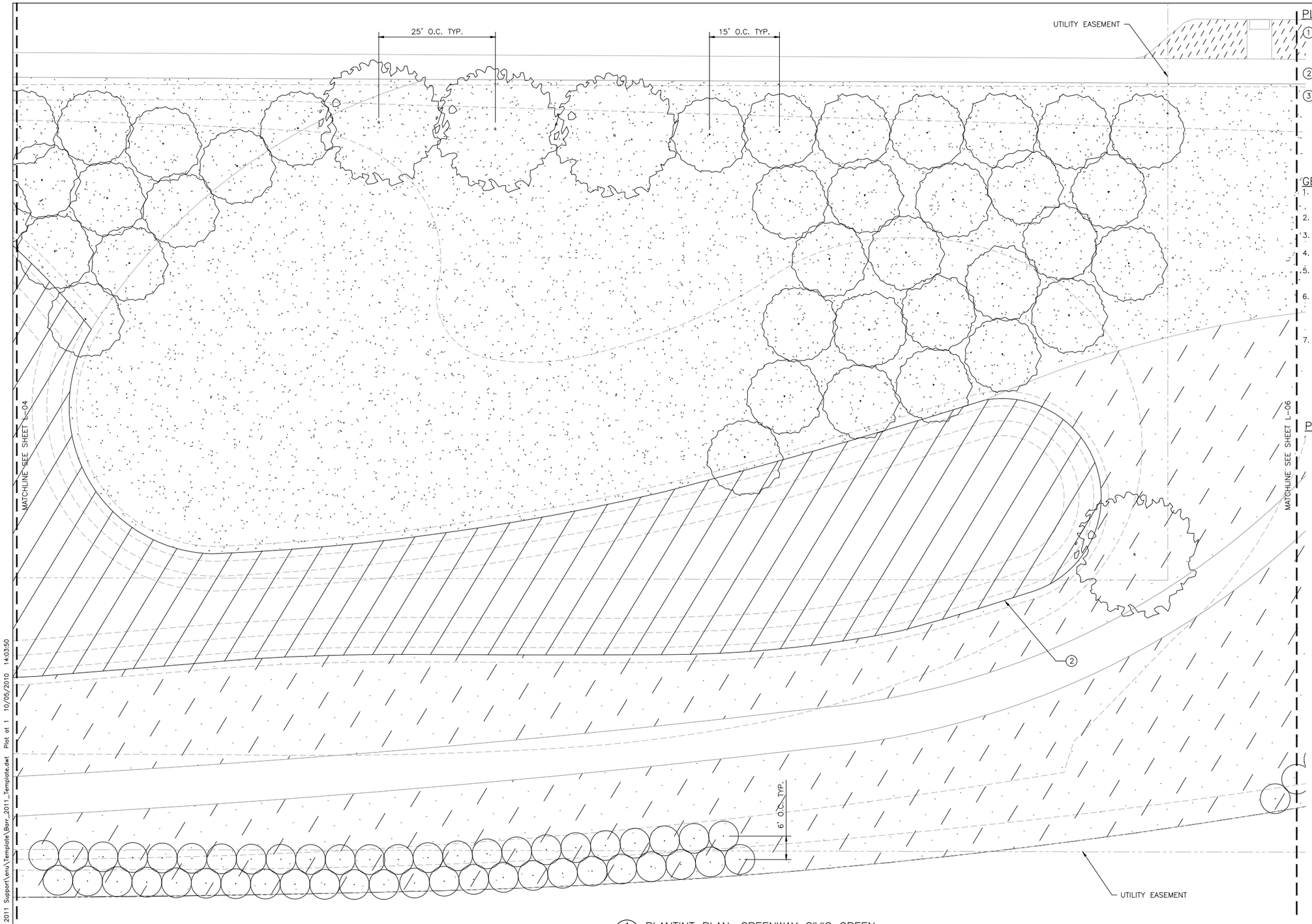
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PLANTING PLAN
GREENWAY STORMWATER PLAZA

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. L-04
REV. No. 0



PLANTING REFERENCE NOTES

1. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION, SEE SHEEET C-XX THROUGH C-XX FOR TOPSOIL PLACEMENT
2. LINER EXTENTS TO EL. 701.5, SEE C-XX
3.

GENERAL NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
2. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY.
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PLANT SCHEDULE:

LARGE DECIDUOUS TREE

SMALL DECIDUOUS TREE

CONIFEROUS TREE

SHRUB

LEGEND

- 700 PROPOSED CONTOURS
- UTILITY EASEMENT, NO TREES WITHIN LIMITS
- RAILROAD TRACKS
- CONSTRUCTION LIMITS
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 LOW MAINTENANCE TURF SEED MIX 25-131.
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH SHORT GRASS PRAIRIE MIX (SEE SPECIFICATIONS)
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH BASIN WET MEADOW MIX (SEE SPECIFICATIONS) AND PLANT HERBACEOUS PLUGS 2' O.C. (SEE PLANTING SCHEDULE ON SHEET L-XX)
- PERENNIAL PLANTING AREA

1 PLANTINT PLAN: GREENWAY CIVIC GREEN

0 10 20

SCALE IN FEET

PRELIMINARY DRAFT

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SIGNATURE _____

DATE _____ LICENSE # _____

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Scale	AS SHOWN
Date	8/07/2017
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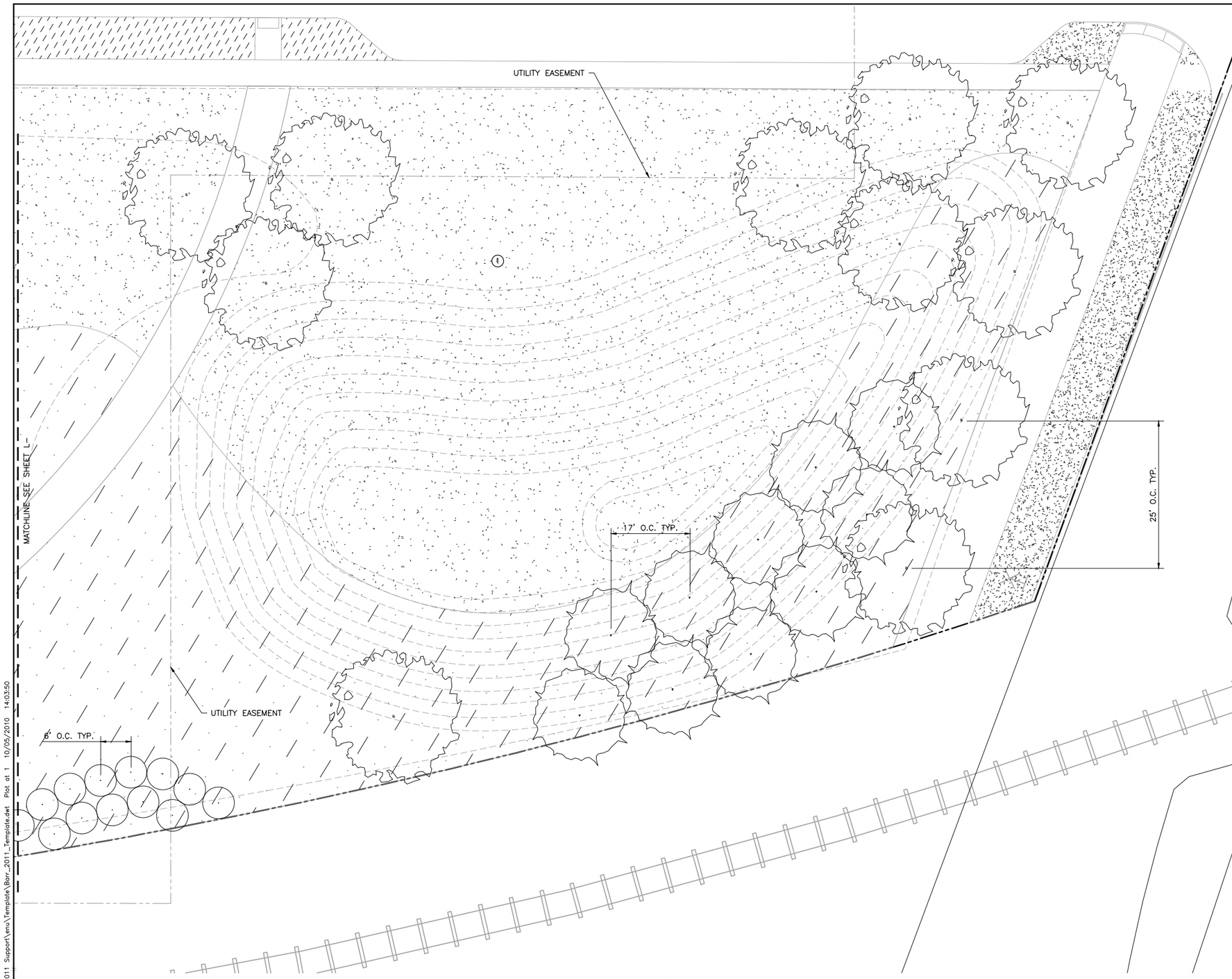
Checked	FJR
Designed	BHD
Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PLANTING PLAN
GREENWAY CIVIC GREEN

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
L-05	0



PLANTINT PLAN: GREENWAY CIVIC GREEN

0 10 20

SCALE IN FEET

PLANTING REFERENCE NOTES

1. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION, SEE SHEEET C-XX THROUGH C-XX FOR TOPSOIL PLACEMENT
2.
3.

GENERAL NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
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3. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
4. SEE SHEET C-xx FOR HERBACEOUS PLUG, SHRUB, AND TREE PLANTING DETAILS
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6. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION, CONCRETE, AND PLANTING OPERATIONS. AVOID COMPACTING SOIL WITH HEAVY EQUIPMENT, ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
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PLANT SCHEDULE:

LARGE DECIDUOUS TREE

SMALL DECIDUOUS TREE

CONIFEROUS TREE

SHRUB

LEGEND

- 700 PROPOSED CONTOURS
- UTILITY EASEMENT, NO TREES WITHIN LIMITS
- RAILROAD TRACKS
- CONSTRUCTION LIMITS
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 LOW MAINTENANCE TURF SEED MIX 25-131.
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH SHORT GRASS PRAIRIE MIX (SEE SPECIFICATIONS)
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH BASIN WET MEADOW MIX (SEE SPECIFICATIONS) AND PLANT HERBACEOUS PLUGS 2' O.C. (SEE PLANTING SCHEDULE ON SHEET L-XX)
- SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876 WITH SALT TOLERANT SEED MIX (SEE SPECIFICATIONS).
- PERENNIAL PLANTING AREA

PRELIMINARY DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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CLIENT							
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CONSTRUCTION							
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Checked	
Designed	
Approved	

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

PLANTING PLAN
GREENWAY ELEVATED LOOKOUT

BARR PROJECT No.	
23/62-1219.00	
CLIENT PROJECT No.	
DWG. No.	REV. No.
L-06	0

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23621219.00\23621219.00_WSF_L-02_PLANTING PLAN_GREENWAY_ELEVATED OVERLOOK.DWG PLOT SCALE: 1:2 PLOT DATE: 8/15/2017 1:39 PM
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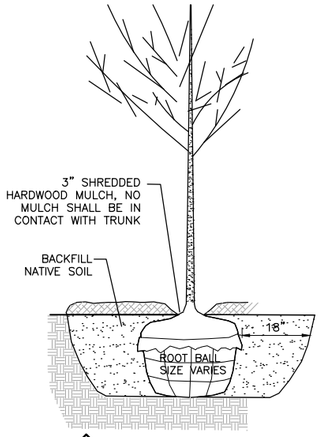
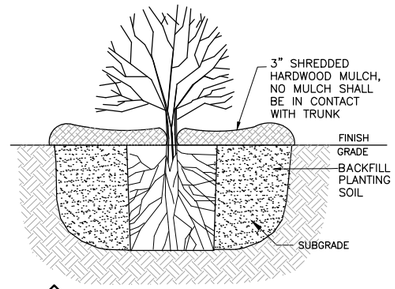


1 – DETAIL: TREE PLANTING
NOT TO SCALE

TREE PLANTING NOTES:

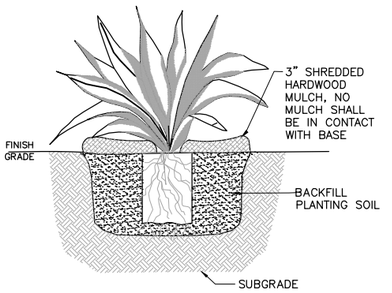
1. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
2. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF PLANT. DO NOT CUT THE LEADER
3. IF ROOT FLARE IS NOT EXPOSED WITHIN THE CONTAINER EXCAVATE SURFACE SOIL TO BASE OF ROOT FLARE.
4. DIG PLANT HOLES 6" MIN. LARGER THAN ROOT MASS, ALL SIDES.
5. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING
6. SET TREE ON LIGHTLY FIRMED BACKFILL SOIL SO ROOT FLARE IS EVEN WITH FINISH GRADE.
7. BACKFILL WITH PLANTING SOIL AND FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS AROUND ROOT MASS.
8. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF INSTALLATION.
9. PLACE SHREDDED HARDWOOD MULCH (MN/DOT SPEC 3882.2 TYPE 6 – WEED SEED FREE SHREDDED HARDWOOD.) TO A RADIUS OF 24" AND TO A DEPTH OF 3" AROUND TREE (SOIL PREPARED AS PER PLAN).
10. NO MULCH TO BE IN CONTACT WITH BASE OF PLANT.
11. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN A PLUMB POSITION THROUGHOUT THE GUARANTEE PERIOD.
13. ALL TREES PROVIDED BY THE CONTRACTOR SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF OWNER ACCEPTANCE. AT THE END OF THE ONE–YEAR GUARANTEE PERIOD ALL TREES SHALL BE IN SATISFACTORY CONDITION, EXCLUDING INSTANCES OF VANDALISM, AS DETERMINED BY OWNER.
    13.1. REPLACEMENTS: AT THE END OF THE ONE YEAR WARRANTY PERIOD ALL PLANTS SHALL FULFILL ALL THE REQUIREMENTS OF THESE SPECIFICATIONS AND REFERENCES WITH REGARD TO QUALITY AND CONDITION; FURTHER, THEY SHALL BE FREE OF DEAD BRANCHES AND TWIGS AND SHALL BEAR A MINIMUM OF 50% OF THE FOLIAGE PRESENT WHEN PLANTED HAVING NORMAL DENSITY, SIZE, SHAPE AND COLOR AS DETERMINED BY THE ENGINEER. ANY PLANTS FAILING TO SATISFY ALL THESE CONDITIONS SHALL BE REPLACED AS PER THE PRELIMINARY AND FINAL ACCEPTANCE PROCESS. PLANTS MAY BE REPLACED PRIOR TO THE END OF THEIR WARRANTY PERIOD IF SUCH AN AGREEMENT EXISTS BETWEEN THE CONTRACTOR AND THE OWNER. REPLACEMENT STOCK SHALL BE SUBJECT TO ALL REQUIREMENTS AS TO SELECTION, INSPECTIONS, PREPARATION, PLANTING AND MAINTENANCE OPERATIONS. REPLACEMENTS SHALL MATCH CALIPER AND/OR HEIGHT ATTAINED BY OTHER STOCK OF THE ORIGINAL PLANTING.
    13.2. REPLACEMENT GUARANTEE: REPLACEMENT STOCK SHALL NOT BE WARRANTED.
14. CONTRACTOR SHALL NOTIFY OWNER FOR A FINAL INSPECTION AFTER THE END OF THE TREE GUARANTEE PERIOD, AND AGAIN AFTER ANY AND ALL REPLACEMENTS ARE PLANTED.



2 – DETAIL: SHRUB PLANTING
NOT TO SCALE

SHRUB AND VINE PLANTING NOTES:

1. PREPARE SOIL WITH COMPOST AMENDMENT PER PLAN.
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF PLANT.
4. DIG PLANT HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
5. SET SHRUB ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
6. BACK FILL WITH PLANTING SOIL FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS AROUND ROOT MASS.
7. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF INSTALLATION.
8. APPLY 3" DEPTH SHREDDED HARDWOOD MULCH TO ENTIRE PLANTING AREA (SOIL PREPARED AS PER PLAN).
9. NO MULCH TO BE IN CONTACT WITH PLANT.
10. WATER THOROUGHLY AFTER PLANTING.
11. ALL SHRUBS AND VINES PROVIDED BY THE CONTRACTOR SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF OWNER ACCEPTANCE. AT THE END OF THE ONE–YEAR GUARANTEE PERIOD ALL SHRUBS AND VINES SHALL BE IN SATISFACTORY CONDITION, EXCLUDING INSTANCES OF VANDALISM, AS DETERMINED BY OWNER.
    11.1. REPLACEMENTS: AT THE END OF THE ONE YEAR WARRANTY PERIOD ALL PLANTS SHALL FULFILL ALL THE REQUIREMENTS OF THESE SPECIFICATIONS AND REFERENCES WITH REGARD TO QUALITY AND CONDITION; FURTHER, THEY SHALL BE FREE OF DEAD BRANCHES AND TWIGS AND SHALL BEAR A MINIMUM OF 50% OF THE FOLIAGE PRESENT WHEN PLANTED HAVING NORMAL DENSITY, SIZE, SHAPE AND COLOR AS DETERMINED BY THE ENGINEER. ANY PLANTS FAILING TO SATISFY ALL THESE CONDITIONS SHALL BE REPLACED AS PER THE PRELIMINARY AND FINAL ACCEPTANCE PROCESS. PLANTS MAY BE REPLACED PRIOR TO THE END OF THEIR WARRANTY PERIOD IF SUCH AN AGREEMENT EXISTS BETWEEN THE CONTRACTOR AND THE OWNER. REPLACEMENT STOCK SHALL BE SUBJECT TO ALL REQUIREMENTS AS TO SELECTION, INSPECTIONS, PREPARATION, PLANTING AND MAINTENANCE OPERATIONS. REPLACEMENTS SHALL MATCH CALIPER AND/OR HEIGHT ATTAINED BY OTHER STOCK OF THE ORIGINAL PLANTING.
12. CONTRACTOR SHALL NOTIFY OWNER FOR A FINAL INSPECTION AFTER THE END OF THE SHRUB GUARANTEE PERIOD, AND AGAIN AFTER ANY AND ALL REPLACEMENTS ARE PLANTED.



3 – DETAIL: PERENNIAL PLANTING
NOT TO SCALE

HERBACEOUS PLUG AND POT PLANTING NOTES:

1. PREPARE SOIL WITH COMPOST AMENDMENT PER PLAN
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. EXCAVATE HOLE 3 TIMES WIDTH OF ROOTBALL.
4. BREAK BOTTOM OF ROOTBALL TO LOOSEN ROOTS.
5. PLANT THROUGH MULCH ALIGNING ROOTBALL TOP EVEN WITH SOIL – DO NOT PLANT TOO DEEP OR TOO SHALLOW. FIRM SOIL TO ENSURE GOOD CONTACT WITH ROOTS.
6. BACK FILL WITH PLANTING SOIL. FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS AROUND ROOT MASS.
7. APPLY 3" DEPTH SHREDDED HARDWOOD MULCH TO ENTIRE PLANTING AREA (SOIL PREPARED AS PER SPECIFICATIONS).
8. NO MULCH TO BE IN CONTACT WITH PLANT.
8. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF INSTALLATION.
9. WATER THOROUGHLY AFTER PLANTING.
10. ALL PERENNIAL PLANTS PROVIDED BY THE CONTRACTOR SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF OWNER ACCEPTANCE. AT THE END OF THE ONE–YEAR GUARANTEE PERIOD ALL PERENNIALS SHALL BE IN SATISFACTORY CONDITION, EXCLUDING INSTANCES OF VANDALISM, AS DETERMINED BY OWNER.
    10.1. REPLACEMENTS: AT THE END OF THE ONE YEAR WARRANTY PERIOD ALL PLANTS SHALL FULFILL ALL THE REQUIREMENTS OF THESE SPECIFICATIONS AND REFERENCES WITH REGARD TO QUALITY AND CONDITION; FURTHER, THEY SHALL BE FREE OF DEAD BRANCHES AND TWIGS AND SHALL BEAR A MINIMUM OF 50% OF THE FOLIAGE PRESENT WHEN PLANTED HAVING NORMAL DENSITY, SIZE, SHAPE AND COLOR AS DETERMINED BY THE ENGINEER. ANY PLANTS FAILING TO SATISFY ALL THESE CONDITIONS SHALL BE REPLACED AS PER THE PRELIMINARY AND FINAL ACCEPTANCE PROCESS. PLANTS MAY BE REPLACED PRIOR TO THE END OF THEIR WARRANTY PERIOD IF SUCH AN AGREEMENT EXISTS BETWEEN THE CONTRACTOR AND THE OWNER. REPLACEMENT STOCK SHALL BE SUBJECT TO ALL REQUIREMENTS AS TO SELECTION, INSPECTIONS, PREPARATION, PLANTING AND MAINTENANCE OPERATIONS. REPLACEMENTS SHALL MATCH CALIPER AND/OR HEIGHT ATTAINED BY OTHER STOCK OF THE ORIGINAL PLANTING.
11. CONTRACTOR SHALL NOTIFY OWNER FOR A FINAL INSPECTION AFTER THE END OF THE GUARANTEE PERIOD, AND AGAIN AFTER ANY AND ALL REPLACEMENTS ARE PLANTED.

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PRINTED NAME FRED J. ROZUMALSKI

DATE _____ REG. NO. 26559

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BID								
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Ph: 1–800–632–2277
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Designed	BARR
Approved	FJR

CITY OF SAINT PAUL
SAINT PAUL, MINNESOTA

WEST SIDE FLATS PARK DEISGN
SAINT PAUL, MN

PLANTING DETAILS

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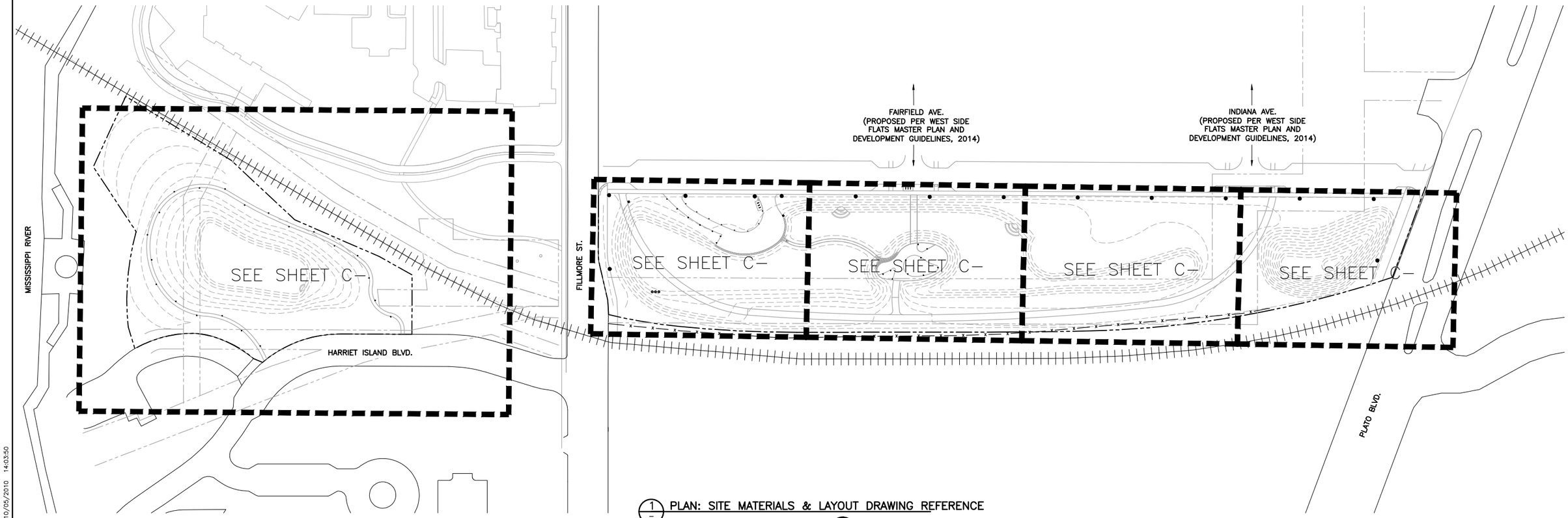
CLIENT PROJECT No.
DWG. No. L–07
REV. No. A



1 PLAN: SITE MATERIALS & LAYOUT DRAWING REFERENCE

0 60 120
SCALE IN FEET

NOTES:

1. CONTRACTOR SHALL HAVE UTILITIES LOCATED PRIOR TO BEGINNING WORK, AND IS RESPONSIBLE FOR PROTECTING UTILITIES FROM DAMAGE DURING PLANTING INSTALLATION.
2. PROTECT EXISTING CURBS, PAVEMENT, SIDEWALKS, AND OTHER SITE ELEMENTS FROM IMPACT BY SOIL PREPARATION AND PLANTING OPERATIONS. DO NOT COMPACT SOIL WITH HEAVY EQUIPMENT. ANY DAMAGE TO SITE TO BE REPAIRED AT CONTRACTOR'S EXPENSE.

ELECTRICAL SPECIFICATIONS:

1. THE "GENERAL CONDITIONS OF THE CONTRACT" AND ALL OTHER DIVISION 1 SECTIONS AS APPLICABLE ARE CONSIDERED A PART OF THIS CONTRACT.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS WHICH ARE OBVIOUSLY AND REASONABLY NECESSARY TO COMPLETE THE INSTALLATION.
3. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND STATE AND LOCAL CODES THAT APPLY.
4. THE CONTRACTOR SHALL TAKE OUT PERMITS, PROCURE CERTIFICATES, AND PAY FEES CONNECTED THEREWITH.
5. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE LOCATIONS. COORDINATE ALL FINAL LOCATIONS WITH THE WORK OF OTHER TRADES, AND WITH OWNER.
6. UNLESS NOTED OTHERWISE, ALL MATERIALS SHALL BE NEW AND THE BEST OF THEIR SEVERAL KINDS, AND BE UL-LISTED.
7. THE CONTRACTOR SHALL TOUCH-UP OR REFINISH THE FACTORY FINISH OF EQUIPMENT MARRED DURING SHIPMENT OR INSTALLATION.
8. CONTRACTOR SHALL BE A LICENSED MASTER ELECTRICIAN OF THE STATE IN WHICH THE WORK IS LOCATED.
9. GROUNDING SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.
10. AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL RUBBISH CAUSED BY THE CONTRACTOR AND SHALL THOROUGHLY CLEAN ALL ELECTRICAL EQUIPMENT AND COMPONENTS.
11. ALL WORK SHALL BE GUARANTEED FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
12. ALL ITEMS OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE CONTROL OF ELECTRICAL APPARATUS SHALL BE IDENTIFIED. ENGRAVED PLATES SHALL BE USED TO IDENTIFY ASSOCIATED EQUIPMENT.
13. ALL ELECTRICAL EQUIPMENT SHALL BE SPECIFICATION GRADE, UNLESS NOTED OTHERWISE.
14. WIRING DEVICES SHALL MEET NEMA PERFORMANCE STANDARDS.
15. ALL CIRCUIT DIRECTORIES AFFECTED BY THIS CONTRACT SHALL BE NEATLY RETYPED TO REFLECT CHANGES UNDER THIS CONTRACT.
16. ALL DOWNSTREAM ELECTRICAL EQUIPMENT THAT IS TO REMAIN, BUT ARE SERVED FROM EXISTING DEVICES OR LIGHTING FIXTURES BEING REMOVED SHALL BE RECIRCUITED AS REQUIRED TO MAINTAIN CONTINUITY.
17. NECESSARY MODIFICATIONS AND ADJUSTMENTS TO ALL ELECTRICAL ITEMS AND EQUIPMENT, BOTH THE NEW AND EXISTING, SHALL BE MADE AS MAY BE REQUIRED BY THESE ALTERATIONS AND ADDITIONS. CAREFUL INSPECTION OF THE PLANS AND SITE IS REQUIRED AS THE PLANS DO NOT INDICATE ALL SUCH ELECTRICAL ITEMS AND EQUIPMENT.
18. EXISTING ELECTRICAL MATERIALS AND EQUIPMENT, INCLUDING BUT NOT LIMITED TO LIGHTING FIXTURES, WIRING DEVICES, SIGNAL EQUIPMENT, CONDUIT AND WIRES, AND ALL OTHER ELECTRICAL ITEMS WHICH ARE RENDERED OBSOLETE BY THESE ALTERATIONS AND ADDITIONS, SHALL BE DISCONNECTED AT SOURCE, REMOVED, AND DISPOSED OF BY CONTRACTOR.
19. THE CONTRACTOR SHALL PROTECT ALL HIS WORK DONE UNDER THIS CONTRACT FROM INJURY DURING CONSTRUCTION AND PROTECT ALL NEW AND EXISTING EQUIPMENT FROM DAMAGE.
20. ALL CONDUCTORS SHALL BE COPPER WITH THHN OR THWN INSULATION, OR XHHW FOR CONDUCTORS LARGER THAN #8 AWG.
21. ALL EXISTING MATERIAL AND EQUIPMENT REMOVED UNDER THIS CONTRACT SHALL REMAIN THE PROPERTY OF THE OWNER AND, UNLESS REUSED, SHALL BE STORED OR DISPOSED OF AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EQUIPMENT REMOVED UNDER THIS CONTRACT AND SHALL REPAIR OR REPLACE SUCH DAMAGED ITEMS WITHOUT COST TO THE OWNER.

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Ph: 1-800-632-2277
Fax: (952) 832-2601
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Approved	FJR

THE CITY OF SAINT PAUL
SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

LIGHTING PLAN
DRAWING REFERENCE

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. E-01
REV. No. 0

CADD USER: Brendan H. Dougherty FILE: M:\DESIGN\23621219.00\23621219.00_WSF_E-01_LIGHTING PLAN-DRAWING REFERENCE.DWG PLOT SCALE: 1:2 PLOT DATE: 8/16/2017 4:48 PM
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LIGHTING PLAN REFERENCE NOTES

(1) SPACE LIGHTS SPACE EVENLY EVERY 30' ALTERNATING ALONG CENTERLINE OF PATH

LEGEND

- 700 PROPOSED CONTOURS
- RAILROAD TRACKS
- CONSTRUCTION LIMITS
- DECOMPOSED GRANITE PATH
- PROPOSED PATH LIGHTING (BOLLARDS)

1 PLAN: MATERIALS AND LAYOUT LEVEE AREA

0 20 40

SCALE IN FEET

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SAINT PAUL, MN

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LIGHTING PLAN
LEVEE AREA

BARR PROJECT No. 23/62-1219.00
CLIENT PROJECT No.
DWG. No. C-35
REV. No. 0

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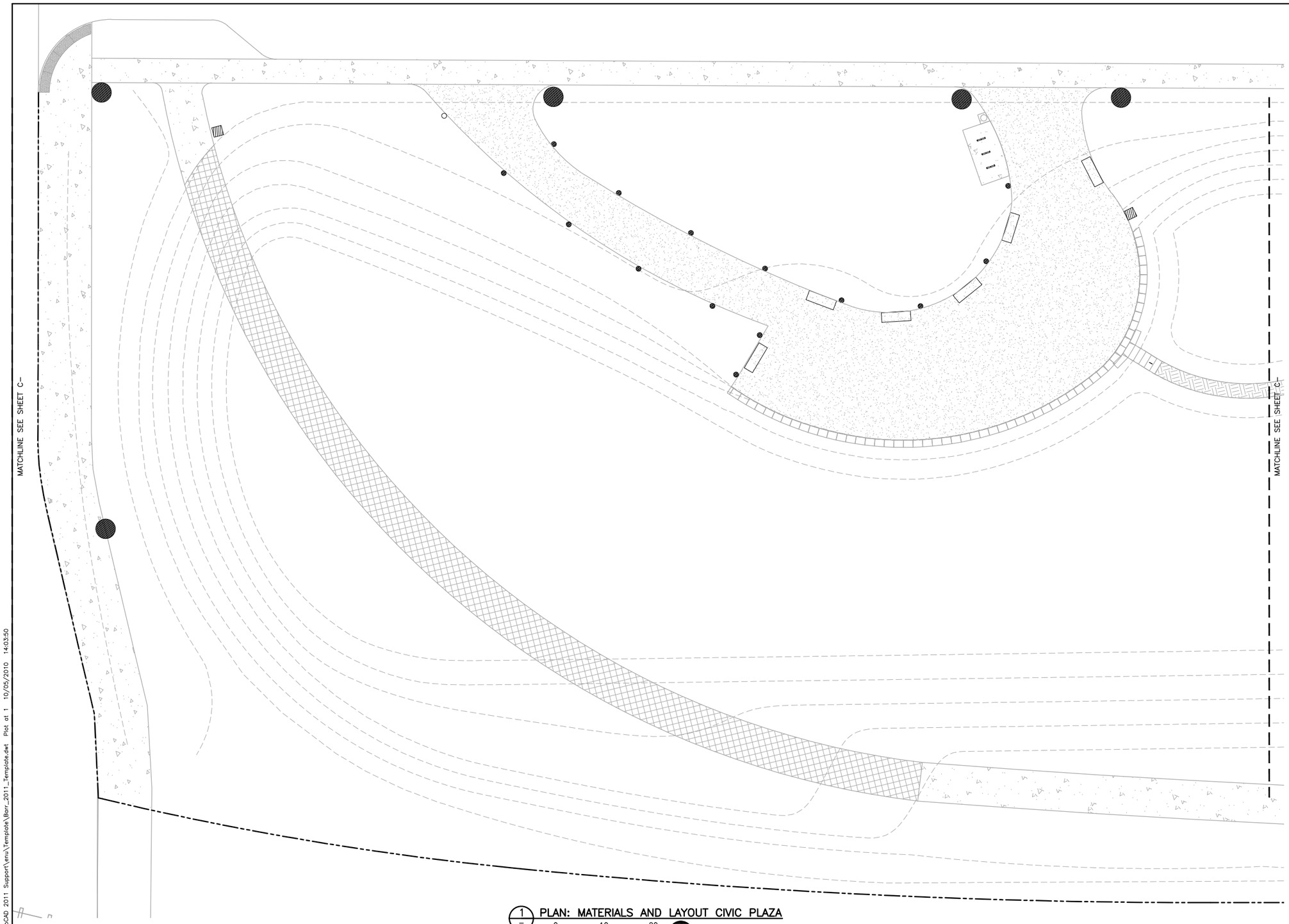
LIGHTING PLAN REFERENCE NOTES

(1) SPACE LIGHTS EQUALLY AS SHOWN



LEGEND

- 700 — PROPOSED CONTOURS
- CONSTRUCTION LIMITS
- PATH LIGHTING (BOLLARD)
- AREA LIGHTS
- STREET LIGHTING

1 PLAN: MATERIALS AND LAYOUT CIVIC PLAZA

0 10 20
SCALE IN FEET

PRELIMINARY DRAFT

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SAINT PAUL, MN

WEST SIDE FLATS PARK DESIGN
SAINT PAUL, MN

LIGHTING PLAN
GREENWAY CIVIC PLAZA

BARR PROJECT No.	
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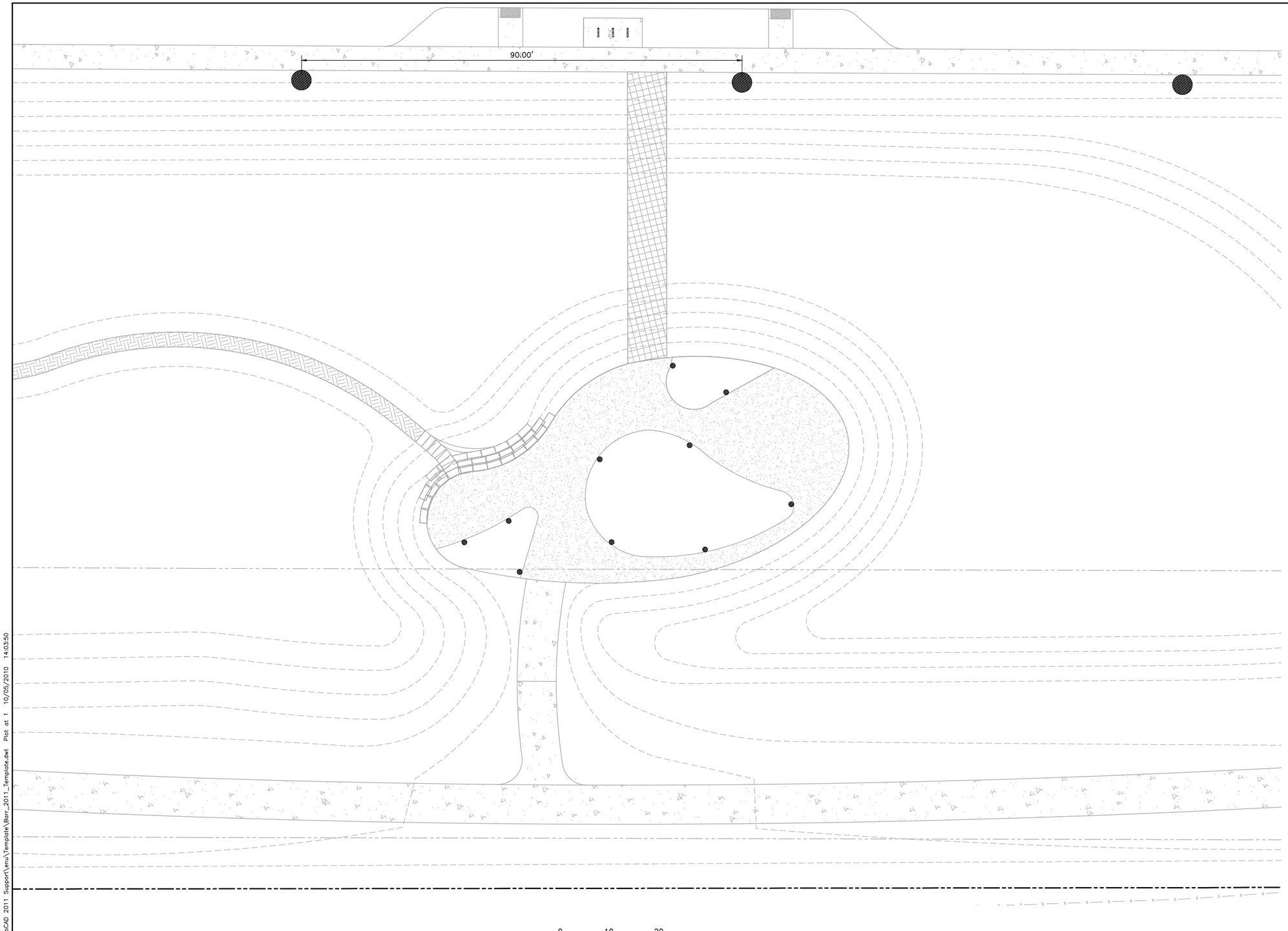
CLIENT PROJECT No.	
DWG. No.	REV. No.
C-36	0

LIGHTING PLAN REFERENCE NOTES



0 10 20
SCALE IN FEET

LEGEND

- 700 PROPOSED CONTOURS
- CONSTRUCTION LIMITS
- PATH LIGHTING (BOLLARD)
- STREET LIGHTING

PRELIMINARY DRAFT

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LIGHTING PLAN
GREENWAY STROMWATER PLAZA

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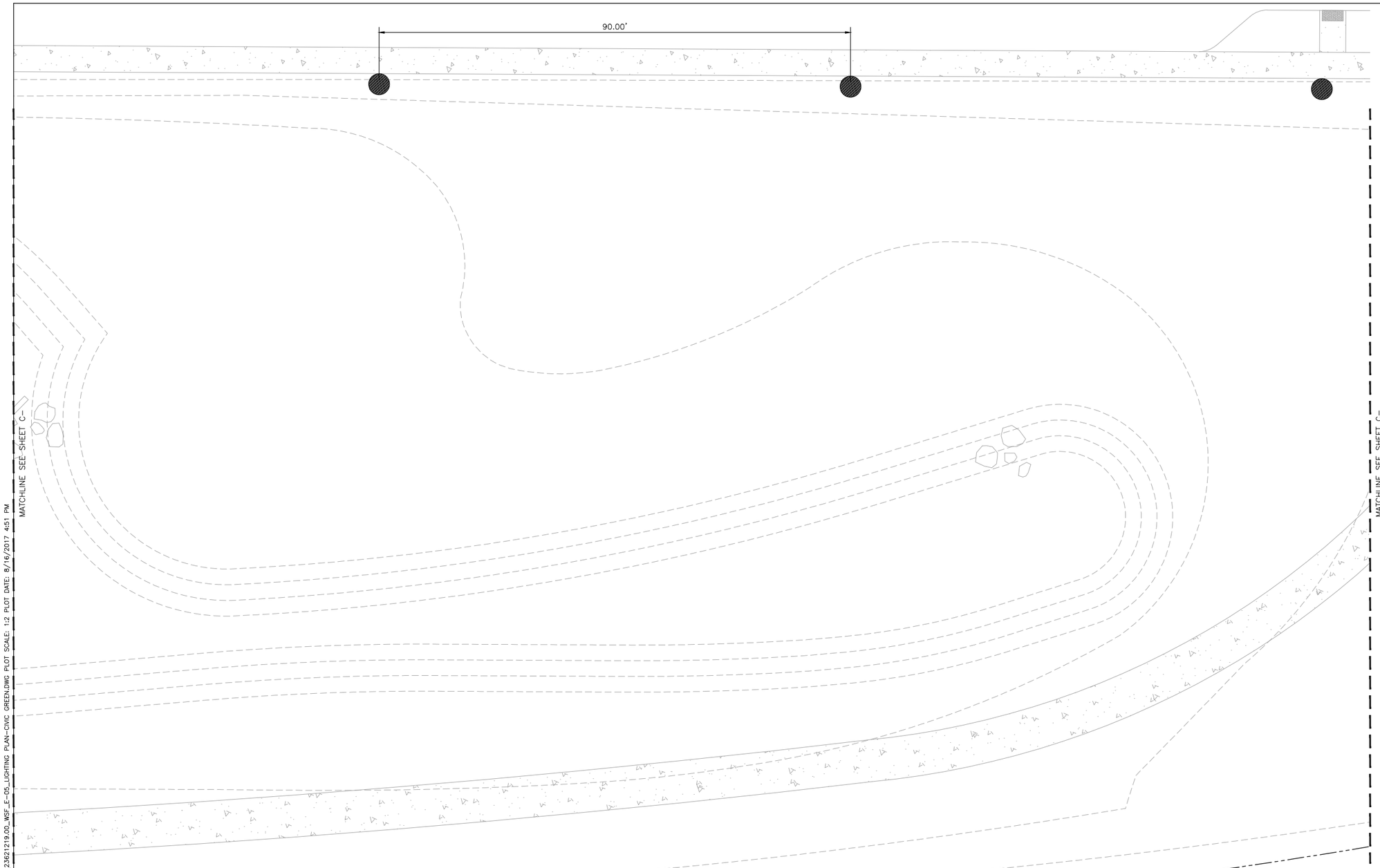

LIGHTING PLAN REFERENCE NOTES

1. SPACE LIGHTS EQUALLY AS SHOWN

LEGEND

- 700 — PROPOSED CONTOURS
- CONSTRUCTION LIMITS
- STREET LIGHTING

1 — PLAN: MATERIALS AND LAYOUT CIVIC GREEN

0 10 20

SCALE IN FEET

PRELIMINARY DRAFT

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LIGHTINGIN PLAN
GREENWAY CIVIC GREEN

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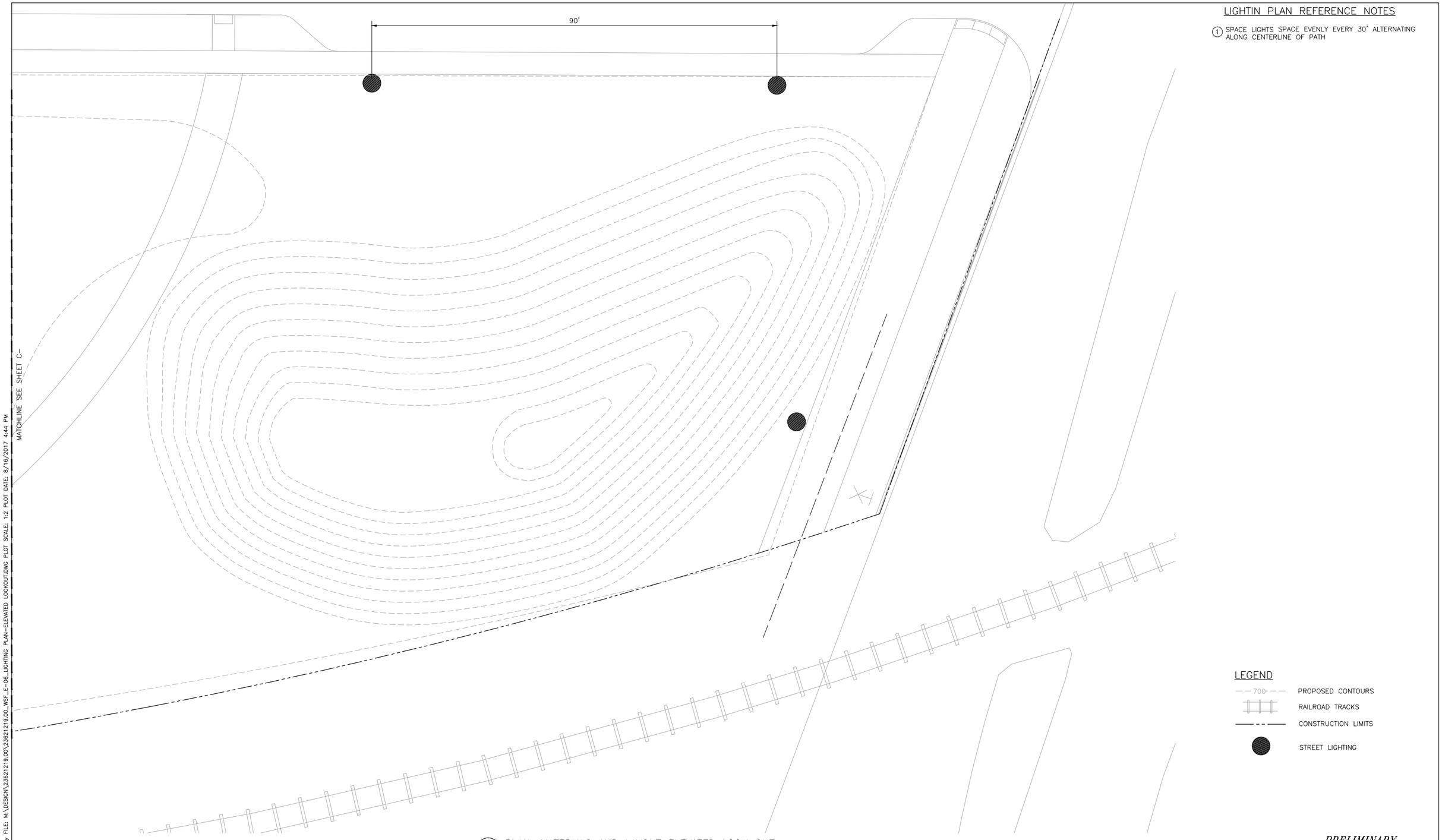
REV. No.	



LIGHTIN PLAN REFERENCE NOTES

(1) SPACE LIGHTS SPACE EVENLY EVERY 30' ALTERNATING ALONG CENTERLINE OF PATH

1/- PLAN: MATERIALS AND LAYOUT ELEVATED LOOK OUT

0 10 20
SCALE IN FEET

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LIGHTING PLAN
GREENWAY ELEVATED LOOKOUT

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APPENDIX E: INTERPRETATION AND PUBLIC ART

Future Public Art Ideas- Water

Buster Simpson- "Water Table/Water Glass"

Simpson Uses Water as an asset, making public art that makes water systems visabal.

Jaume Plensa- "Crown Fountain"

Plensa created a public Art piece that is both a monument but also a place for play.

Jason Decaires Taylor- "The Four"

With the rise and fall of the Thames river the sculptures are are revealed and concealed daily.

Next Architects- "Zalige Bridge"

When the water rises parts of the bridge submerged talking about water levels in the floodplain.

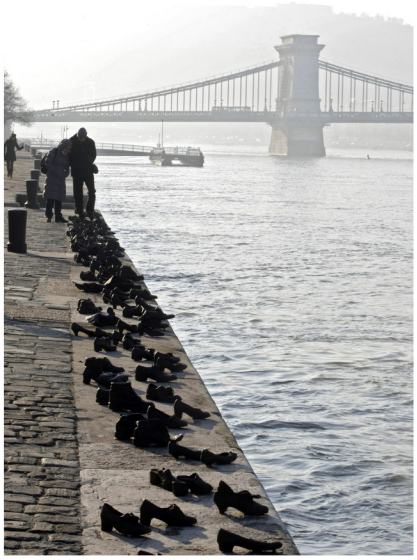
Future Public Art Ideas- History/ Who's History

MASS- "The Memorial to Peace and Justice"

nation's first national memorial to victims of lynching. The structure contains the names of over 4000 lynching victims engraved on concrete columns representing each county in the United States where racial terror lynchings took place. .

Ai Weiwei- "Good Fences Make Good Neighbors"

this multi-site, multi-media exhibition for public spaces, monuments, buildings, transportation sites, and advertising platforms throughout New York City. Collectively, these elements comprise a passionate response to the global migration crisis and a reflection on the profound social and political impulse to divide people from each other..



Mel Chin- "Two Me"

Chin built two monument pinths in front of city hall in Philadelphia where anyone could be raised up as the monument.

Can Togayand Gyula Pauer- "The Shoes"

a remembrance for the hundreds of Hungarian Jews who had to leave their shoes before they were shot during the Holocaust in Hungary.

West Sides Flats Greenway

Theme: Flow, Flood, Flux

- Functions as a pass-through space connected to regional trails
- Functions as a neighborhood park
- Connects to a regional park with many amenities

Art & Artful Site Design

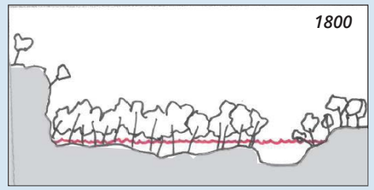
Making water level fluctuation evident

- Submersible sculpture
- Nature play elements
- Historic flood elevation markings in pavement and other site elements

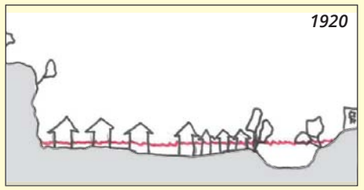
Social/Historical Progression

- Timeline in pavement
- "Home" in various languages inscribed in pavement and on entry signage
- Audio recordings of former residents stories of the Flats

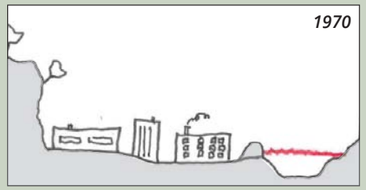
Physical Sequence



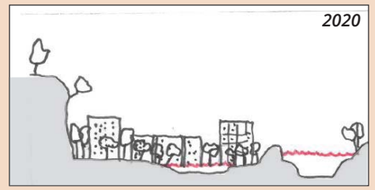
Original floodplain (The Natural System)



Development and flooding



Levee protection and industrial development



Residential/mixed development and floodwater storage (mimicking the natural system)

INTERPRETIVE STORIES

SOCIAL

Original People
- Hunting and fishing
- Temporary encampment

Waves of immigrants
- Pre-1850 — French Canadian/English
- 1850-1900 — Irish, German, French
- 1882-1915 — Jewish
- 1930-1960 — Lebanese, Mexican, Syrian
- 1961 — Buyout of property owners

Levee flood protection
- Razing of homes and small businesses
- Industrial development

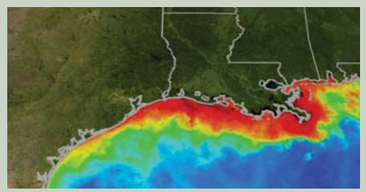
Redevelopment
- Around a stormwater greenway
- Accommodating a diversity of people, land use, and habitats

ENVIRONMENTAL

Natural Floodplain Function
- To reduce downstream flooding
- Sedimentation process
- Provides habitat

Impacts from Building in the Floodplain
- Property destruction from flooding
- Loss of natural habitat and natural functions

Levee Construction
- Prevents Flats from flooding
- Reduced size of floodplain
- Flooding of downstream communities
- Sediment goes downstream and contributes to Gulf of Mexico dead zone



Redevelopment
- New stormwater system mimics natural hydrology
- Protects neighbors downstream
- less sediment contribution downstream
- Creates habitat along Mississippi Flyway

APPENDIX F: PRELIMINARY COST ESTIMATES

West Side Flats Greenway - 5/03/2017

St. Paul, Minnesota

DRAFT - Opinion of Cost of the 02/02/2017 Concept Plan Greenway South of Fillmore)

BID Item Description	Estimate of Quantities	Unit	Engineer Opinion Of Cost		% Parks	% Water	% Road	$ Parks	$ Water	$ Road
			Unit cost	Total cost						
GENERAL - Mobilization, Survey, Traffic Control										
Mobilization/Demobilization	1	LS	$ 230,500.00	$ 230,500.00	47.00%	47.00%	6.00%	$108,335	$108,335	$13,830
Construction Staking	1	LS	$ 10,000.00	$ 10,000.00	47.00%	47.00%	6.00%	$4,700	$4,700	$600
Traffic Control	1	LS	$ 10,000.00	$ 10,000.00	47.00%	47.00%	6.00%	$4,700	$4,700	$600
Construction Entrance	2	EA	$ 3,800.00	$ 7,600.00	47.00%	47.00%	6.00%	$3,572	$3,572	$456
			Subtotal	**$ 258,100.00**				**$121,307**	**$121,307**	**$15,486**
REMOVALS & DEMOLITION										
Clear and Grub Mature Trees Throughout Property	1.5	AC	$ 10,000.00	$ 15,000.00	50.00%	50.00%		$7,500	$7,500	$0
Remove and Dispose Concrete Pavement and Aggregate Base	1228	SY	$ 9.00	$ 11,052.00	47.00%	47.00%	6.00%	$5,194	$5,194	$663
Misc. Removals (existing stormsewer basins, buried walls, chain link fence, signs, construction debris)	1	LS	$ 20,000.00	$ 20,000.00	47.00%	47.00%	6.00%	$9,400	$9,400	$1,200
Building Demolition (Foundation and Utilities) (Am Properties LLC 41 Plato Blvd..)	1	LS	$ 40,000.00	$ 40,000.00	50.00%	50.00%		$20,000	$20,000	$0
Building Demolition (Foundation and Utilities) (Waterous Co.)	1	LS	$ 100,000.00	$ 100,000.00	50.00%	50.00%		$50,000	$50,000	$0
			Subtotal	**$ 186,052.00**				**$92,094**	**$92,094**	**$1,863**
EROSION CONTROL AND SITE PROTECTION										
Erosion Control Blanket (MnDOT Cat. 3A Straw Type 2S)	3900	SY	$ 2.50	$ 9,750.00	47.00%	47.00%	6.00%	$4,583	$4,583	$585
Sedimentation Log (MnDOT Type B)	600	LF	$ 6.00	$ 3,600.00	47.00%	47.00%	6.00%	$1,692	$1,692	$216
Street Sweeping	1	LS	$ 10,000.00	$ 10,000.00	47.00%	47.00%	6.00%	$4,700	$4,700	$600
Inlet Protection	9	EA	$ 350.00	$ 3,150.00	47.00%	47.00%	6.00%	$1,481	$1,481	$189
Silt Fence	1200	LF	$ 3.50	$ 4,200.00	47.00%	47.00%	6.00%	$1,974	$1,974	$252
Concrete Washout	1	LS	$ 600.00	$ 600.00	47.00%	47.00%	6.00%	$282	$282	$36
			Subtotal	**$ 31,300.00**				**$14,711**	**$14,711**	**$1,878**
EARTHWORK - Excavation, Hauling, Grading										
Excavate and Dispose Excavated Materials to Adjacent Site	14354	CY	$ 12.00	$ 172,248.00	50.00%	50.00%		$86,124	$86,124	$0
Site Grading	15785	SY	$ 2.00	$ 31,570.00	47.00%	47.00%	6.00%	$14,838	$14,838	$1,894
Import and Place Basin Planting Soil (1.5' Deep)	2710	CY	$ 55.00	$ 149,050.00		100.00%		$0	$149,050	$0
Import and Place Clean Sand in Basin Sand Trench	200	CY	$ 45.00	$ 9,000.00		100.00%		$0	$9,000	$0
Import and Place Upland Soil (6" over all greenspace except for Basin and Lookout Mound)	1270	CY	$ 45.00	$ 57,150.00	100.00%			$57,150	$0	$0
Import and Place Topsoil for Mound/Lookout (2' Cover)	1300	CY	$ 45.00	$ 58,500.00	100.00%			$58,500	$0	$0
Import and Place Engineered Soil for Mound/Lookout (2,800 CY)	0	CY	$ 150.00	$ -	100.00%			$0	$0	$0
			Subtotal	**$ 477,518.00**				**$216,612**	**$259,012**	**$1,894**
ENVIRONMENTAL EARTHWORK										
Haul and Dispose Debris Fill at Owner-approved Landfill	0	CY	$ 70.00	$ -	47.00%	47.00%	6.00%	$ -	$ -	$ -
			Subtotal	**$ -**				**$ -**	**$ -**	**$ -**
STORMWATER - Stormwater Structures, Pipes, Liner										
Stormwater Control Structures - Complete	2	EA	$ 6,000.00	$ 12,000.00		100.00%		$0	$12,000	$0
8" Perforated (CPEP) Drain Tile (Underdrain)	1200	LF	$ 24.00	$ 28,800.00		100.00%		$0	$28,800	$0
8" Solid (CPEP) Drain Tile	200	LF	$ 24.00	$ 4,800.00		100.00%		$0	$4,800	$0
8" Draintile Catch Basin Connection	2	EA	$ 600.00	$ 1,200.00		100.00%		$0	$1,200	$0
30" RCP	400	LF	$ 95.00	$ 38,000.00		100.00%		$0	$38,000	$0
Inlet Structure	3	LS	$ 30,000.00	$ 90,000.00		100.00%		$0	$90,000	$0
24" Dia. Nyloplast Pvc Clean-Out With Solid Cover	3	EA	$ 2,000.00	$ 6,000.00		100.00%		$0	$6,000	$0
Pretreatment Structure	3	EA	$ 20,000.00	$ 60,000.00		100.00%		$0	$60,000	$0
HDPE 40 Mil Liner	5420	SY	$ 22.00	$ 119,240.00		100.00%		$0	$119,240	$0
Jacking 30" RCP Under Tracks	85	LF	$ 800.00	$ 68,000.00		100.00%		$0	$68,000	$0
			Subtotal	**$ 428,040.00**				**$0**	**$428,040**	**$0**
CIVIC PLAZA - Paving, Walls										
Decomposed Granite with Stabilizer, Aggregate Base, and Geotextile	380	SY	$ 125.00	$ 47,500.00	100.00%			$47,500	$0	$0
Retaining Wall (Stone)	330	SFF	$ 70.00	$ 23,100.00	100.00%			$23,100	$0	$0
Retaining Wall (modular Blocks)	0	SFF	$ 25.00	$ -	100.00%			$0	$0	$0
			Subtotal	**$ 70,600.00**				**$70,600**	**$0**	**$0**
STORMWATER PLAZA - Paving, Walls, Stone Steps/Seating										
Concrete Unit Pavers (Stormwater Plaza)	2773	SF	$ 8.00	$ 22,184.00	80.00%	20.00%		$17,747	$4,437	$0
Geotextile Fabric Mn/DOT Type V	308	SY	$ 4.50	$ 1,386.00	80.00%	20.00%		$1,109	$277	$0
Class 5 Aggregate Base	70	TON	$ 23.00	$ 1,610.00	80.00%	20.00%		$1,288	$322	$0
2" Paver Edge Restraint	200	LF	$ 9.00	$ 1,800.00	80.00%	20.00%		$1,440	$360	$0
Stone Step Assembly into Basin with Aggregate Base	2	EA	$ 3,500.00	$ 7,000.00	80.00%	20.00%		$5,600	$1,400	$0
Stone Block with Aggregate Base	9	EA	$ 2,000.00	$ 18,000.00	80.00%	20.00%		$14,400	$3,600	$0
Retaining Wall (Stone)	210	SFF	$ 70.00	$ 14,700.00	80.00%	20.00%		$11,760	$2,940	$0
Retaining Wall (modular Blocks)	0	SFF	$ 25.00	$ -	80.00%	20.00%		$0	$0	$0
			Subtotal	**$ 66,680.00**				**$53,344**	**$13,336**	**$0**
PAVEMENT AND WALKS										
Standard Concrete Sidewalk with Reinforcement an	860	SY	$ 170.00	$ 146,200.00	60.00%		40.00%	$87,720	$0	$58,480
Embed Decorative Metal Text and Elevation Marker	1	LS	$ 2,500.00	$ 2,500.00	100.00%			$2,500	$0	$0
Bituminous Pavement with Aggregate Base	1098	SY	$ 60.00	$ 65,880.00	100.00%			$65,880	$0	$0
Boardwalk	300	LF	$ 700.00	$ 210,000.00	100.00%			$210,000	$0	$0
			Subtotal	**$ 424,580.00**				**$366,100**	**$0**	**$58,480**

WATER SERVICE UTILITIES										
Install 1" Pipe	350	LF	$ 20.00	$ 7,000.00	100.00%			$7,000	$0	$0
Hose bib	3	LS	$ 1,000.00	$ 3,000.00	100.00%			$3,000	$0	$0
Install Drinking Fountain on Concrete Slab	1	LS	$ 9,000.00	$ 9,000.00	100.00%			$9,000	$0	$0
Connect to Water Service	1	LS	$ 3,500.00	$ 3,500.00	100.00%			$3,500	$0	$0
			Subtotal	**$ 22,500.00**				**$22,500**	**$0**	**$0**
ELECTRICAL UTILITIES										
Install Power Pedestal on Concrete Slab	1	LS	$ 2,500.00	$ 2,500.00	100.00%			$2,500	$0	$0
Install LED Path Light	35	EA	$ 7,000.00	$ 245,000.00	100.00%			$245,000	$0	$0
Install Electrical Conduit and Wiring	1	LS	$ 20,000.00	$ 20,000.00	100.00%			$20,000	$0	$0
			Subtotal	**$ 267,500.00**				**$267,500**	**$0**	**$0**
SITE FURNISHINGS										
Bike Rack (Surface Mount) (Furnish and Install)	3	EA	$ 500.00	$ 1,500.00	100.00%			$1,500	$0	$0
Bench (Surface Mount) (Furnish and Install)	13	EA	$ 4,000.00	$ 52,000.00	100.00%			$52,000	$0	$0
Entrance Sign	1	EA	$ 15,000.00	$ 15,000.00	100.00%			$15,000	$0	$0
Waste Receptacle	4	EA	$ 3,500.00	$ 14,000.00	100.00%			$14,000	$0	$0
			Subtotal	**$ 82,500.00**				**$82,500**	**$0**	**$0**
LANDSCAPING										
Basin Seed Mix (Furnish and Install)	1	AC	$ 5,000.00	$ 5,000.00		100.00%		$0	$5,000	$0
Turf Seed Mix (Furnish and Install)	1.5	AC	$ 3,200.00	$ 4,800.00	100.00%			$4,800	$0	$0
Prairie Seed Mix (Furnish and Install)	0.8	AC	$ 5,000.00	$ 4,000.00	100.00%			$4,000	$0	$0
Straw Mulch	2.5	AC	$ 600.00	$ 1,500.00	40.00%	60.00%		$600	$900	$0
Herbaceous Plug (Furnish and Install)	11300	EA	$ 3.50	$ 39,550.00		100.00%		$0	$39,550	$0
Shrub, #2 Cont. (Furnished and Install)	980	EA	$ 45.00	$ 44,100.00	50.00%	50.00%		$22,050	$22,050	$0
Tree, #10 Cont. (Furnish and Install)	0	EA	$ 250.00	$ -				$0	$0	$0
Tree, 2" B&B Cont. (Furnished and Install)	200	EA	$ 500.00	$ 100,000.00	75.00%	25.00%		$75,000	$25,000	$0
Twice-Shredded Hardwood Mulch (3" depth)	145	CY	$ 65.00	$ 9,425.00	75.00%	25.00%		$7,069	$2,356	$0
Glacial Boulders	200	SY	$ 58.00	$ 11,600.00	25.00%			$2,900	$0	$0
4" Black Powder Coated Landscape Edging	0	LF	$ 10.50	$ -	100.00%			$0	$0	$0
Install Salvaged 30' Tree Trunk Ramps and Anchor Assembly	5	EA	$ 1,500.00	$ 7,500.00		100.00%		$0	$7,500	$0
			Subtotal	**$ 227,475.00**				**$116,419**	**$102,356**	**$0**
Contingency 10%				**$ 250,000.00**				**$140,000**	**$100,000**	**$8,000**
			Total Base Bid Estimate	**$ 2,792,845.00**				**$1,563,687**	**$1,130,857**	**$87,601**
AACE Expected Accuracy ***Range***			**L: $ 2,513,560.50**	**$ 2,234,276.00**						
Class 3 L:-10% - -20% H: +10% -+30%			**H: $ 3,072,129.50**	**$ 3,630,698.50**						
ADD ALTERNATES										
Boulder Gravity Wall with Geoxtile and Aggregate Base (mound/lookout wall)	180	LF	$ 80.00	$ 14,400.00	100.00%			$14,400	$0	$0
Artistic Features and Interpretive Signage	1	LS	$ 50,000.00	$ 50,000.00	50.00%	50.00%		$25,000	$25,000	$0
			Add Alt Subtotal	**$ 64,400.00**				**$39,400**	**$25,000**	**$0**
Total Bid with Add Alts Estimate				**$ 2,857,245.00**						
AACE Expected Accuracy ***Range***			**L: $ 2,571,520.50**	**$ 2,285,796.00**						
Class 3 L:-10% - -20% H: +10% -+30%			**H: $ 3,142,969.50**	**$ 3,714,418.50**						

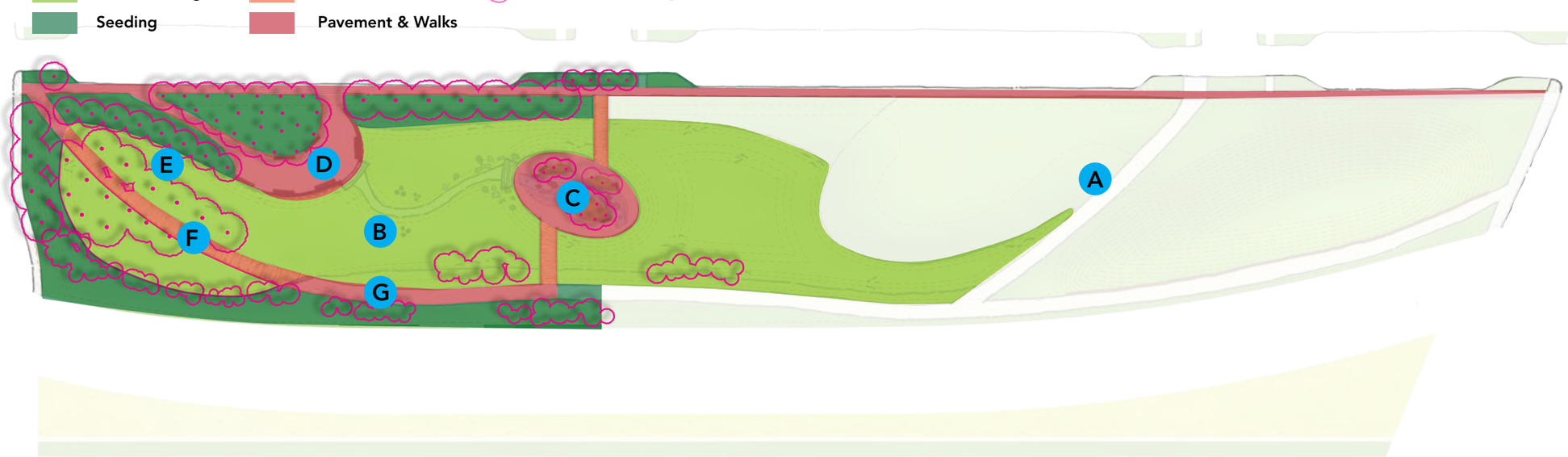
PHASE 1 CONSTRUCTION

Construct features located in stormwater practice area 1. Excavate basin (fill may be used in adjacent development construction) and install stormwater utilities. Major features include Basin grading and planting, stormwater infrastructure, water and electrical utilities, Stormwater Plaza, Civic Plaza, boardwalks, and concrete sidewalk along Gorman Street.

- **A** Clear entire site of woody vegetation, buildings, concrete slabs, debris, etc. with general grading
- **B** Install stormwater conveyance features and excavate basin (basin to remain off-line until construction of adjacent buildings)
- **C** Stormwater Plaza hardscape and plantings, install cistern/water re-use features
- **D** Civic Plaza hardscape, and walls
- **E** All plantings including the basin
- **F** Install boardwalk and walkways

PHASE 1 FEATURES

Basin Planting
Seeding
Boardwalk
Pavement & Walks
Tree/Shrub Planting



West Side Flats Greenway - Phasing

Prepared by Barr Engineering Co. for The City of Saint Paul - 02/16/2017

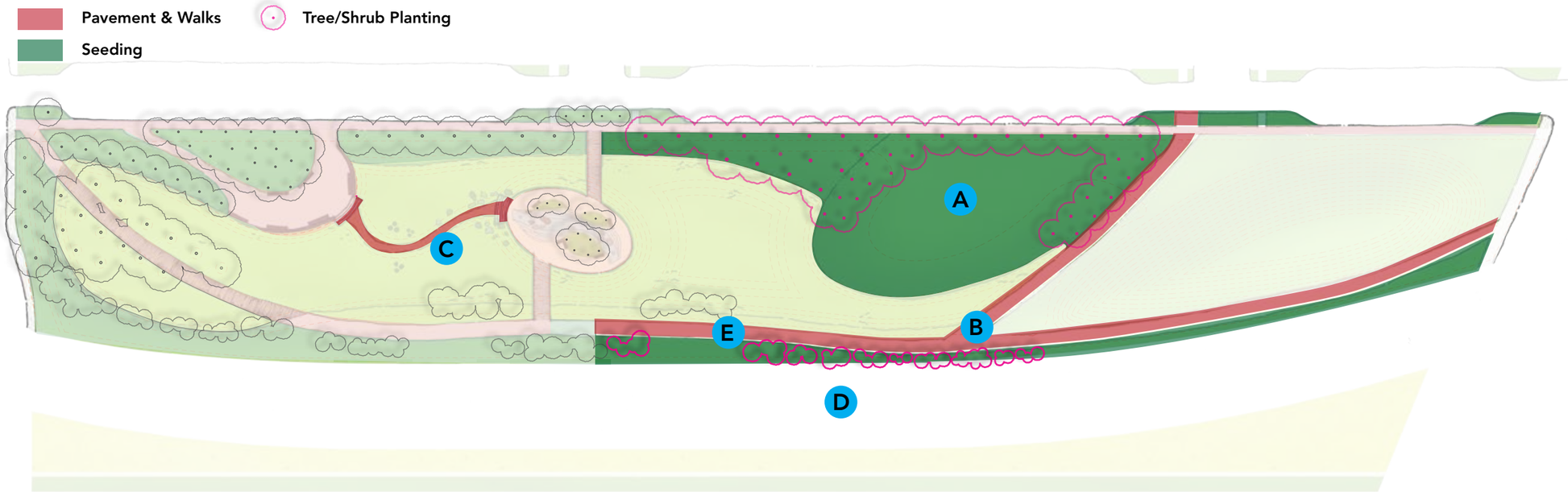
0 40 80
Feet

PHASE 2 CONSTRUCTION

Complete pavement and trail features throughout park to connect Greenway from Plato Blvd to Fillmore Ave. Complete middle section of greenway features

- **A** All plantings
- **B** Connect Phase 1 trail to Gorman Street and Plato Blvd.
- **C** Artistic/historic interpretive features
- **D** Connect pipe to west side of railroad
- **E** Install park furnishings, lighting, drinking fountains, etc.

PHASE 2 FEATURES



West Side Flats Greenway - Phasing

Prepared by Barr Engineering Co. for The City of Saint Paul - 02/16/2017

0 40 80
Feet

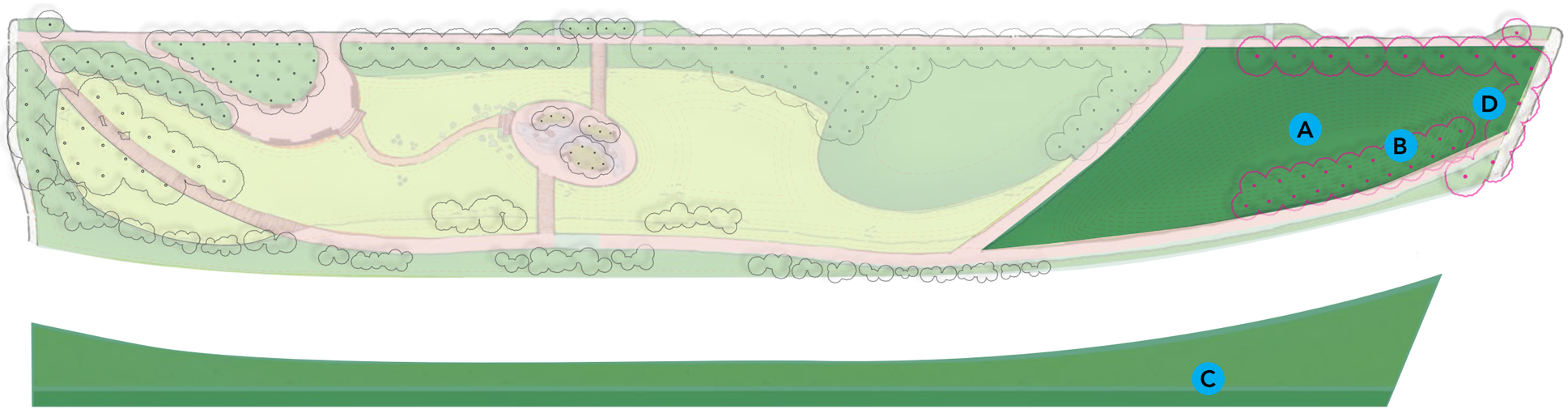
PHASE 3 CONSTRUCTION

Finalize park plantings and landscape features. Construct hill feature

- **A** Import and place engineered soil for mound/lookout feature
- **B** Finalize plantings
- **C** Plantings along Starkey Ave
- **D** Artistic entry feature

PHASE 3 FEATURES

- Tree/Shrub Planting
- Seeding



West Side Flats Greenway - Phasing

Prepared by Barr Engineering Co. for The City of Saint Paul - 02/16/2017

0 40 80
Feet

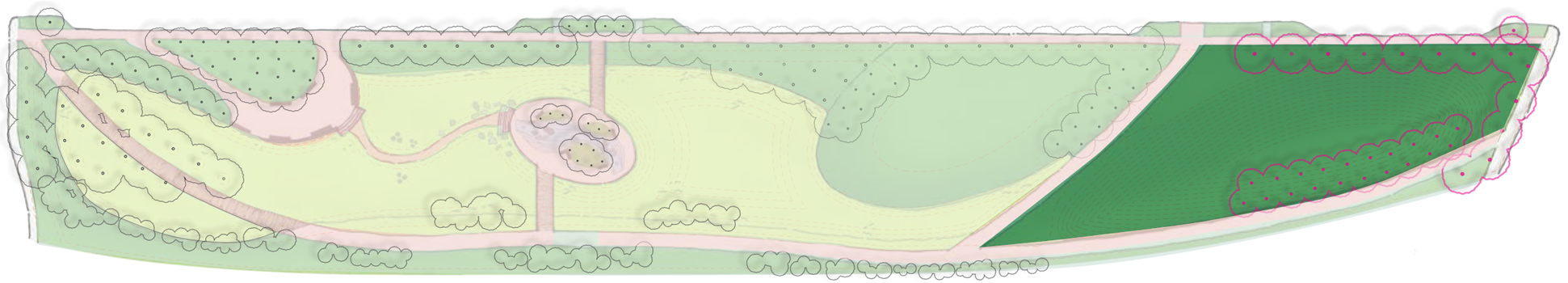
PHASING

Basin Planting | Boardwalk | Seeding | Pavement & Walks | Tree/Shrub Planting

PHASE 1

PHASE 2

PHASE 3



West Side Flats Greenway - Phasing

Prepared by Barr Engineering Co. for The City of Saint Paul - 02/16/2017

0 40 80
Feet

APPENDIX G: O&M MANUAL & COST ESTIMATES

DRAFT

West Side Flats District Stormwater System

Operations and Maintenance Plan

Prepared for
City of Saint Paul

July 2017

The vegetative community within the basins at West Side Flats Greenway will be composed of grasses and sedges like those shown in this photo.

Lake sedge.

West Side Flats District Stormwater System

Operations and Maintenance Plan

Prepared for
City of Saint Paul

DRAFT

July 2017

The vegetative community within the basins at West Side Flats Greenway will be composed of grasses and sedges like those shown in this photo.

Lake sedge.

4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.832.2600
www.barr.com

West Side Flats District Stormwater System

Operations and Maintenance Plan

D R A F T

July 2017

Contents

List of Figures

List of Appendices

1.0 Overview: Biofiltration Basins

1.1 Biofiltration basin function

Biofiltration works at West Side Flats by routing stormwater runoff into a large, shallow depression (basin). Native vegetation planted within the basin is designed to hold and filter out pollutants and sediment, which is later gathered for disposal**.** During storms, runoff pools in the basin and filters through the plants and soil down to a drain-tile system. The filtered runoff is slowly discharged, per local stormwater management requirements, into the pre-existing storm sewer on the site. Runoff from very large storms bypasses the basin through overflow structures that direct stormwater into the storm sewer system untreated.

Figure 1**Error! Reference source not found.** is a map which shows the project location. Figure 2 illustrates the south biofiltration basin plan, and Figure 3 illustrates the north biofiltration plan.

Figure 1 Project Location Map

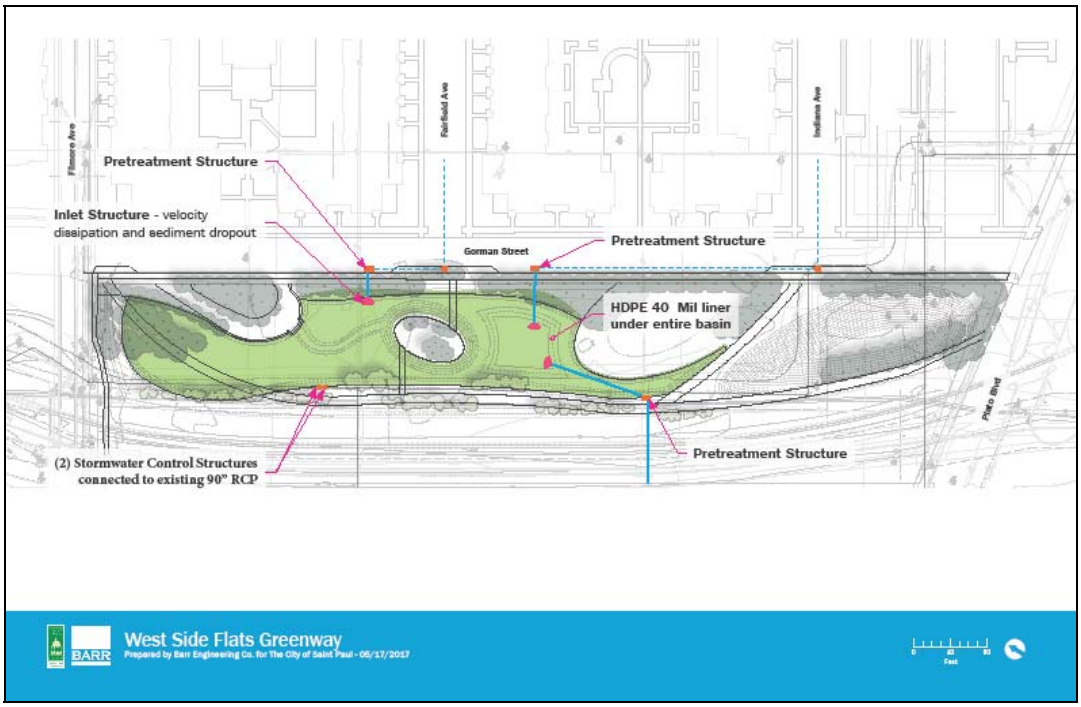


Figure 2 South biofiltration basin plan

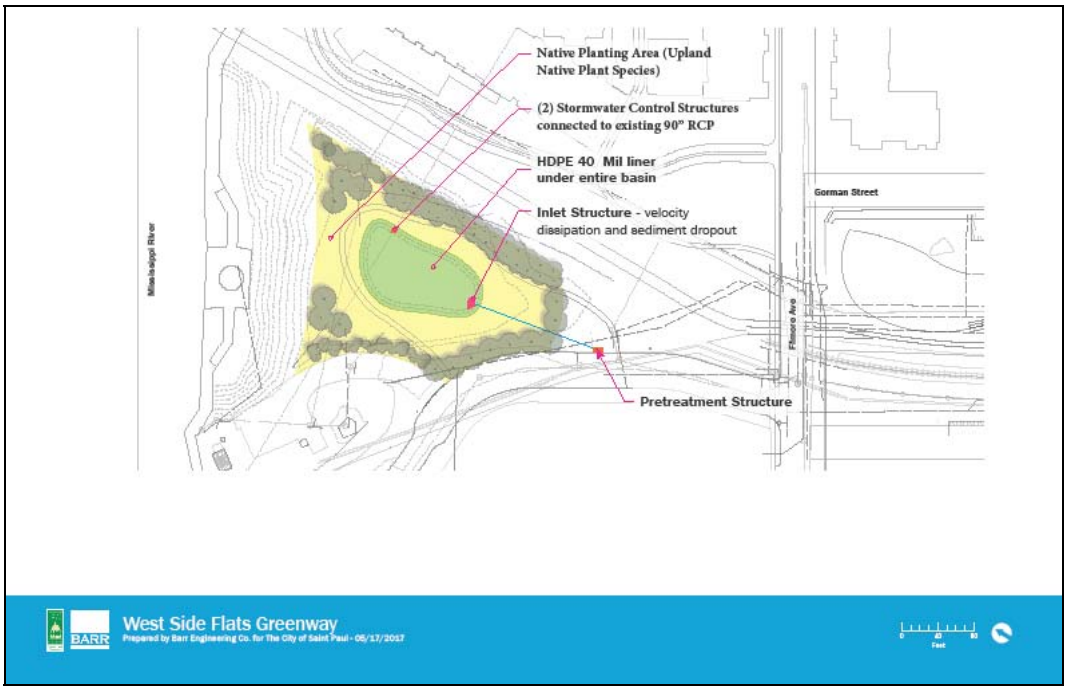


Figure 3 North biofiltration basin plan

2.0 Biofiltration Basins Operations and Maintenance Tasks

2.1 Inspection

Inspection of the biofiltration basin is recommended at least four times per year during the growing season (April–October).

During inspection the following should be noted on the inspection form (See Appendix A):

- Presence of trash, debris and sediment accumulation
- Condition of basin overflow structure and evidence of erosion at inlet structures
- Evidence of basin overtopping
- Presence of weeds
- Vigor of native plants
- Depth of mulch for the first 3 years only

2.2 Routine biofiltration basin maintenance

Routine biofiltration basin maintenance will be conducted when an inspection reveals any of the following conditions:

- Trash or debris accumulation
- Excessive accumulation of sediment in sump manholes or excessive accumulation of sediment creating sediment deltas at the base of inlet structures into the basin (see Section 2.3).
- Excessive accumulation of sediment resulting in insufficient basin depth
- Overflow structure in need of debris clearing (e.g., grate covered with branches/grass/leaves)
- Damage to the inlet structure or erosion at the base of the inlets
- Standing water 48 hours after a rain event
- Presence of invasive plants/weeds (including, but not limited to reed canary grass, sweet clover, cattail, purple loosestrife, Canada thistle, garlic mustard, and all shrub and tree seedlings)
- Mulch depth less than 3 inches for the first 3 years while vegetation establishes. After that mulch should not be needed.

2.3 Sump Manholes and Sediment Deltas

Sump manholes are structures typically within a catchbasin with a sump 2- to 6-feet below the outlet elevation designed to collect and retain sediment and other debris for removal later. Sediment deltas naturally form at the end of an inlet pipe into a basin. This sediment slowly accumulates and will need to be removed once the function of the basin is compromised.

Vacuum or otherwise remove sediment from these structures once yearly, unless conditions warrant more frequent removal. Accumulated sediment is typically removed using a vactor truck, and sediment is disposed of in a landfill after sediment has been dewatered.

2.4 Trash removal

- Once weekly March-November).

3.0 Vegetation Management Operations and Maintenance Tasks

The initial 3 years of native vegetation establishment requires careful attention to provide native plants an advantage over fast growing weeds. After the first 3 years the threat of invasive species encroachment continues, although after native vegetation is established management efforts will likely reduce. On-going control of invasive species will be essential to perpetuate the native plant community.

3.1 Timing

Timing is everything, especially during the first 3 years after planting. Controlling the colonization of invasive species early in the restoration process while the desired seed mix is establishing will save many hours and dollars in the future. Mowing of the fast-growing annual weeds will be necessary the first year and likely the second.

3.2 Remedy

As soon as invasive plants are spotted they must be quickly controlled. Therefore monthly inspections during the growing season are recommended. Invasive species establishment reaches the crisis point when they are in flower and about to set seed. Some species are difficult to spot in a diverse community until they are in flower. They must not be allowed to set seed. Once seed is produced the task of eradicating the species becomes exponentially more difficult. A second crisis point occurs during fall tillering. Rhizomes (underground stems) spread rapidly in the fall, especially for Canada thistle and reed canary grass. The plants must be eradicated before tillering begins.

3.3 Consequences

The uncontrolled spread of invasive species will result in quick displacement of native species and failure of vegetation establishment. Once established, invasive species are very difficult and expensive to eradicate. For example, one plant of purple loosestrife, *Lythrum salicaria,* produces hundreds of seeds per plant, which can survive in the soil for many years. Once present and producing seed it is very difficult to eradicate.

The good news is that simple techniques exist for managing invasive species.

3.4 Tree maintenance and replacement

- Pruning every 7 years
- Assumed 3% to 6% tree loss annually
- Trees replaced in spring or fall

3.5 Vegetation Management Schedule

3.5.1 Yearly inspection

Walk the planting each spring in late April or early May with a native plant community maintenance expert to identify weed problems and discuss a maintenance strategy for the year.

3.5.2 Spring clean-up

Each spring, if necessary mow with a rotary mower at a height of between 4 and 6 inches to knock down standing vegetation to allow of better growth and reduce woody plant growth. Sedge communities may not require spring mowing.

3.5.3 Summer weed control

- For the first 3 years visit the site once per month during the growing season to control invasive weeds. See notes below for methods of controlling invasive species. Also, if necessary during the first two growing seasons, mow at a height of 6 inches to eliminate shading from agronomic, annual weeds. This will eliminate competition and allow the slow establishing native plants to gain vigor.
- After the first 3 years maintenance visits may be reduced to four (May, June, July, and September) to control weeds.
- Some (but not all) invasive species to be controlled include: purple loosestrife, reed canary grass, thistles, common buckthorn, tatarian honeysuckle, Siberian elm, sweet clover, leafy spurge, wild parsnip, garlic mustard, crownvetch, birdsfoot trefoil, box elder, Siberian elm, and spotted knappweed.

3.5.4 Fall maintenance

Fall is an excellent time to effectively kill weeds with herbicide. Conduct a thorough walk-through of the site to find and apply herbicide to invasive weeds. Do not mow in the fall. Instead, leave dried native vegetation standing over the winter to provide food and cover for wildlife, especially song birds.

3.6 Invasive species control techniques

3.6.1 Pull and dig weeds by hand

Hand removal of weeds can be effective in killing individual plants. Care must be taken to remove the entire root system. Root pieces left in the soil may allow the plant to regenerate. If weeds have gone to seed, bag them where they are pulled to prevent seed dispersal. Compost weeds off-site to insure that they will not reestablish on-site.

3.6.2 Eradicate large infestations with herbicide

The most effective methods of eradicating colonies of plants is to wipe or spot spray with herbicide. Use Rodeo when herbicide may come in contact with water. Repeated application will likely be necessary. Apply to green, actively growing foliage. Herbicides are most effective when applied to perennial herbaceous species in the cool seasons of spring and fall. Take great care to not accidentally apply herbicide to surrounding native plants. A very small amount of herbicide can kill a plant.

3.6.3 Spot mowing

Cutting individual weed infestations may be necessary during the hot months of the year. Some weeds, such as thistle, are not killed by herbicide if sprayed during hot weather. Cut these weeds to the ground to prevent them from flowering. Apply herbicide to these plants in the fall when the weather cools.

3.6.4 Cut and paint herbicide on woody plants

Wood plants greater than ¼ inch in diameter, which cannot be hand-pulled, should be cut off to expose the cambium and then painted with herbicide. Cut at a height that ensures that native herbaceous plants do not blow onto the stump and herbicide. Watch for regrowth the following season and repeat the process as necessary.

Appendix A

Rain garden inspection/maintenance report

Rain garden inspection/maintenance report

BMP ID	**Location: West Side Flats Greenway**
Owner: City of St. Paul, MN	
Inspection date	**Inspector**
Device: Bio-filtration basin	

Component/Location	Comments, observations, and proposed maintenance
1. Trash or debris in basin	
2. Erosion	
3. Sediment accumulation	
4. Structural components	
5. Standing water	
6. Native vegetation	
7. Weeds	
Additional comments:	

Maintenance required: Yes / No	**Immediate maintenance required: Yes / No**
Date maintenance completed	**Maintenance contractor**
Maintenance comments	

Complete this form for each site inspection and return a copy annually to:

City of Saint Paul
Department of Public Works
15 Kellogg Blvd. West
St Paul, MN 55102

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Wes Saunders-Pearce, City of Saint Paul
From: Barr Engineering Co.
Subject: West Side Flats Green Infrastructure O&M Cost Estimation – **DRAFT**
Date: May 15, 2017

1.0 Introduction and Project Background

As the City of Saint Paul (City) and developers in the City plan and implement an increasing amount and diversity of green infrastructure projects, it is critical to accurately quantify operations and maintenance (O&M) costs to develop project financing. In order to understand the required O&M tasks and appropriately budget for them, the City requested that Barr prepare a summary of O&M tasks and costs associated with several types of green infrastructure practices that are planned for the West Side Flats Greenway.

Specifically, Barr assessed the O&M costs for the planned large biofiltration basins at West Side Flats (with trees and limited plant diversity) and catch basins or manholes with sumps as pretreatment devices or inlets. For each practice type, maintenance tasks have been summarized and total labor estimates have been gathered to create an estimate of total cost per task and BMP for one calendar year of green infrastructure practice operation.

2.0 Methods

To determine the estimated O&M costs for each green infrastructure practice, Barr reviewed a variety of sources of O&M costs, from local to national sources, including:

- Meeting with the Capitol Region Watershed District (CRWD), City Public Works and City Parks staff on May 1, 2017, to discuss costs of specific O&M activities for the green infrastructure practices
- Reports from City Public Works
- Ramsey-Washington Metro Watershed District (RWMWD) green infrastructure O&M contracts
- Barr's experience designing, coordinating construction, and monitoring green infrastructure and other landscaping and restoration projects.

3.0 Biofiltration Basins (Low Diversity Planting i.e. sedge meadow)

3.1 Description

Biofiltration basins are vegetated stormwater treatment practices that collect stormwater runoff and clean stormwater by filtering it through a media (often sand), before the filtered water is collected in an

underdrain and sent to a downstream stormsewer. The West Side Flats Greenway basins are planted with limited herbaceous plant species diversity and trees.

3.2 Sources of Data

- Discussions with City staff
- Ramsey-Washington Metro Watershed District's BMP Maintenance Pilot Program
    - Project Manager – Paige Ahlborg

3.3 Operations and Maintenance Tasks

- Inspection
    - Four times throughout growing season. Inspection for erosion and noxious weed intrusion
- Vegetative Maintenance (Weeding)
    - Herbicide application and hand-weeding as necessary
    - Minimum four times throughout growing season; additional weeding required during initial three years of establishment
- Tree Maintenance and Replacement
    - Pruning every seven years
    - Assumed 3-6% tree loss annually
    - Trees replaced in spring or fall
- Trash Removal
    - Twice weekly during peak usage (April - September), monthly during non-peak usage
- Sediment Clean Out and Delta Removal

3.4 Cost Estimate

The estimated O&M costs of the biofiltration basins in Table 1 reflect a low-diversity planting palette. The costs include maintenance of the vegetation and trees inside the stormwater biofiltration basins and do not include any maintenance activities in the proposed park outside of the basin.

Table 1. Biofiltration Basin Cost Estimate

Maintenance Task	Hourly Labor Estimate	Yearly Frequency	Average Labor Rate	Total Yearly Labor Estimate	Equipment / Materials Cost	Total Per Year	Assumptions
Inspection	1	4	$75	$300	-	$300	Inspect for erosion and noxious weed intrusion
Trash Removal	2	58	$50	$5,800	$200	$6,000	Two times weekly during active use season (Apr-Sept), monthly during rest of year
Weeding	12	4	$75	$3,600	$100	$3,700	Herbicide application and hand-weeding, 2-person crew
Plant Replacement	8	1	$75	$600	$200	$800	In-fill plantings with 4" pots, (Approx. 50 at $4 each)
Tree Pruning	4	0.143	$75	$43	$200	$243	Every seven years
Tree Replacement	3	3	$75	$675	$300	$975	3-6% yearly mortality (Design tree quantity TBD)
Mulching	4	1	$75	$300	$300	$600	Touch-up/rake out wood mulch (6 CY at $50 per)
Sediment Cleanout/ Sediment Delta Removal	6	0.5	$160	$480	$500	$980	2-person crew removing accumulated sediment in basin. Includes disposal
Total						**$13,598**	

4.0 Sump Manholes

4.1 Description

Sump manholes are stormwater structures with an invert below the outlet of the structure (typically 2 to 6 feet below the outlet elevation) to collect and retain sediment and other debris.

4.2 Sources of Data

- Discussions with City staff
- Ramsey-Washington Metro Watershed District's BMP Maintenance Pilot Program
    - Project Manager – Paige Ahlborg

4.3 Operations and Maintenance Tasks

- Inspection
  - Once yearly; spring and fall
  - Measuring depth of accumulated sediment to determine if clean-out is required
- Vacuuming, Sediment Cleanout, and Disposal
  - Once yearly, unless conditions warrant more frequent removal
  - Accumulated sediment is removed with a vactor truck
  - Sediment is disposed of in a landfill after sediment has been dewatered

4.4 Cost Estimate

The West Side Flats Greenway includes four large pretreatment sumps. For the purposes of this estimate, we are estimating that 3 tons of material would be removed from each sump each year.

Table 2 summarizes the estimated costs to clean out and dispose of the sediment from each sump.

Table 2. Sump Cost Estimate, Base Bid (4 Sumps)

Maintenance Task	Labor Time Estimate	Yearly Fre-quency	Average Labor Rate Per Hour	Total Yearly Labor Estimate	Vactor Truck Cost ($140 Hourly)	Disposal Cost Per Sump	Sediment Disposal Cost	Total Per Year	Notes
Inspection	-	1	-	-	-	-	-	-	Costs included in costs of sump cleanout
Sump Manhole Cleanout	2	1	$160	$1,280	$1,120	-	-	$2,400	Two-person crew
Sediment Disposal	-	1	-	-	-	$75	$300	$300	3 tons per sump
Total								**$2,700**	

APPENDIX H: Greenway Financial Memo

Memo

To: Wes Saunders-Pierce and Michael Solomon

From: Jessica Cook and Stacie Kvilvang

Date: March 2, 2018

Subject: West Side Flats GIF District Stormwater Funding

Introduction

Over the last decade the City of St. Paul, like most Minnesota cities, has approached the management of stormwater run-off on a parcel-by-parcel basis, requiring site specific solutions to reducing run-off and improving water quality. The City is now pursuing a more regional approach to stormwater management for larger tracts of land expected to redevelop into future urban neighborhoods. These tracts include the West Side Flats, the Snelling-Midway Area, and the future redevelopment of the Ford site. The City's goal for all of these redevelopment areas is to have a comprehensive and regional approach to managing run-off that will allow land dedicated for stormwater management to serve as green space for recreational land uses as well. The regional stormwater system will thus not only enhance water quality and reduce run-off, but will allow for increased flexibility in developing the surrounding property.

The City is creating a policy framework that leverages development related fees from future neighborhoods to pay for regional stormwater management infrastructure. The redevelopment sites will be identified as Green Infrastructure Financing ("GIF") Districts. District-based green infrastructure will serve multiple properties and provide the GIF District, as well as broader community, with environmental and social benefits. In turn developments within each GIF District will contribute a fair share to paying for the cost of stormwater collection and treatment. The shared stormwater facilities will increase land values and solve an expensive stormwater management challenge for future redevelopment. The West Side Flats Area serves as a pilot project for implementing and funding shared, stacked-function green infrastructure.

The City of St. Paul will be constructing a "greenway" system adjacent to and in connection with the redevelopment of the West Side Flats. The West Side Flats Greenway will serve as a regional system for storing and treating stormwater using green infrastructure. In addition, the Greenway will contain park amenities including lighting, seating, a plaza, and paved walks. The multiple public beneficial uses for the Greenway property make it a stacked infrastructure

project that will serve as an amenity to all land users and future residents in and near the West Side Flats.

The West Side Flats area is located on the southern banks of the Mississippi River between Wabasha and South Robert Street. The southern boundary is Plato Boulevard. The Greenway will run north-south along existing railroad tracks and its stormwater features will serve the properties to the east of the Greenway.

It is anticipated that the sites to the east of the Greenway will be redeveloped with new multi-family housing with some commercial space. The City has received two redevelopment proposals:

1. Sherman and Associates is proposing multi-family housing for the site east of the Greenway and north of Filmore; and

2. Weidner is proposing several multi-family housing properties and commercial space for the parcels east of the Greenway, south of Filmore, west of Robert and north of Plato Boulevard.

Ehlers was tasked with working with City staff to develop funding mechanisms to pay for the construction and the future operations and maintenance ("O & M") of the Greenway in the West Side Flats GIF District. Some of the goals for establishing funding mechanisms include:

- Developing a replicable model for other GIF Districts in the City;
- Keeping the system easy to administer;
- Limiting financial risk to the City of St. Paul; and
- Leveraging future development to help pay for the system.

Proposed Stormwater System Development in GIF Districts

The City intends to construct the stormwater facilities in GIF Districts that serve all properties (i.e., the underground cisterns, regional raingardens, and other storage and treatment systems.) Developers will construct and pay for the stormwater conveyance systems adjacent to their redevelopment properties that convey the stormwater to the regional system. These conveyance systems may include tree trenches in the street rights-of-way or underground pipes. The conveyance systems will be deeded to the City where appropriate.

In the West Side Flats GIF District, the City will be constructing the Greenway and its stormwater facilities. These include the following infrastructure, which altogether is anticipated to have a total cost of $3,011,757:

- Water collection and storage facilities including rain gardens
- Water quality treatment and management devices
- Civic plazas, walkways, and park amenities

Funding Mechanism for GIF District Stormwater Infrastructure

Ehlers, City staff, and the project steering committee considered several cost recovery options for the GIF District stormwater infrastructure including special assessments, grants, area charges and connection fees.

The proposed cost recovery option is to charge a connection fee that is paid when the building permit is issued. The fee will be based on the historical cost of installing underground stormwater management systems in the City of St. Paul between 2012 and 2015, as determined by Young Environmental Consulting Group, LLC and documented in their memo dated July 12, 2017. The memo identifies a cost range of $0.64 to $4.35 per square foot for sites greater than one acre. The proposed fee will be $3.14 per square foot, which represents the 75th percentile in the range of historical costs. The $3.14 per square foot will apply to net developable area (land area less roads, parks, and stormwater easements), and inflate at 3% annually, making the proposed 2018 fee $3.43 per square foot. The fee will apply to all properties within GIF Districts unless previously negotiated development agreements preclude collection of the fee.

The rationale for selecting the 75th percentile includes three key factors:

1. The developers will not have to use a portion of their site for a stormwater treatment facility, thereby reducing their land costs on a per unit basis. The costs from the Young Environmental Consulting Group's research did not include land costs.

2. Having off-site stormwater treatment gives the developers more flexibility in site design, allowing them to maximize density and minimize development costs.

3. The developers will benefit from the green space above the underground stormwater facilities, which adds an amenity to their sites.

It is proposed that the City establish a Stormwater Infrastructure Fund for all its GIF Districts. The Fund would receive all connection fees and pay for the GIF District improvements. Fees collected from one project can be used to fund future stormwater projects.

By using a connection fee methodology, the City will need to pay cash or finance the stormwater improvements and then wait for redevelopment to occur to recover its costs. The City is taking the risk that redevelopment will be delayed or not occur as planned, and the City may not fully recover its costs. This risk is mitigated for the West Side Flats GIF District because the City has identified several funding sources for the estimated $3 million project.

Sources of Funds		
Loan (to be repaid with connection fees)	$	1,614,677
Park Funding	$	797,080
Grant	$	600,000
	$	**3,011,757**
Uses of Funds		
Park Components*	$	797,080
Regional Stormwater System	$	2,214,677
		3,011,757

* Includes costs for trails, water service, site furnishings and electrical

The City may not expend connection fees collected for stormwater on park improvements, which is why the park related cost of the West Side Flats Greenway has been isolated and park funding will need to be identified to pay for that part of the project.

Over time and depending on the pace of development, the balance in the GIF District Infrastructure Fund may grow as the City collects connection fees. Funds available in the GIF District Infrastructure fund will be available to pay for stormwater infrastructure in GIF Districts on a city-wide basis.

The cashflow projection for the GIF Infrastructure Fund is shown in Appendix A and discussed on Page 7 of this memo.

Summary of Risks and Benefits of the Proposed Connection Fee System

Ehlers and staff have identified the primary financial risks and benefits of the proposed connection fee system.

Risks

Risk #1: For future GIF Districts, the total connection fee revenue may not be enough to fully recover the City's costs, especially if the area served is relatively small or if stormwater management for the GIF District proves to be more costly than the historical average. This risk can be mitigated by continuing to obtain grants from the watershed district or other funders and by establishing the proposed GIF District Infrastructure Fund.

Risk #2: Special assessments provide an incentive for property owners to sell or redevelop their site to help pay for the assessment. Connection fees, on the other hand, do not necessarily incent current property owners to sell or redevelop. The City will have no control over the pace of redevelopment and when it will collect its fees. While this is a concern for privately owned parcels,

the West Side Flats GIF District parcels are already owned by the St. Paul Housing and Redevelopment Authorit with the intention of redeveloping them.

Risk #3: Current property owners may inflate their land prices once their properties are served by a regional system. The City will have to clearly communicate its fee structure to future developers so they understand the full cost of developing the site and do not overpay for the land. If developers overpay for the land, it will make their projects less financially feasible, potentially delaying the development or increasing the request for financial assistance from the City.

Benefits

Benefit #1: One key benefit of using a connection fee system is that it will not charge property owners for a system until they "hook-up" and begin to use the system. At the point developers are pulling a building permit, they have obtained their construction financing and have a means of paying for the connection fee. If collected earlier, the property owner may not have a ready source of cash and may try to negotiate fee reductions or request to have them assessed. In our experience, if the stormwater fee impinges on the financial feasibility of a project it will push developers to negotiate fee reductions or ask for more financial assistance from the City.

Benefit #2: A second benefit of the connection fee system is its simplicity in administration. There is one fee city-wide for all GIF Districts. The fee can be established and increased annually following the same process as other City fees.

Benefit #3: Fees collected from one GIF District can be used to pay for improvements in another District or elsewhere in the City. This will be especially helpful when the City obtains grants for a specific project, as it has done for the West Side Flats GIF District.

West Side Flats Area Financial Analysis

Ehlers has completed a financial analysis for the construction of the West Side Flats Stormwater System. Following are the key assumptions used in the analysis.

Project Cost: The construction cost estimate is based on the engineer's estimated base bid plus 7.5%. This is the cost for the construction of the southern portion of the Greenway (south of Filmore). The conveyance systems on the future streets will be the responsibility of the developers.

Connection Fee: The proposed connection fee, as previously stated, is based on the research from Young Environmental Consulting Group, Inc. as conveyed in their July 12, 2017 memo. It is proposed to be $3.43 per square foot of developable property in 2018. Developable property is a site's land area less land dedicated for streets, street rights-of-way, parks, and regional stormwater systems.

Land Area: The land area of the future parcels is based on estimates provided by the City.

Future Land Uses: The future land uses were taken from a schematic prepared by Collage Architects for the Weidner development group.

The table below shows the estimated land areas and potential future uses for the West Side Flats Area.

Table 1. Property Information

Property Information		
Block Reference	Future Use	Estimate Net Acreage w/o Streets
Block A	Multifamily Housing	2.80
Block B	Mixed Use	2.80
Block C	Commercial	2.00
Block D	Multifamily Housing	2.80
Block E	Multifamily Housing	2.80
Totals		**13.20**

Using our estimates for future parcels and land uses, we made assumptions about when the parcels would develop, and then calculated total connection fee revenue for each parcel. The connection fee inflates 3% per year. Our assumed development time frame and the resulting fees are shown in the chart on the next page. Year 1 is 2018. The Sherman parcels are not included in the analysis and will not be charged connection fees because they manage stormwater on-site.

Table 2. Proposed Connection Fees

Property Information			Development Fees		
Block Reference	Future Use	Estimate Net Acreage w/o	Year Assumed to Develop	Stormwater Connection Fees*	Total Connection Fees**
Sherman - completed	Multifamily Housing	1.61	completed	n/a	
Sherman - Phase II	Multifamily Housing	4.00	3	n/a	
Block A	Multifamily Housing	2.80	2	$3.53	$431,047
Block B	Mixed Use	2.80	8	$4.22	$514,692
Block C	Commercial	2.00	10	$4.48	$390,027
Block D	Multifamily Housing	2.80	4	$3.75	$457,298
Block E	Multifamily Housing	2.80	6	$3.98	$485,147
Totals		**18.81**			**$2,278,210**

* Stormwater Connection Fee is based on average cost of installing Underground Stormwater Management Systems in 2012 through 2015 in the City of St. Paul on sites greater than one acre. The 75th percentile cost was $3.14 per square foot for that time period. It is assumed the fee will increase 3% annually to keep pace with construction costs. The initial fee for 2018 would be $3.43 (inflated three years).

** Based on estimated net acreage excluding streets, easements, land dedicated for parks, and land used for stormwater management.

Connection fees are expected to pay for 100% of the stormwater related costs of the Greenway. In addition to paying the connection fees, future redevelopment parcels (excluding Sherman) will pay for construction of conveyance systems to transport stormwater to the Greenway.

At the City's option, it may specially assess the connection fees if requested by the developer. However, this will extend the time it will take to recover the City's outlay of funds for the initial construction costs.

GIF District Cashflow Analysis

The connection fees will be collected over time, as properties redevelop. Therefore, the City or HRA will need to pay for a portion of the construction costs up front and recover their funds over time as connection fees are received.

The City will need to provide or obtain financing for the GIF District Stormwater System of up to $1,614,677. We have prepared a cashflow projection for the GIF Infrastructure Fund (Appendix A) that assumes the $1,614,677 loan has a ten-year term and an interest rate of 3.5%.

As connection fees are received, they will be used first to pay principal and interest on the City's loan, and second to pay operating and maintenance costs for the first few years until redevelopment occurs. The cashflow projection assumes that the loan is not prepaid and that the balance in the GIF Infrastructure fund is allowed to accumulate in an amount sufficient to pay future debt service. If possible, we would recommend building in a prepayment feature in the City loan that will allow the GIF District to prepay the loan if redevelopment occurs according

to the schedule in the chart above, or faster. Given the assumed pace of development, we anticipate that the City's loan could be repaid in full by 2027. Once the loan is repaid in full, the cash in the fund will be available to assist other GIF District projects. The projection in Appendix A shows that the GIF Infrastructure Fund could generate a positive cash balance of approximately $319,900 by 2029 that is available for other GIF projects.

Paying for Operating and Maintenance Costs

The City of St. Paul charges all properties an annual fee for its stormwater system (the Storm Sewer System Charge or "SSSC"). The green stormwater systems bring with them additional operating and maintenance ("O&M") costs that need to be paid for on an annual basis. Barr Engineering has estimated that, once fully completed, the annual O&M costs for the West Side Flats Greenway will be approximately $16,300 per year. In addition, there will be O&M costs associated with the future conveyance system which will be constructed with the new street grid. For the purpose of this analysis, we have used a provisional estimate of $7,220 for annual O&M costs associated with the conveyance system, resulting in a total estimated cost of $23,520. All O&M costs are assumed to inflate 3% annually.

Conceptually, it was determined that the properties within the GIF District should pay for the annual O&M costs associated with the green stormwater systems. Staff and Ehlers considered multiple options (detailed in Appendix B) for recovering O&M costs associated with the green stormwater systems. In addition, we considered implementing shared maintenance agreements between the City and surrounding property owners but determined that these agreements could pose long-term management and enforcement challenges.

Ehlers and staff are recommending a two-pronged cost recovery approach:

1. 100% of the existing SSSC collected within the District will be dedicated to pay for costs of maintaining the stormwater infrastructure within the District; and

2. The City will establish an additional green infrastructure surcharge that will apply to the properties within the District. O&M costs will be estimated for each District, and a separate surcharge will be calculated for each District.

The calculation of the proposed surcharge will be done as follows for each District:

Estimated Annual O&M Costs
\- Annual Storm Sewer System Charge
= Total Annual Surcharge

The annual surcharge will be based on acreage and intensity of land use consistent with the current Storm Sewer System Charge rate structure. Therefore, the potential new annual surcharge can be expressed as a percent of the existing Storm Sewer System Charge. Initial estimates for the West Side Flats GIF District indicate that the surcharge needs to be 41.25% of the existing Storm Sewer System Charge to generate total annual operating revenues of approximately $23,520. The estimates are shown in the chart below.

Table 3. West Side Flats O&M Charges

Property Information		O&M Charges			
		Charge assuming future development uses			
Block Reference	Estimate Net Acreage w/o Streets	2018 Annual SSSC Fee	2018 Per Acre Charge	Green Infrastructure Surcharge	Total City Operating Revenues
Block A	2.80	$3,137	$1,120	$1,294	$4,431
Block B	2.80	$4,226	$1,509	$1,743	$5,970
Block C	2.00	$3,019	$1,509	$1,245	$4,264
Block D	2.80	$3,137	$1,120	$1,294	$4,431
Block E	2.80	$3,137	$1,120	$1,294	$4,431
Totals	**13.20**	**$16,657**		**$6,871**	**$23,528**

The current estimated O&M cost for West Side Flats is $23,520, comprised of $16,300 for the greenway and a provisional estimate of $7,220 for future conveyance systems. The provisional estimate of $7,220 was based on the average per acre spending on the City's existing stormwater system in 2016. This was derived by taking the total stormwater revenues of $14.67 million divided by the contributing city acreage of 26,792 acres, which equals $547 per acre. The $547 was multiplied by the 13.2 acres in West Side Flats, resulting in an estimate of $7,220. Once the complete stormwater system for the West Side Flats (including the conveyance system) is designed, the City will refine the estimate of O&M costs and refine the proposed fees.

The total annual expense for each parcel in the West Side Flats GIF District is estimated to range from 4 to 5 cents per square foot, depending on land use.

The proposed surcharge should be codified in Chapter 81 of the City Code.

The surcharge and SSSC estimated in Table 3 will be collected when properties develop. However, it is anticipated that the construction of the Greenway will occur before West Side flats parcels are fully developed, incurring annual O&M. To address this lag in construction, the cashflow projections in Appendix A provide for the first five years of O&M costs to be paid for from the construction fund using connection fee revenue and the City's loan proceeds.

Conclusion

Ehlers has worked closely with City staff to develop a proposed system for recovering the costs of GIF District Stormwater Systems from private development benefitting from those systems. The proposed financing mechanism has two components:

Connection Fees to Fund Construction Costs: When parcels within GIF Districts redevelop or make improvements to direct stormwater to the regional conveyance, storage and treatment systems, they will be charged a connection fee. The connection fee will be $3.43 per square foot (2018 rates) based on net developable acreage of the redeveloping site. Connection fees should be increased 3% annually.

Stormwater Service Charges to Fund Operating Costs: The annual operating and maintenance costs for the green stormwater systems will be paid for by the properties benefitting from the infrastructure. Each property will pay its existing Storm Sewer Service Charge ("SSSC"), which will be dedicated to paying expenses associated with the District's green stormwater system. In addition, the City will establish a surcharge that applies to the properties within the District. Operating and maintenance costs will be estimated for each District, and a surcharge will be calculated for each District. For the West Side Flats District the preliminary estimate of total annual charges, including the existing SSSC and the proposed surcharge, are $.04 to $.05 per square foot of developable property. This surcharge will be codified in the City Code.

The City anticipates borrowing or providing up to $1,614,677 of internal funds to pay for a portion of the stormwater project. The loan will be repaid as redevelopment occurs and connection fees are received. If development is delayed by a change in the economic climate or for other reasons, the City may need to identify other funds to repay the loan until connection fees are eventually received. If, however, the West Side Flats fully develops within the next ten years, the City will be repaid in full plus develop a cash balance in its GIF District Fund to pay for other stacked-infrastructure stormwater projects.

Appendix A
City of Saint Paul
Westside Flats Storm Water Analysis
Projected Cashflow Projection for GIF Stormwater System

	Fee Increase	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
	Operating Cost Increase	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
	WSF Capital Project Fund	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1	**Revenues**											
2	Stormwater Annual Charges											
3	GIF Connection Fee	431,047	-	457,298	-	485,147	-	514,692	-	390,027	-	-
4	Grant	600,000										
5	Park Funding	797,080										
6	Loan Proceeds	1,614,677										
7	**Total Revenues**	**3,442,804**	**-**	**457,298**	**-**	**485,147**	**-**	**514,692**	**-**	**390,027**	**-**	**-**
8												
9	**Expenses**											
10	GIF Infrastructure	3,011,757										
11	Principal and Interest on Loan (10 years @ 3.5%)		194,151	194,151	194,151	194,151	194,151	194,151	194,151	194,151	194,151	194,151
12	Transfer Out for Start-Up Operating Costs		16,787	21,157	21,792	22,446	27,344				-	-
13	**Total Expenses**	**3,011,757**	**210,938**	**215,308**	**215,943**	**216,597**	**221,495**	**194,151**	**194,151**	**194,151**	**194,151**	**194,151**
14												
15	**Ending Cash in WSF GIF District Fund**	**431,046**	**220,109**	**462,098**	**246,155**	**514,705**	**293,210**	**613,751**	**419,600**	**615,476**	**421,325**	**227,174**

	Westside Flats Operating Fund	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
16	**Beginning Cash Balance**											
17	**Revenues**											
18	Green Infrastructure Surcharge		1,414	1,457	3,000	3,090	4,775	4,918	7,340	7,561	9,511	9,796
	Annual Storm Sewer System Charge		3,428	3,531	7,274	7,492	11,575	11,923	17,795	18,329	23,057	23,749
19	Transfer in from GIF Infrastructure Fund		16,787	21,157	21,792	22,446	27,344	-	-	-		
20	**Total Revenues**	**-**	**21,629**	**26,145**	**32,066**	**33,028**	**43,694**	**16,841**	**25,135**	**25,889**	**32,568**	**33,546**
21												
22	**Expenses**											
	Provisional Estimate of Conveyance System costs			3,867	3,983	4,102	8,451	8,704	8,965	9,234	9,511	9,796
23	Operating Costs - Greenway North and South		16,787	17,291	17,809	18,344	18,894	19,461	20,044	20,646	21,265	21,903
24	**Total Expenses**	**-**	**16,787**	**21,157**	**21,792**	**22,446**	**27,344**	**28,165**	**29,010**	**29,880**	**30,776**	**31,700**
25												
26	**Ending Cash in Westside Flats Operating Fund**	**-**	**4,842**	**9,830**	**20,104**	**30,687**	**47,037**	**35,713**	**31,838**	**27,848**	**29,640**	**31,486**

Appendix B

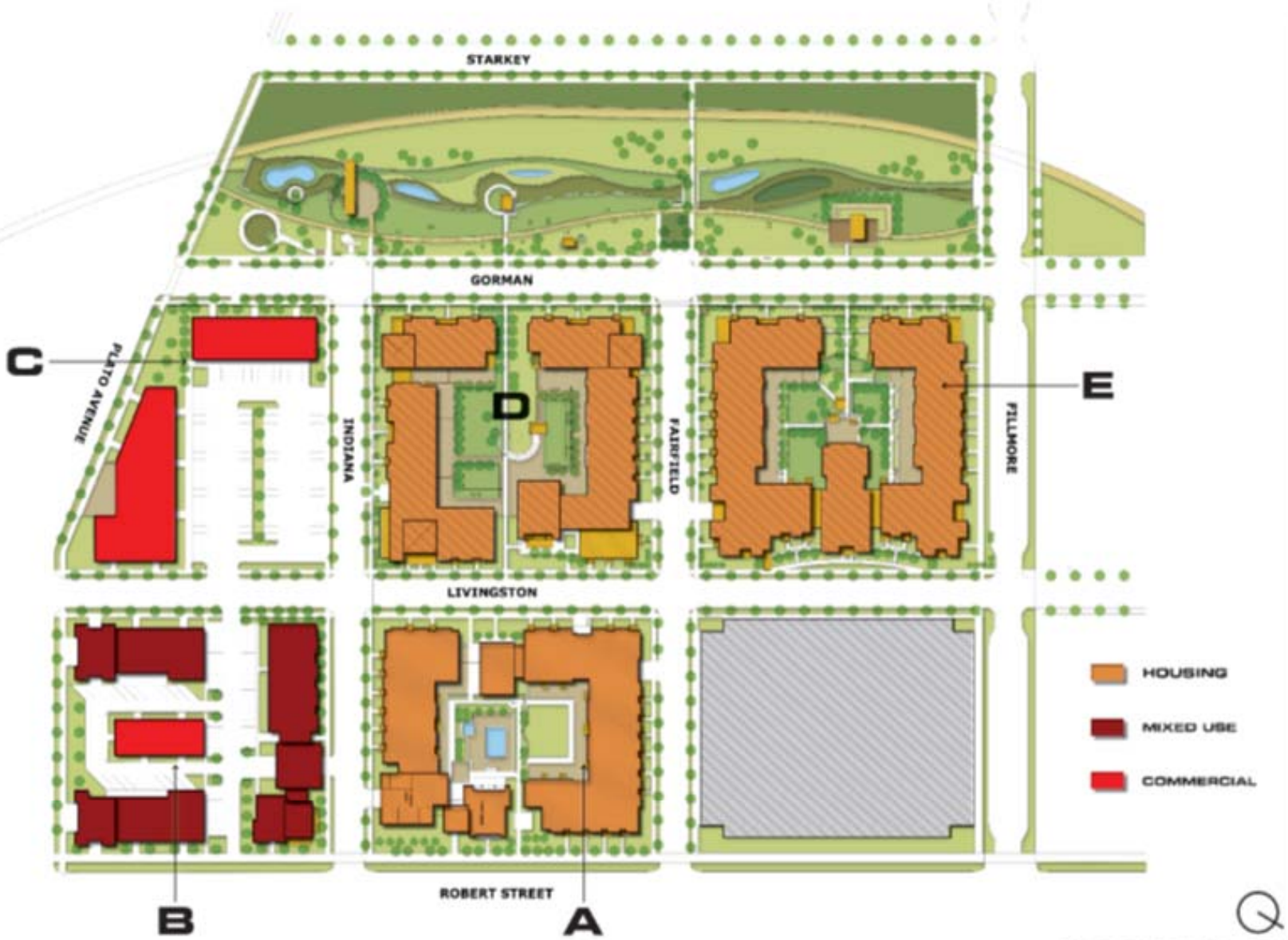
CITY OF ST. PAUL
OPTIONS FOR FUNDING STORM SEWER MAINTENANCE
IN GREEN INFRASTRUCTURE FINANCING DISTRICTS

Authority	**Statute 444.16-444.21** **Storm Sewer Improvement Districts**	**Statute 103B.245** **Watershed Management Tax District**	**Statute 428A.01** **Special Service Districts**
Description	Property tax imposed on properties within the Storm Sewer Improvement District.		Fees imposed on commercial properties to pay for services provided within the special district.
Basis for Fee	Fee spread across tax capacity (property values)	Fee spread across tax capacity (property values)	Fee spread across tax capacity (property values)
Can It Pay for Park Maintenance?	No	No	Yes, if park amenities exceed the level of service ordinarily provided throughout the City from general fund revenues. Can only charge an amount needed to pay for the increased level of service.
Collection Method	Tax spread on property described in ordinance.	Tax collected with property taxes.	Fee collected with property tax.
Benefits	• Ease of administration. • Storm Sewer Improvement District can be coterminous with GIF	• Ease of administration. • Watershed Management Tax District can be coterminous with GIF	• Can pay for both storm sewer and park maintenance. • Special Service District can be coterminous with GIF District but residential properties within Districts would not be subject to fees.
Drawbacks	Cannot split cost on a per lot basis – it is spread across tax capacity (property values).	• Cannot split cost on a per lot basis – it is spread across tax capacity (property values).	• Only applicable to C/I properties and utilities. • Owners will have to participate in process. • Requires annual notice, public hearing and adoption by resolution.
Requirements	Must be established prior to letting contract for improvements.	Must be within a watershed for which a plan has been adopted in accordance with 103B.231 and which has a local sewer management plan adopted in accordance with 103B.235	Petition required by owners representing at least 25% or more of the net tax capacity of the property subject to the service charge
Authorized expenses	Acquisition, construction, reconstruction, extension, maintenance or other improvements to storm sewer systems within the district, and storm sewer holding areas and ponds within and without the municipality that benefit the district.	Capital costs of the sewer management facilities describe in the capital improvement program of the plans (referenced above) and for normal and routine maintenance.	"Special services" as defined in City ordinance but may not include a service that is ordinarily provided throughout the city from general fund revenues unless an increased level of the service is provided in the special district.
Procedure to Establish District and Award Contract	Requires <u>two</u> public hearings and a two-thirds vote by Council.	Requires <u>one</u> public hearing prior to adopting ordinance to establish the district. Must be established prior to project.	Adoption of ordinance following a public hearing.
Timing	Minimum 4 months for approval and contract award.	Minimum 2 months for approval and contract award.	

Appendix B, continued

CITY OF ST. PAUL
OPTIONS FOR FUNDING STORM SEWER MAINTENANCE
IN GREEN INFRASTRUCTURE FINANCING DISTRICTS

Authority	**Statute 444** **Implement Storm Sewer Service Surcharge and Increase Existing Credit**	**Statute 444** **Increase City-Wide Storm Sewer Service Charge**
Description	Fee imposed on property within GIF to pay for maintenance of shared storm sewer facility combined with a re-evaluation of the 25% "Rate of Discharge Credit". Could a larger credit be instituted for regional systems that also collect stormwater from streets and common areas?	Incorporate maintenance of GIF facilities in city-wide stormwater budget and adjust existing SSSC to be adequate to cover all maintenance expenses.
Basis for Fee	Fee based on impervious surface and property type consistent with current policy.	Fee based on impervious surface and property type consistent with current policy.
Can It Pay for Park Maintenance?	No	No
Collection Method	Fee collected annually with current SSSC.	Annual collection.
Benefits	• Ease of administration. • No annual approvals or sunset of fees.	• Ease of administration. • Regional stormwater facilities benefit entire system.
Drawbacks	• A larger credit would slightly diminish existing SSSC revenues for city-wide system.	• Increases SSSC slightly city-wide.
Requirements	Amend ordinance to reflect credit for on-site collection of storm water from common areas and to add surcharge.	Adjust current fee by ordinance.
Authorized expenses	Construction, maintenance, operation and repair of storm sewer facilities consistent with watershed or local management plans.	Construction, maintenance, operation and repair of storm sewer facilities consistent with watershed or local management plans.
Procedure to Establish District and Award Contract	Adoption of ordinance amending policy.	Adopt ordinance amending fee.
Timing		



FILLMORE PARCEL

Saint Paul, MN

APR.27.2016

BLOCK A

174 UNITS
BUILDING 265,000 SF
COMMON AREA 53,000 SF
PARKING 190 STALLS
RETAIL 0 SF
PHASE 1

BLOCK B

78 UNITS
BUILDING 106,000 SF
COMMON AREA 15,000 SF
PARKING 112 STALLS
RETAIL 28,000 SF
PHASE 4

BLOCK C

0 UNITS
BUILDING 40,000 SF
COMMON AREA 0 SF
PARKING 95 STALLS
COMMERCIAL 40,000 SF
PHASE 5

BLOCK D

180 UNITS
BUILDING 246,000 SF
COMMON AREA 38,000 SF
PARKING 180 STALLS
RETAIL 0 SF
PHASE 2

BLOCK E

174 UNITS
BUILDING 243,000 SF
COMMON AREA 36,700 SF
PARKING 174 STALLS
RETAIL 0 SF
PHASE 3

SITE PLAN 1" = 60'

Collage | architects

WEIDNER APARTMENT HOMES

APPENDIX I: AREAWIDE REVIEW OF EXISTING ENVIRONMENTAL DOCUMENTS

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

WEST SIDE FLATS - AREA WIDE ASSESSMENT

City of Saint Paul
U.S. EPA Brownfields Assessment Grant
Hazardous Substances and Petroleum
Grant Number: 00E01582

West Side Flats Project Area
St. Paul, Minnesota

AET Project No. 03-06069

Date:

March 29, 2018

Submitted to:

U.S. Environmental Protection Agency
Region V
Mail Code SB-7J
77 – W. Jackson
Chicago, IL 60604

Prepared for:

City of Saint Paul
Planning and Economic Development
Community-Wide Assessment Coalition Grant Project Lead
25 West Fourth Street
1200 City Hall Annex
Saint Paul, MN 55102

www.amengtest.com

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

March 29, 2018

Attn: Jamie Radel, Senior Planner
jamie.radel@ci.stpaul.mn.us
651-266-6614

City of Saint Paul
Department of Planning and Economic Development
25 West Fourth Street
1200 City Hall Annex
Saint Paul, MN 55102

RE: West Side Flats – Area Wide Assessment
St. Paul, Minnesota
AET Project No. 03-06069

Dear Ms. Radel:

American Engineering Testing, Inc. has completed West Side Flats – Area Wide Assessment services in St. Paul, Minnesota. This work was done in accordance with AET Proposal No. 03-06069.

We appreciate the opportunity to serve you on this project. If you have any questions regarding the information presented in this Area Wide Assessment report, or if we may be of additional service, please contact me.

Sincerely,
American Engineering Testing, Inc.

Gail A. Cederberg, PhD
Vice President, Environmental Division
Phone: (651) 659-1332
gcederberg@amengtest.com

C.V. Howard III, P.G., CHMM
Senior Geologist
Phone: (651) 603-6614
thoward@amengtest.com

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AET PROJECT NO. 03-06069

WEST SIDE FLATS – AREA WIDE ASSESSMENT
ST. PAUL, MINNESOTA

AET PROJECT NO. 03-6069

1.0 EXECUTIVE SUMMARY

City of Saint Paul Planning and Economic Development (PED) authorized American Engineering Testing, Inc. (AET) to conduct a review of existing environmental information within the West Side Flats Project Area (Project Area). The Project Area is bounded by the Mississippi River to the north, Highway 52 on the east, Plato Boulevard on the South and Wabasha Street on the west. Figure 1 shows the Project Area location within St. Paul, and Figure 2 shows the layout of the Project Area, underlain by a 2015 aerial photograph.

1.1 Summary of Findings

AET identified potential contamination sites based on our review of historical records in AET archive, information available on the Ramsey County property viewer website, records available from the Minnesota Pollution Control Agency (MPCA) and records on the MPCAs What's In My Neighborhood (WIMN) website. Figure 2 identifies potential contamination sites identified during this assessment. AET ranked/classified the sites by high, medium, or low potential for contamination using the MnDOT classifications for similar large area projects.

AET identified 37 potential contamination sites within the Project Area. The assessment identified 29 sites with a high potential for contamination, 5 sites with a medium potential for contamination and 3 sites with a low potential for contamination.

The sites are summarized in Section 8.0. Table 1 provides a listing of all the sites; site name and address, description and rank. Table 2 identifies each site by activity (e.g., tank sites, hazardous waste generators, voluntary investigation and cleanup sites, etc.). Site descriptions which summarizes more details and information are included in Appendix A.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this Assessment is to identify possible and known sources of contamination to aid PED in planning within the Project Area. Figure 2 shows the extent of the Project Area.

2.2 Scope of Services

The scope of this Area Wide Assessment includes the following tasks:

- Obtain and review historical documents, including aerial photographs, fire insurance maps and other historical maps.

- Obtain and review regulatory agency files regarding leaks, spills, and hazardous materials generation and storage.
- Review select regulatory files available at the MPCA.
- Rank/classify all identified sites within the Project Area in accordance with high, medium, low, or de minimis potential for contamination criteria established by MnDOT.
- Prepare a report that includes the following items:
  - An executive summary;
  - A summary of all project preparation and data collection activities undertaken by AET to complete the tasks;
  - The address or a location description of each known or potentially contaminated site (or "site") identified in the Project Area;
  - The rank/classification of the sites;
  - The reason why each site is known or suspected to be contaminated; and
  - Figures showing the locations of each known or potentially contaminated site identified in the Project Area.

2.3 Significant Assumptions

Even with the proper application of the methodologies that AET followed in performing this assessment, it is possible that conditions within the Project Area that cannot be identified within the scope of the services or were not reasonably identifiable from available information. AET believes that the information obtained from our review of environmental databases, historical records, interviews concerning the project corridor, and information obtained from the reconnaissance is reliable. However, AET cannot and does not warrant or guarantee that the information provided by these sources is accurate or complete.

2.4 Limitations and Exceptions of Assessment

No environmental assessment can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Performance of this assessment is intended to reduce, but may not eliminate, uncertainty regarding the potential for identifying possible sources of contamination in connection with the Project Area.

Other limitations to this project include the following:

- We did not conduct a reconnaissance of the Project Area.
- Individual parcel owners were not interviewed.

- Most of the businesses and residences in the Project Area currently utilize natural gas for heating. It is possible that fuel oil was used in the past. Spills, leaks, and releases of those petroleum products could generate contamination. However, not all parcels within the Project Area have been designated "sites" as a result.
- Most of the businesses and residences in the Project Area use cleaning chemicals that could be considered hazardous materials; therefore, spills, leaks, and releases of those cleaning chemicals could generate contamination. However, not all parcels within the Project Area have been designated "sites" as a result.

2.5 Special Terms and Conditions

AET utilized the MnDOT Phase I ESA criteria to rank identified sites within the Project Area as having high, medium or low. The rankings are defined as follows:

- High Potential for Contamination – All active and inactive Voluntary Investigation and Cleanup (VIC) and Minnesota Environmental Response and Liability ACT (MERLA) sites, all active and inactive dump sites, all dry cleaner sites, all active Leaking Underground Storage Tank (LUST) sites, bulk oil facilities, and all historic industrial sites with likely chemical use on the premises.
- Medium Potential for Contamination – All closed LUST sites, all sites with Underground Storage Tanks (USTs) or Aboveground Storage Tanks (ASTs), machine shops, and all sites with vehicle repair activities.
- Low Potential for Contamination – All hazardous waste generator sites and some commercial, recreational, and residential sites.

2.6 Reliance

AET has prepared this Area Wide Assessment for the exclusive use of City of Saint Paul Planning and Economic Development (PED) for specific application to the West Side Flats Project Area.

3.0 PROJECT AREA DESCRIPTION

3.1 Location

The Project Area is located in the City of St. Paul, Minnesota, as shown in Figure 1. The Project Area is bounded by the Mississippi River to the north, Highway 52 on the east, Plato Boulevard on the South and Wabasha Street on the west. The project area is located in Sections 5 and 6, Township 28, Range 22 West, Ramsey County.

3.2 Current Use of the Project Area

The project location is in a fully urbanized area. The land use in and around the Project Area is a mix of industrial and commercial, which is consistent with the zoning of the area. An active rail line runs through the western portion of the Project Area.

4.0 CLIENT AND/OR USER PROVIDED INFORMATION

The following documents were provided to AET by PED:

- Phase I Environmental Site Assessment, Fillmore Site, 13.5 Acre Property, St. Paul, MN prepared by Wenck Associates, May 2015.
- Draft Phase II Environmental Site Assessment, Fillmore Development Site, St. Paul, MN prepared by Wenck Associates, September 2015.
- Draft Response Action Plan and Construction Contingency Plan, Fillmore Development Site – Phase One, Parcel A and Greenway North, St. Paul, MN prepared by Wenck Associates, September 2015.

Applicable information obtained from the documents was utilized in the preparation of this report.

5.0 RECORDS REVIEW

5.1 Physical Setting Sources

Review of Available Soil, Bedrock, and Groundwater Information

Soils:

AET reviewed the *Ramsey County Geologic Atlas, C-7, 1992,* published by the Minnesota Geological Survey. This publication indicates that surficial soils in the vicinity of the Project Area are primarily stream sediment consisting of sand and gravel with areas of fine sediment and organic material (slack-water deposits). Based on its location in an urban area and confirmed by subsurface investigations the uppermost soils in the Project Area consist of urban fill of varying thickness.

Bedrock:

According to the *Ramsey County Geologic Atlas*, the bedrock underlying the Project Area consists of the Prairie du Chien Group composed of thinbedded and massive bedded dolostone. Depth to bedrock is approximately 100 feet below ground surface (bgs).

Groundwater:

AET reviewed the *Ramsey County Geologic Atlas,* for groundwater information. Additional groundwater information was provided in the MPCA files from petroleum investigations in the vicinity of the project corridor. Depth to groundwater is variable ranging from 20 feet to 30 feet bgs, and likely affected by Mississippi River. Regional groundwater flow is generally from north with variations northeast, northwest due to flow of the Mississippi River.

5.2 Regulatory Search

AET reviewed the Minnesota Pollution Controls (MPCAs) What's in My Neighborhood (WIMN) web site to conduct a search of reported facilities within the Project Area. Table 1 includes the facilities identified on the WIMN website within the Project Area. Numerous sites on WIMN are inaccurately located within the Project Area; therefore, are not included in the assessment.

Applicable information and the ranking of low, medium, and potential sites of concern are presented in Tables 1 and 2.

5.2.1 Hazardous Waste Generators

The WIMN database identified thirty-five hazardous waste generators within the boundary of the Project Area. Twenty-one of the thirty-five these facilities are listed as active. The thirty-five hazardous waste generators are minimal to small quantity generators.

5.2.2 Tank Sites

The WIMN database identified nine tank sites within the boundaries of the Project Area. Eight of the nine tank sites are listed as inactive. The one active site has inactive USTs and active ASTs.

5.2.3 Leak Sites

The WIMN database identified eleven leak sites within the boundaries of the Project Area. The eleven leak site files have been closed by the MPCA.

5.2.4 Voluntary Investigation and Cleanup Program (VIC)

The WIMN database identified fourteen VIC brownfield sites within the boundaries of the Project Area. The fourteen sites are inactive.

5.2.5 Petroleum Brownfield

The WIMN database identified one petroleum brownfield site within the boundaries of the Project Area. The site is active.

5.2.6 State Superfund Project

The WIMN database identified two state superfund sites within the boundaries of the Project Area. The two sites are inactive.

5.2.7 State Site Assessment

The WIMN database identified two state site assessment sites within the boundaries of the Project Area. The two sites are inactive.

5.2.8 CERCLIS/RCRA Sites

The WIMN database identified three CERCLIS/RCRA sites within the boundaries of the Project Area. One of the three sites are active.

5.2.9 Wastewater Discharger

The WIMN database identified two wastewater dischargers within the boundaries of the Project Area. One of the two sites are active.

5.2.5 Industrial Stormwater

The WIMN database identified seven state superfund sites within the boundaries of the Project Area. Four of the seven sites are active.

5.3 Historical Use Information

AET examined the history of the Project Area by reviewing sources likely to be useful in developing historical uses of the properties. We utilized sources obtained for the Phase I ESA for the Fillmore Site, records in AET files and those available on the web. Sources we reviewed include the following:

- Historical aerial photographs,
- Fire insurance maps, and
- Ramsey County Property Viewer

Applicable information obtained from our review of aerial photographs, fire insurance maps, and the county is incorporated in the summary of low, medium, and high sites of concern identified in Tables 1 and 2.

We also reviewed the Minnesota History Center* website for a history of the greater West Side Flats neighborhood. A 1917 St. Paul Housing survey found that almost half the dwellings did not have a sewer connection. The Mississippi River flooded the flats nearly every spring and after a particularly devastating flood in 1952 the Port Authority decided to convert the flats in to an industrial park. The city began purchasing dwellings and razing buildings in the early 1960s.

A floodwall to protect the new industrial park was constructed in 1964. (**Nelson, Paul. "West Side Flats, St. Paul." MNopedia, Minnesota Historical Society. http://www.mnopedia.org/place/west-side-flats-st-paul (accessed March 8, 2018).*

Aerial Photograph Review

AET reviewed historical aerial photographs readily available on the county website for the following years: 1940, 1953, 1974, 1985, 1991, 2003, 2008, 2009, 2011, 2015 and 2017. Google Earth was also consulted for years between 2001 and 2017.

Fire Insurance Map and Historic Map Review

AET reviewed fire insurance maps that include parts of the Project Area for the following years: 1887, 1901, 1904, 1908, 1916, 1928, 1939, 1946 and 1950.

Historical Summary

Review of historical records indicates that a mixture of residential, commercial and industrial properties has occupied the project area since the late 1800s. Industrial properties consisting of foundries, equipment manufacturing, bulk petroleum storage, chemical manufacturing was primarily situated between the Mississippi River and Fillmore Ave and between Robert Street S and the rail line on the western portion of the Project Area. Residential neighborhoods intermixed with lighter industrial properties, small stores and commercial properties occupied areas south of Fillmore Avenue E. A rail line has bisected the western portion from north to south since at least 1887. Rail spurs were present in abundance throughout the Project Area in almost every north-south "alley way" and on the industrial properties. In the 1960s the majority of the residential neighborhoods were razed to make way for surface parking lots and redevelopment as industrial properties. Streets have been realigned or vacated since the 1950s. A major route connecting the West Side Flats area to downtown via the Lafayette Freeway was constructed in the 1960s.

5.4 Additional Record Sources

MPCA File Review Information

AET reviewed various MPCA site files, which were retrieved from archive at the MPCA offices. AET reviewed the available information from the files listed below. Applicable information from the MPCA data file is included with the applicable site summary in Appendix A.

MPCA FILES REVIEWED				
SITE NO.	**MPCA ID**	**STATUS**	**SITE NAME**	**SITE ADDRESS**
1	VP1670, VP2160, VP3550, Leak3232	Closed/Inactive	Unocal, Unocal Dewater,	40 E Water St
2	VP1240, MND985678952, SR338	Closed/Inactive	Technical Sealants	43 E Water St
3	LS15882, VP14342	Closed/Inactive	Llewellyn World Wide/WSF	84 S Wabasha ST
4	BF240	Active	West Side Flats Phase III	E Fillmore and Livingston Ave
5	SR94, SA1288, RCRA6166375, GS1288, VP3550, LS14181	RCRA is Active	AmHoist	N of Fillmore Avenue from Starkey to State St.
6	SR94	Inactive	Amdura	10 River Park Plaza
7	LS13817, VP13820	Inactive	US Bank	60 Livingston Ave
8	VP13050	Inactive	Wabasha Business Center	E Fillmore and S Wabasha
9	BF48, BF495, SR1436	Inactive	WJ Haas	162 Wabasha St S
10	VP22600	Inactive	MCES Riverview Siphon Reconstruction	Utility Easement
11	PB4487 VP33230	Active	Fillmore Redevelopment Site	S of Fillmore from rail line to Robert St.
12	VP14341	Inactive	Livingston Street	ROW
13	VP6650, LS9077	Closed	Fox Chemical	137-149 S. Robert St
14	LS10768	Closed	American Red Cross	134 Fillmore Ave E
16	VP25050, LS6879, SA1360	Inactive/Closed	Rexam, Beverage Can Co	139 Eva St
22	LS8918	Closed	Vomela Specialties, Camada Limited Partnership	274 E Fillmore
24	VP28970	Closed	Riverview Business Center	105-143 State St
33	LS12409	Closed	Former Gas Station	175 Lafayette
35	VP14110	IC	Plato Boulevard	Plato Blvd and rail line

Information for the following sites has been requested from the MPCA but we have not received the information.

MPCA FILES REQUESTED – NOT RECEIVED				
SITE NO.	**MPCA ID**	**STATUS**	**SITE NAME**	**SITE ADDRESS**
23	LS2921	Closed	Assess Recovery Corp (UPS)	150 State St
28	LS11004	Closed	Twin Cities Newspaper Service	277-285 State St

6.0 FINDINGS

This Area Wide Assessment identified 37 low, medium or high potential contaminated sites within the Project Area. AET ranked the sites according to the MnDOT-specified criteria described in Section 2.5. Tables 1 summarizes the data from selected sites in the project corridor, ranked as low, medium and high contamination potential. Figure 2 depicts the geographic locations of the low, medium, and high potential sites. The site rankings are described in Sections 8.1 through 8.4 below.

6.1 Sites with Low Potential for Contamination

Three low potential site was identified in the Project Area. The low potential sites are listed as inactive and active hazardous waste generators and shown on Figure 2. The low potential sites are summarized below and included in Table 1. A site summary for the low potential sites are included in Appendix A.

Sites ranked low, have no indicators that significant contamination has impacted soil and groundwater. Therefore, we considered the risk associated with future development of the site parcels or public works projects to be low.

LOW POTENTIAL RISK SITES		
SITE NO.	**SITE NAME**	**DESCRIPTION**
26	St. Paul Funeral Home	HWG
29	St. Paul Door	HWG
37	RTC Inc.	HWG

6.2 Sites with Medium Potential for Contamination

Five medium potential sites were identified in the Project Area. The locations of the medium potential sites are depicted on Figure 2. The medium potential sites are summarized below and included in Table 1. A site summary for each medium potential site is included in Appendix A.

Sites ranked medium have some indicators that contamination has impacted soil and groundwater. Therefore, we considered the risk associated with future development of the site parcels or public works projects to be medium.

MEDIUM POTENTIAL RISK SITES		
SITE NO.	**SITE NAME**	**DESCRIPTION**
19	Bright Bill Auto Service	Auto Repair, UST, HWG
23	Asset Recovery Corp	HWG, UST, Closed Leak Site
27	Eva St ROW	Former Filling Station
28	Twin Cities Newspaper Service	HWG, UST, Closed Leak Site
30	Keran	Former Machine Shop

6.3 Sites with High Potential for Contamination

Twenty-nine high potential sites were identified in the Project Area. The locations of the high potential sites are depicted on Figure 2. The high potential sites are located adjacent to the roadway are summarized below. The high potential sites not located adjacent to the roadway are included in Table 1. Site summaries for the high potential sites are included in Appendix A.

Sites ranked high have significant indicators that contamination has impacted soil and groundwater. Therefore, we considered the risk associated with future development of the site parcels or public works projects to be high.

HIGH POTENTIAL RISK SITES		
SITE NO.	**SITE NAME**	**DESCRIPTION**
4	Carters Texaco Service	Former gas station, closed LUST
1	Former Unocal	Former bulk storage facility, closed Leaksite, VIC,
2	Technical Sealants	Former bulk chemical facility, VIC, CERCLIS Site, State Superfund,
3	Llevellyn Worldwide (WSF)	UST, Closed Leaksite, VIC, HWG
4	WSF Phase III	Brownfield, part of AmHoist Site
5	AmHoist	State Superfund, RCRA Remediation, Closed Leaksite, VIC
6	Amdura	State Superfund part of AmHoist Site
7	US Bank	VIC, part of AmHoist Site
8	Wabasha Business Center	VIC, IC, HWG
9	WJ Haas	Brownfield, Superfund (non-listed, IC
10	MCES Riverview Siphon Reconstruction	VIC
11	Fillmore Redevelopment Site	VIC, Petroleum Brownfield
12	Livingston Street	VIC
13	Former Fox Chemical	Closed Leaksite, VIC

HIGH POTENTIAL RISK SITES		
SITE NO.	**SITE NAME**	**DESCRIPTION**
14	American Red Cross	Closed Leaksite,
15	Mickeys	USTs, Former bulk petroleum facility
16	Rexam Beverage Can Co	USTs, Closed Leaksite, VIC, State Site Assessment, IC
17	Parking lot/Industrial	Former bulk petroleum facility, industrial use
18	Pier Foundry & Patter Shop	CERCLIS Site, State Site Assessment, Industrial Stormwater,
20	Peoples Electrical Contractors	UST, HWG, Historic scrap yard
21	Upper River Services	HWG, Industrial Stormwater, Industrial Use
22	Vomela Specialties	Closed Leaksite, HWG, Wastewater discharger, Industrial Stormwater
23	Asset Recovery Corp – St. Paul	UST, HWG, Closed Leaksite, Industrial
24	Riverview Business Center	VIC, HWG
25	Tursso Companies	HWG, Industrial Stormwater Permit, Industrial
28	Twin Cities Newspaper Service	UST, HWG, Closed Leaksite, Industrial
29	Summit Door	HWG, Industrial Stormwater, Industrial
31	Genoa Health Care	HWG, Industrial
32	LIT Midway LLT	HWG, Industrial
33	Former gas station	Closed Leaksite, Debris in fill
34	Fillmore Ave ROW	Former Industrial
35	Plato Boulevard	VIC, IC
36	MN State Bank Building	HWG, Industrial
37	RTC Inc	HWG, Industrial

7.0 CONCLUSIONS

This Area Wide Assessment identified 37 sites of environmental concern with at least a low potential to impact the project corridor; 29 sites with a high potential for contamination, 5 sites with a medium potential for contamination and 3 sites with a low potential for contamination. The corridor has a long history as a commercial, residential, and industrial district with numerous foundries, industrial manufactures, chemical companies and bulk petroleum facilities in the northern and western portions. Properties on the eastern and southern portions were primarily residential with isolated commercial business such as auto repair, filling stations and scrap yards.

Environmental investigations conducted throughout the Project Area have encountered fill soils that contain a variety of debris material from foundry sands, to ash, brick and solid waste. Because the industrial nature of the Project Area in an era that predates regulations regarding the handling and disposal of hazardous materials and the almost annual flooding, it is likely that surface soils throughout the Project Area are likely to be impacted. It is impossible to predict the quality of fill soils over such a large area. Therefore, we conclude that undocumented fill is an unknown risk.

8.0 RECOMMENDATIONS

AET recommends advancing soil borings in selected locations during the planning phase for any new construction or public works project within the boundaries of the Project Area to evaluate the potential to encounter impacted soil and/or groundwater in areas where excavation and/or dewatering is planned. Following completion of the drilling program, it may be necessary to prepare a Response Action Plan/Construction Contingency Plan (RAP/CCP), outlining procedures for managing impacted soils and groundwater encountered during construction activities within the Project Area.

9.0 CLOSURE

The services performed by American Engineering Testing, Inc. for this project have been conducted in a manner consistent with that level of skill and care ordinarily exercised by other members of the profession currently practicing in this area, under similar budgetary and time constraints.

If conditions differing from our original findings are identified, AET should be immediately contacted to review those conditions and determine if there are any material impacts on any of our conclusions and recommendations.

10.0 SIGNATURES, QUALIFICATIONS, AND RESUMES

We, declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the project area.

Refer to Appendix I for resumes of the AET personnel who have prepared this Area Wide Assessment.

Report Prepared by:
American Engineering Testing, Inc.

Susan Mickus, PG
Geologist II

Report Reviewed by:
American Engineering Testing, Inc.

Gail Cederberg, PhD
Vice President, Environmental Services

Tables

AMERICAN ENGINEERING TESTING, INC.

Table 1
Sites of Concern
West Side Flats - Area Wide Assessment
AET Project No. 03-06069

SITE NO.	SITE NAME/MPCA SITE NAME	SITE ADDRESS	DESCRIPTION	RANK
1	Unocal	S Wabasha St & E Fillmore Ave	Closed Leaksite, VIC , Bulk Petroleum Facility, UST	High
2	Technical Sealants	43 E Water St	VIC, CERCLIS Site, State Superfund, Bulk Petroleum/Chemical Facility	High
3	West Side Flats (Phase 1)	84 E Water St	UST, Closed Leaksite, VIC	High
4	West Side Flats III	S Livingston St & E Fillmore Ave	VIC	High
5	AmHoist	North of Fillmore between Starkey St and State Street	State Superfund, State Site Assessment, RCRA Remediation, Leaksite, VIC	High
6	Amdura	10 River Park Plaza	State Superfund	High
7	Us Bank Site	60 Livingston Street	Closed Leaksite, VIC	High
8	Wabash Business Center	S Wabasha St & E Fillmore Ave	HWG, VIC, IC	High
9	WJ Haas	162 S Wabasha St	VIC, Superfund,	High
10	Riverview Siphon	Utility Easement River to Plato Blvd	VIC	High
11	Fillmore Redevelopment Site	S Livingston St & E Fillmore Ave	Closed Leak Site, VIC	High
12	Livingston Street	Street right-of-way from E Fillmore Ave to Plato Blvd	VIC	High
13	Former Fox Chemical	137-149 South Robert St	Closed Leaksite, VIC, Regulated Fill	High
14	American Red Cross	134 E Fillmore Ave	HWG, UST, Closed Leaksite, Regulated Fill	High
15	Mickeys	193 S Robert Street	USTs, Former Bulk Petroleum Facility	High
16	Rexam Beverage Can Co	139 Eva Street	HWG, UST, Closed Leak site, VIC, Sate Site Assessment, IC	High
17	Parking/Storage	State St & Alabama Ave	Former Bulk Storage Facility	High
18	Pier Foundry and Patter Shop	51 State Street	HWG, ISWP, State Site Assessment, CERCLIS	High
19	Brightbill Auto Service	291 E Fillmore Ave	HWG, UST, Auto Repair	Medium
20	Peoples Electrical Contactors	277 & 285 State St	HWG, UST, Industrial Use	High
21	Upper River Services	282 Alabama Street	HWG, ISWP, Industrial Use	High
22	Vomela Specialties	274 Fillmore Ave E	HWG, Leaksite, ISWP, Regulated Fill	High
23	Asset Recovery Corp	277 & 285 State St	HWG, UST, Closed Leak Site	Medium
24	Riverview Business Center	105-143 State Street	VIC, HWG	High
25	Tusso Companies	223 Plato Blvd E	HWG, ISWP, Industrial Use	High
26	St. Paul Funeral Home	199 Plato Blvd E	HWG	Low
27	Eva Street ROW	Eva St ROW between Fillmore Ave E and Plato Boulevard	Former Filling Station	Medium
28	Twin Cites Newspaper Service	277 & 285 State St	HWG, UST, Closed Leak Site	Medium
29	St. Paul Door	150 Eva Street	HWG	Low
30	Keran	265 Fillmore Ave E	Former Machine Shop	Medium
31	Genoa Health Care etc.	122-140 Wabasha St S	HWG, Industrial use	High
32	LIT Midway	141 Lafayette Frontage Road	HWG, Industrial Use	High
33	Former Gas Station	175 Lafayette Road S	Closed Leaksite, Regulated Fill	High
34	Fillmore Ave E ROW	Fillmore Ave E ROW between W Lafayette Frontage Road and S State Street	Former Industrial Site	High
35	Plato Avenue Parking Lot	Plato Blvd and Rail Line	VIC, IC	High
36	MN State Bank Building	176 S Robert St	HWG, Industrial Use	High
37	RTC Inc	180 State Street	HWG	Low

HWG=Hazardous Waste Generator MQ= Minimal Quantity VSQ= Very Small Quantity SQ=Small Quantity
UST= Underground Storage Tank VIC= Voluntary Investigation & Cleanup IC= Institutional Controls ISWP= Industrial Stormwater Permit

AMERICAN ENGINEERING TESTING, INC.

Table 2
Site Identification by Activity
West Side Flats - Area Wide Assessment
AET Project No. 03-06069

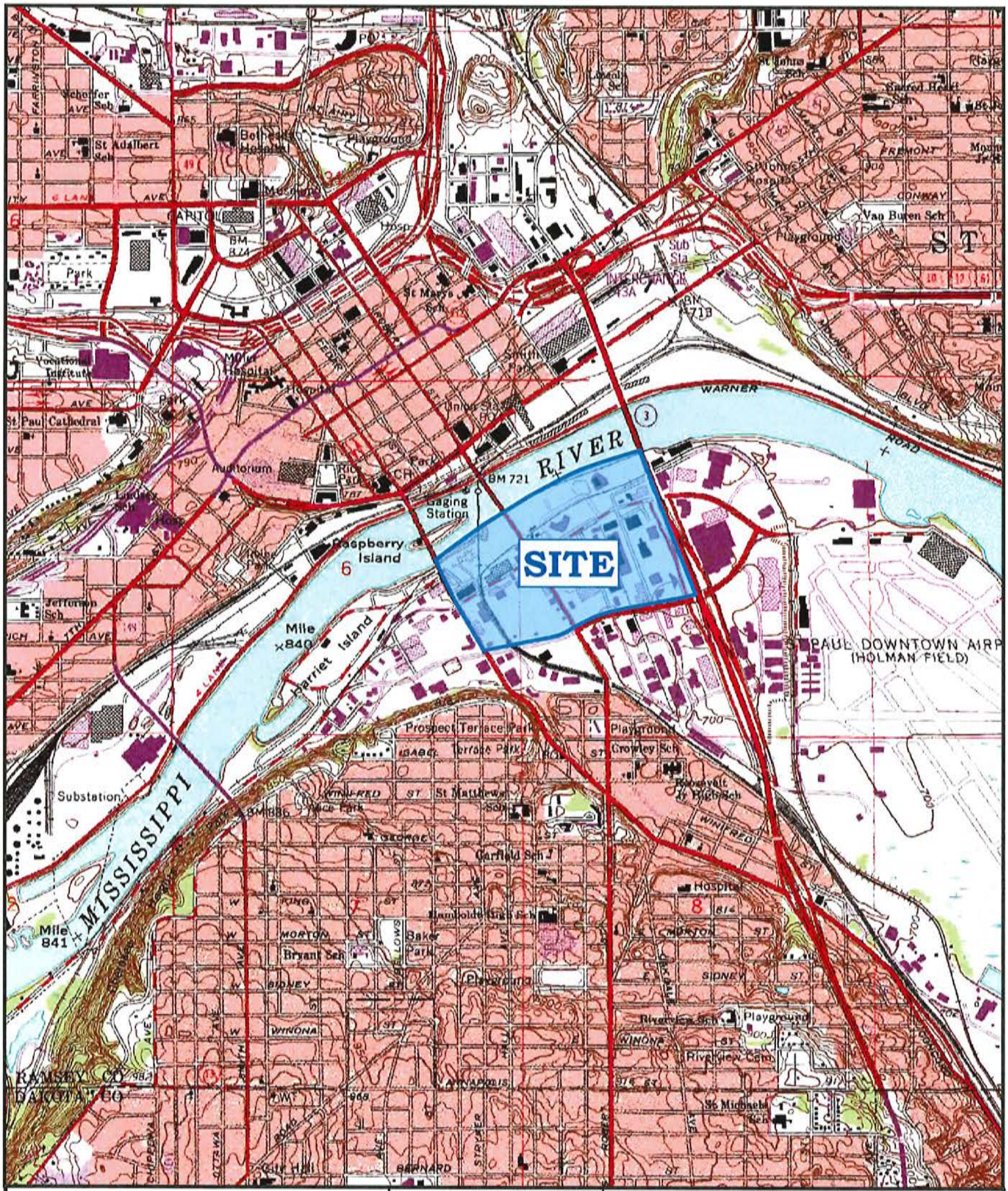
SITE NO.	MPCA_ID	NAME	ADDRESS	ACTIVITY	STATUS
Registered Hazardous Waste Generators					
2	MND980680201	Paulco Clean Up	43 Water St E	MQ HWG	Active
3	MNR000108811	Metro Zip Sort Corp	32 Fillmore E Ste 220	VSQ HWG	Active
5	MND006166375	American Hoist & Derrick Co	63 Robert St S	HWG	Inactive
9	MND985748565	WJ Haas Manufacturing Co	160 S Wabasha St	MQ HWG	Active
14	MND080239619	American Red Cross Blood Services	100 Robert St S	VSQ HWG	Active
16	MND059034694	Rexam Beverage Can C	139 Eva Street	SQ HWG	Active
18	MND006149157	Pier Foundry and Pattern Shop	51 State Street	VSQ HWG	Active
19	MNR000020461	Solange Auto Repair	291 Fillmore Ave E Ste B	VSQ HWG	Active
19	MND071758320	Solange Auto Services	291 Fillmore Ave E	HWG	Inactive
20	MND985680826	Peoples Electric	277 Fillmore Ave E	VSQ HWG	Active
21	MND985711522	Upper River Serives	282 Alabama St E	VSQ HWG	Active
22	MND980898126	Vomela Specialties	274 Fillmore Ave E	SQ HWG	Active
23	MNR000119826	Circuit City	150 State St Ste B	VSQ HWG	Active
23	MNR000030791	Asset Recovery Corp	150 State St	SQ HWG	Active
24	MND985743210	American Drive Axle	145 State St	HWG	Inactive
24	MND175564814	Asset Recovery Corp - 115 State St	115 State St	HWG	Inactive
24	MNR000105593	Custom Tape Co	121 State St	VSQ HWG	Active
24	MNR000115360	DuBois Thomas E	246 Fillmore Ave	HWG	Inactive
24	MND985748615	J A P	125 State St	HWG	Inactive
24	MNR000078261	Modernistic Industrial	139 State St	VSQ HWG	Active
24	MND020476867	Sherwin-Williams Store 3233	240 Fillmore Ave E	SQ HWG	Active
25	MND981959752	Tursso Companies	223 Plato Blvd	VSQ HWG	Active
26	MNS000224667	St. Paul Funeral Home	199 Plato Blvd	MQ HWG	Active
28	MND002855351	Twin Cities Newspaper Service	220 Fillmore Ave	VSQ HWG	Active
29	MND006194559	Hydralift Amclyde - Office	240 Plato Blvd E	MQ HWG	Active
29	MN0000066183	Summit Door LLC	130 Eva St	HWG	Inactive
29	MND006151732	Riverpoint Media Group	150 Eva Street	HWG	Inactive
30	MNR000034199	Lowertown Printing	122 Wabasha St S Ste 230	HWG	Inactive
30	MND985769371	Wabasha Business Center Norris	122 Wabasha St S	HWG	Inactive
30	MNS000194779	Genoa Healthcare	144 Wabasha St S	MQ HWG	Active
31	MND982072191	Old Science Renovation	122 Wabasha St S Ste 320	HWG	Inactive
32	MND006162176	LIT Midway LLT	141 S Lafayette Rd	HWG	Inactive
36	MND006221097	Minnesota State Bank Building	200 Robert St S	MQ HWG	Active
37	MND985718030	RTC Inc	180 State St	HWG	Inactive
37	MN0000065052	RTC Inc - St Paul	343 Fillmore Ave E	HWG	Inactive
HWG=Hazardous Waste Generator		*MQ= Minimal Quantity*	*VSQ= Very Small Quantity*	*SQ=Small Quantity*	
Registered Tank Sites					
1	TS18428	Unocal Dewater	40 E Water St		Inactive
3	TS14218	Llewellyn Publishing	84 S Wabasha St		Inactive
5	TS 3906	American Hoist & Derrick	63 S Robert St		Active
15	TS12906	Mickeys-Eric Mattson Property	195 S Robert St		Inactive
19	TS20752	Brightbill Auto Service	291 E Fillmore Ave		Inactive
14	TS3577	American Red Cross	100 S Robert St		Inactive
23	TS3081	Asset Recovery Corp	150 State St		Inactive
28	TS19045	Twin Cities Newspaper Service	220 Fillmore Ave		Active
20	TS3468	Peoples Electrical Contractors	277 E Fillmore Ave		Inactive

AMERICAN ENGINEERING TESTING, INC.

Table 2
Site Identification by Activity
West Side Flats - Area Wide Assessment
AET Project No. 03-06069

SITE NO.	MPCA_ID	NAME	ADDRESS	ACTIVITY	STATUS
Petroleum Leaksite/Spill sites					
1	LS3232	Unocal Dewater	40 E Water St		Inactive
3	LS15882	West Side Flats Or Llewellyn Worldwide	84 Wabasha St S & Fillmore		Inactive
5	LS1288	American Hoist & Derrick Co	63 Robert St S		Inactive
5	LS14181	Formerly American Hoist & Derrick	63 S Robert St		Inactive
7	LS13817	Proposed Us Bank Site	60 Livingston Ave		Inactive
13	LS9077	Former Fox Chemical	149 S Robert		Inactive
22	LS8918	Camada Limited Partnership	274 Fillmore Ave E		Inactive
23	LS2921	Asset Recovery Corp	150 State St		Inactive
14	LS10768	American Red Cross	100 S Robert St		Inactive
28	LS11004	Twin Cities Newspaper Service	220 Fillmore Ave		Inactive
33	LS12409	Former Gas Station	175 W Lafayette Rd		Inactive
Voluntary Investigation and Cleanup Sites					
1	VP1670	Unocal Dewater	40 E Water St		Inactive
1	VP2160	Unocal Dewater	40 E Water St		Inactive
1	VP3550	Unocal Dewater	40 E Water St		Inactive
2	VP1240	Technical Sealants	43 Water Street		Inactive
3	VP14340	West Site Flats	See location description		Inactive
3	VP14342	West Side Flats #2	See location description		Inactive
7	VP13820	US Bank - St Paul			Inactive
8	VP13050	Wabasha Business Center	114 - 122 Wabasha St S		Inactive
10	VP22600	MCES Riverview Siphon Reconstruction	Utility ROW		Inactive
12	VP14341	Livingston Street (see West Side Flats,	Street ROW		Inactive
13	VP6650	Fox Chemical	137-149 S Robert St		Inactive
16	VP25050	Rexam Beverage Can Co - St Paul	139 Eva St		Inactive
29	VP28970	Riverview Business Center	105 - 145 State St		Inactive
35	VP14110	Plato Boulevard	Plato Blvd and Rail Line		Inactive
Petroleum Brownfield					
4	BF340	West Side Flats Phase III	NW of Livingstone & Fillmore		Active
State Superfund Project					
2	SR338	Technical Sealants	43 Water Street		Inactive
6	SR94	Amdura	68 S Robert S		Inactive
State Site Assessment					
18	SA13111	Pier Foundry and Pattern Shop	51 State Street		Inactive
5	SA1290	American Hoist & Derrick Co	63 Robert St S		Inactive
CERCLIS Sites/RCRA Remediation					
18	MND006149157	Pier Foundry and Pattern Shop	51 State Street	CERCLIS	Inactive
5	MND006166375	American Hoist & Derrick Co	63 Robert St S	RCRA	Active
2	MND985678952	Technical Sealants	43 Water Street	CERCLIS	Inactive
Registered Industrial NPDES/SDS Permits					
7	MN0066303	US Bank Office Complex	60 S Livingston St	Wastewater Discharger	Inactive
22	MNRNE3CLC	Vomela Specialty Co	274 Fillmore Ave E	Wastewater Discharger	Active
Industrial Stormwater					
18	MNR0537JK	Pier Foundry and Pattern Shop	51 State Street		Inactive
18	MNR0538N3	Pier Foundry and Pattern Shop	51 State Street		Active
21	MNR0537DD	Upper River Serives	282 Alabama St E		Inactive
21	MNR0538TX	Upper River Serives	282 Alabama St E		Active
25	MNRNE37ZP	Tursso Companies	223 Plato Blvd		Active
29	A00023190	RiverPoint Media Group Inc	150 Eva St		Inactive
	MNRN36VD	Tursso Companies	223 Plato Blvd		Active

Figures



AMERICAN ENGINEERING TESTING, INC

Map Reference: USGS 7.5" Quadrangle, Saint Paul East, Minnesota

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0 1,000 2,000

Feet

Figure 1

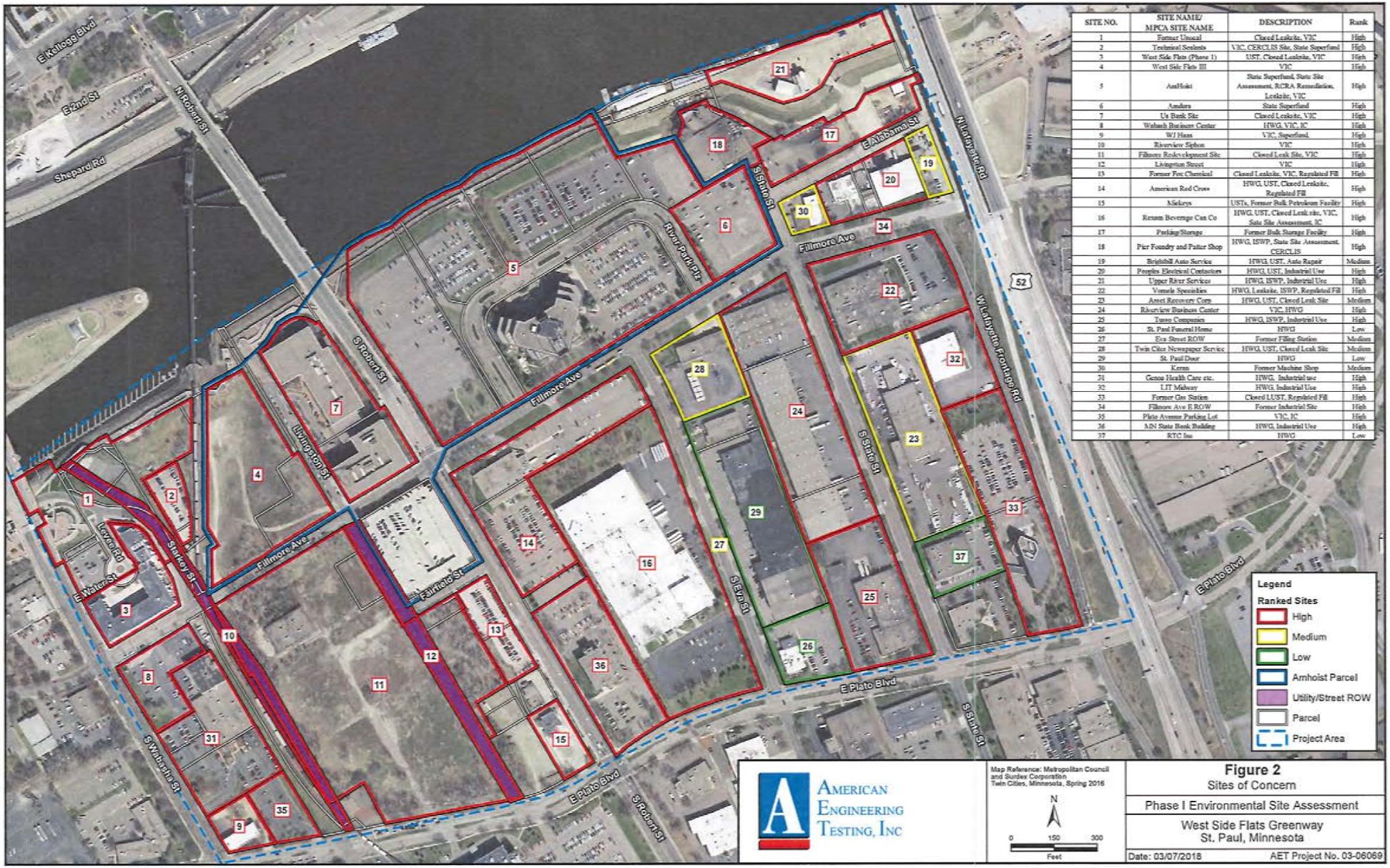
Site Location Map

Phase I Environmental Site Assessment

West Side Flats Greenway
St. Paul, Minnesota

Date: 03/07/2018 AET Project No. 03-06069

File: WS_P1_Fig1_SLM.mxd Date: 03/07/2018



SITE NO.	SITE NAME/ MPCA SITE NAME	DESCRIPTION	Rank
1	Former Unocal	Closed Leaksite, VIC	High
2	Technical Sealants	VIC, CERCLIS Site, State Superfund	High
3	West Side Flats (Phase 1)	UST, Closed Leaksite, VIC	High
4	West Side Flats III	VIC	High
5	AmHoist	State Superfund, State Site Assessment, RCRA Remediation, Leaksite, VIC	High
6	Andara	State Superfund	High
7	Us Bank Site	Closed Leaksite, VIC	High
8	Wabash Business Center	HWG, VIC, IC	High
9	WJ Haas	VIC, Superfund,	High
10	Riverview Siphon	VIC	High
11	Fillmore Redevelopment Site	Closed Leak Site, VIC	High
12	Livingston Street	VIC	High
13	Former Fox Chemical	Closed Leaksite, VIC, Regulated Fill	High
14	American Red Cross	HWG, UST, Closed Leaksite, Regulated Fill	High
15	Mickeys	USTs, Former Bulk Petroleum Facility	High
16	Return Beverage Can Co	HWG, UST, Closed Leak site, VIC, Site Site Assessment, IC	High
17	Parking/Storage	Former Bulk Storage Facility	High
18	Pier Foundry and Patter Shop	HWG, ISWP, State Site Assessment, CERCLIS	High
19	Brightbill Auto Service	HWG, UST, Auto Repair	Medium
20	Peoples Electrical Contactors	HWG, UST, Industrial Use	High
21	Upper River Services	HWG, ISWP, Industrial Use	High
22	Vernels Specialties	HWG, Leaksite, ISWP, Regulated Fill	High
23	Amet Recovery Corp	HWG, UST, Closed Leak Site	Medium
24	Riverview Business Center	VIC, HWG	High
25	Tasco Companies	HWG, ISWP, Industrial Use	High
26	St. Paul Funeral Home	HWG	Low
27	Eva Street ROW	Former Filling Station	Medium
28	Twin Cities Newspaper Service	HWG, UST, Closed Leak Site	Medium
29	St. Paul Door	HWG	Low
30	Kerns	Former Machine Shop	Medium
31	Genoa Health Care etc.	HWG, Industrial use	High
32	LIT Midway	HWG, Industrial Use	High
33	Former Gas Station	Closed LUST, Regulated Fill	High
34	Fillmore Ave E ROW	Former Industrial Site	High
35	Plato Avenue Parking Lot	VIC, IC	High
36	MN State Bank Building	HWG, Industrial Use	High
37	RTC Inc	HWG	Low

American Engineering Testing, Inc

Map Reference: Metropolitan Council and Sundex Corporation Twin Cities, Minnesota, Spring 2016

N

0 150 300
Feet

Figure 2
Sites of Concern

Phase I Environmental Site Assessment

West Side Flats Greenway
St. Paul, Minnesota

Date: 03/07/2018 AET Project No. 03-06069

Appendix A

Site Description

Site Summary
West Side Flats

Site ID: 1

Site Rank: High

MPCA Site Name: Former Unocal

Current Use: West Side Flats Apartments, Vacant land/green space

Ranking Rationale: Former bulk storage facility, closed leak site, Voluntary Investigation and Cleanup Site, impacted soils remain and groundwater is impacted.

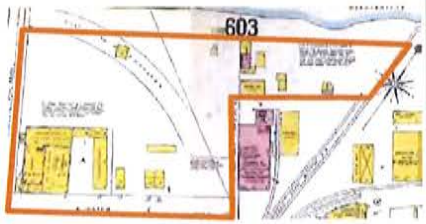
Site Summary: Historical data indicates the Site was developed prior to 1901 for primarily industrial uses including St. Paul Roofing & Cornice Co, Pure Oil Co and Unocal. Residences were present from 1901 to 1939. Bulk storage tanks were present from at least 1940 until sometime after 1985. The site remained largely vacant from at least 1991 until sometime after 2012 when a portion of the West Side Flats apartment building was constructed on the Site.

Parcel ID	Street Address	Property Owner	Property Type
Multiple	Multiple	Multiple	Vacant, Parkland/green space, residential

SITE IMAGES

Street View 2017, looking SE

1950 Fire Insurance Map



1904 Fire Insurance Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1901-1939	Residential	Fire Insurance Map
1901-1991	Industrial: Twin City Varnish & Japan Co.; St. Paul White Lead & Oil Co; St. Paul Roofing & Cornice Co; The Pure Oil Co.	Fire Insurance Maps, Aerial photographs
1991- Present	Vacant, green space/parkland	Aerial Photographs
2013- Present	Residential	Aerial Photographs

Database Search Listings: WIMN		
Site ID	Name	Activity
TS18428	Formerly Unocal	UST
LS3232	Unocal	Leaksite
VP1670	Unocal	Non-petroleum brownfield
VP2160	Unocal Dewater	Non-petroleum brownfield
VP3550	Unocal, City	Non-petroleum brownfield

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
18428	001	UST	1,000	Gasoline	Removed	Unknown	5/26/1995	Unknown

Regulatory File Review:

LS3232
The leak was reported in 1990, and closed in 1996. We were unable to obtain any other information from the MPCA.

VP2160 and VP3550
The MPCA indicated there wasn't any data stored under these file numbers.

VP1670
Site was enrolled in VIC in 1989 and a no further action letter was issued in 2005. We were able to obtain information from the MCPA limited to monitoring reports detailing 1996 and 1997. The report for 1997 provides a summary for the soil extraction system that operated from December 1995 through October 1997. During that time, 22,370 lbs of VOCs were extracted. The consultant indicated a decline in effectiveness of the system; only 100 lbs of VOCs were removed in 1997 and the system was plagued by operational problems in 1997. The 2005 No Further Action Determination Letter outlined the following: remaining soil contamination was below soil reference values (SRVs) or did not have established SRVs; groundwater was impacted below health risk limits.

Site Summary
West Site Flats

Site ID: 2

Site Rank: High

MPCA Site Name: Technical Sealants

Current Use: Vacant Land/Parking Lot

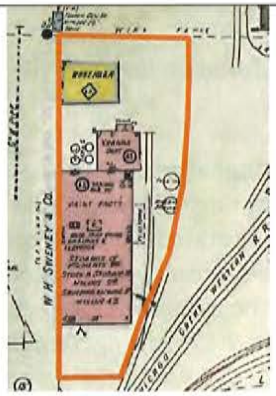
Ranking Rationale: Former Bulk Petroleum,
Voluntary Investigation & Cleanup,
CERCLIS Site,
State Superfund,
Regulated fill,
Groundwater is impacted,
Soil vapor/methane impacts.

Site Summary: In 1983, drummed hazardous and non-hazardous wastes were discovered on Site. Soil and groundwater investigations detected the presence of organic vapors in excess of 10 ppm. Lead and PAH concentrations in surface soils were above residential SRVs. Groundwater concentrations exceeded HRLs. Debris in the fill included, wood, brick, demolition debris, ash/cinders, paint residue and an unidentified white material. The site has been developed for industrial uses since at least 1901; past occupants included Twin City Varnish & Japan Co., St. Paul White Lead and Oil Co., and W.H Sweeny & Co. The site was vacant land since from at least 1991 until sometime after 2008. The site has been an unpaved parking lot since at least 2010.

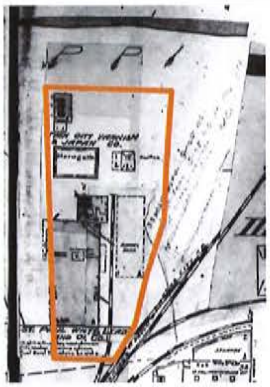
Parcel ID	Street Address	Property Owner	Property Type
062822410003, 062822410043	43 Water Street E	Housing and Redev. Authority	Vacant Land

SITE IMAGES

Google Street View, 2017



1950 Fire Insurance Map



1901 Fire

Site Summary
West Site Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1901 – 1980s	Industrial	Fire Insurance Maps, Historic Maps, Aerial Photographs
1980s – present	Vacant land	Aerial Photos, Historic Maps, Aerial Photographs

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: WIMN		
Site ID	Name	Activity
VP1240	Technical Sealants	Brownfield
MND985678952	Technical Sealants	CERCLIS Site
SR338	43 E Water Street	State Superfund

Registered Tanks: None

Regulatory File Review:

August 1, 1988 Letter Report – Soil and Groundwater Investigation, Technical Sealants and Adhesives Property

Twelve soil borings and four temporary monitoring wells were advanced/completed at the site. An existing monitoring well east of the site was also sampled. Eight soil samples were analyzed for PAHs, five soil samples were analyzed for lead, five groundwater samples were analyzed for PAHs and VOCs. One groundwater sample was analyzed for lead. Field screening detected organic vapors in excess of 10 ppm. Lead and PAH concentrations in surface soils were above residential SRVs. Groundwater concentrations exceeded HRLs.

Site Summary
West Side Flats

Site ID: 3

Site Rank: High

MPCA Site Name: Llewellyn World Wide/West Side Flats (Phase 1)

Historical Site Name(s): Llewellyn Worldwide also part of the Unocal and Riverview Siphon sites.

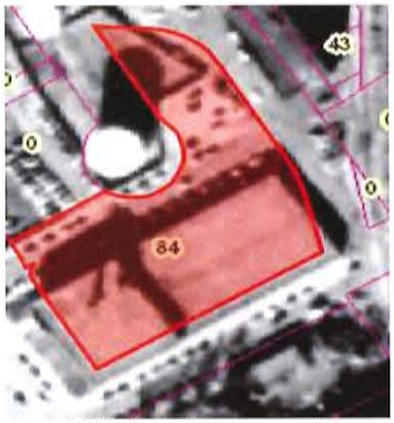
Ranking Rationale: UST Site, Leaksite, Voluntary Investigation and Cleanup, HWG

Site Summary: Sanborn maps indicate the site was mostly undeveloped with a few residences, one retail store and shanties until sometime before 1950. The 1950 fire insurance map indicates the presence of bulk storage of petroleum to the north and the presence of a bottling facility on the parcel. Previous structures were demolished and the site was vacant land from 2006 to 2013 when the current structure was constructed. Three removed USTs are associated with the site. Corrective actions at the site include removal of soil impacted with polynuclear aromatic hydrocarbons, lead, arsenic, mercury and asbestos containing debris. One "hot spot" remains under Levee Road.

Parcel ID	Street Address	Property Owner	Property Type
0628224100065	84 E Wabasha St	West Side Flats Apartments LLC	Multi-tenant residential

SITE IMAGES

Google Street View, 2017



1950 Aerial Photograph

1991 Aerial Photograph

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 – 1950	Vacant, residential, retail	Fire insurance maps, historic maps
1950 – 1991	Part of a bulk petroleum storage facility	Fire insurance maps, aerial photos, regulatory file review
1950 – 2006	Bottling, publishing company	Fire insurance maps, aerial photos, regulatory file review
2006 – 2013	Vacant Land	aerial photos, regulatory file review
2013 – Present	Apartment building	aerial photos, regulatory file review

Well Search: A search of the Minnesota Well Index identified one sealed well at the property.							
Unique No.	**Well Name**	**Total Depth (ft.)**	**Depth to Water (ft.)**	**Use**	**Date Drilled**	**Date Sealed**	**Status**
253038	Old Coca Cola Bldg.	309	6	Industrial	Unknown	10/23/2006	Sealed

Database Search Listings:		
Site ID	Name	Activity
TS14218	Llewellyn Publishing	USTs
LS15882	West Side Flats or Llewellyn World	Closed LUST
VP14342	West Side Flats #2	Brownfield
MNR000108811	Metro Zip Sort Corp	VSQ HWG

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/Closed Date
14218	001	UST	8000	Fuel oil	Removed	Unknown	Unknown	
	002	UST	5000	Gasoline	Removed	Unknown	Unknown	
	003	UST	5000	Gasoline	Removed	Unknown	Unknown	

Regulatory File Review:

- Phase I ESA, West Side Flats, Llewellyn Publications Site, 84 Wabasha St S, St. Paul, MN, Braun Intertec, Project No. BL-04-04662, June 30, 2004.
- Phase II ESA, WSF, Llewellyn Publications Site, Project No. BL-04-04662A, July 30, 2004.
- Response Action Plan and Construction Contingency Plan Implementation Report, West Side Flats, St. Paul, MN, Braun Intertec, Project SP-06-04206, August 29, 2008

The 2004 Phase I ESA identified the following potential sources of contamination: 4 underground storage tanks, oil/water separator, buried demolition debris from previous building, upgradient release, and industrial uses including printing and metal and iron works, and a roofing and cornice company. A well was also identified during the Phase I.

Site Summary
West Site Flats

Site ID: 4

Site Rank: High

MPCA Site Name: WSF Phase III

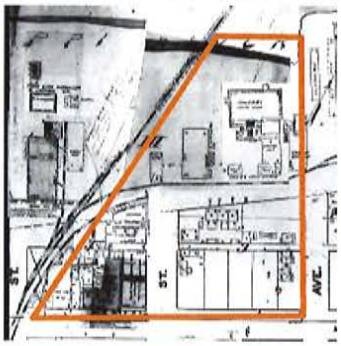
Current Use: Vacant Land

Ranking Rationale: Brownfield, Former industrial site (part of AmHoist) with soil contamination above Residential SRVs and soil gas contamination above Residential ISVs. Groundwater is also impacted.

Site Summary: Investigations conducted at the Site identified elevated concentrations of heavy metals, polynuclear aromatic hydrocarbons (PHAs) and diesel range organics (DRO). Corrective action removed contaminated soil to a depth of 8 feet. Impacted soils above residential soil reference values (SRVs) remained greater than 8 feet in depth and along southern and eastern boundaries where excavation was limited due to presence of adjacent streets, sidewalks and utilities. The MPCA issued a Certificate of Completion for the Site. A 2017 Phase I ESA concluded the residual soil and groundwater contamination represented a Controlled Recognized Environmental Condition (C-REC). The Phase I ESA also concluded that previous investigations did not address soil gas contamination from on and off site sources and considered it a REC. Subsequent soil vapor sampling identified soil gas concentrations above residential screening values but below 33X the residential ISVs, therefore plans at this time do not include vapor mitigation. However, in accordance with MPCA practices a second round of vapor sampling during heating season was scheduled.

Parcel ID	Street Address	Property Owner	Property Type
062822410050, 062822410049	Unassigned	Housing and Redev Authority	Vacant Land

Site Summary
West Site Flats

SITE IMAGES		
 Street View 2017, Looking NE	 1950 Fire Insurance Map	 1901 Fire Insurance Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885-1900s	Residential	Fire Insurance Maps, Phase I ESA
1900s– 1980s	Industrial; foundries, manufacturing	Fire Insurance Maps, Historic Maps, Aerial Photos, Phase I ESA
1980s-Present	Vacant land, pedestrian walkway	Aerial Photographs, Phase I ESA, Google Earth

Well Search: A search of the Minnesota Well Index identified one well at the property (Unique No. 200051). Review of the log indicates that this well was located south of Fillmore Ave E.

Database Search Listings: WIMN		
Site ID	Name	Activity
BF340	West Side Flats Phase III	Brownfield

Registered Tanks: None

Regulatory File Review: BF 340

Phase I ESA, West Side Flats III, Northwest of Livingston Avenue and Fillmore Avenue St. Paul, Ramsey County, MN, April 3, 2017 prepared by Terracon Consultants, Inc, Terracon Project No. MPC167610

The Site is part of a larger parcel occupied by AmHoist. The buildings were demolished in the 1980s and have remained vacant except for a pedestrian walk-way along the river. Investigations conducted at the Site identified elevated concentrations of heavy metals, polynuclear aromatic hydrocarbons (PHAs) and diesel range organics (DRO). Corrective action removed contaminated soil to a depth of 8 feet. Impacted soils above residential soil reference values (SRVs) remained greater than 8 feet in depth and along southern and eastern boundaries where excavation was limited due to presence of adjacent streets, sidewalks and utilities. The MPCA issued a Certificate of Completion for the Site. The 2017 Phase I ESA concluded the residual soil and groundwater contamination represented a Controlled Recognized Environmental Condition (C-REC). The Phase I ESA also concluded that previous investigations did not address soil gas contamination from on and off site

Site Summary
West Side Flats

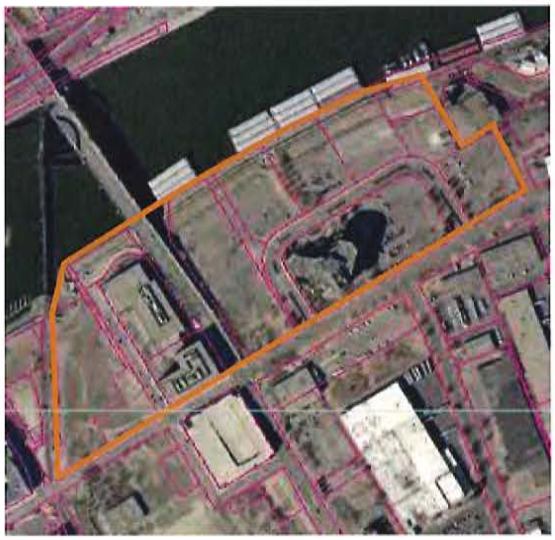
Site ID: 5

Site Rank: High

MPCA Site Name: AmHoist

Current Use: Office buildings, parking lots and vacant land.

Ranking Rationale: State Superfund, State Site Assessment, RCRA Remediation, Leaksite, Voluntary Investigation and Cleanup



Site Summary: The 1986 remedial investigation report indicated the site was occupied by AmHoist and was an industrial facility that manufactured cranes. There was a steel foundry, power house, maintenance shop, machine shops, and paint line. The facility had been in operation since the early 1900s. Previous use was an iron foundry and stables. Remedial investigations detected metals, diesel range organics (DRO) and polynuclear aromatic hydrocarbons (PAHs) at levels above current Minnesota Pollution Control Agencies (MPCA) residential soil reference values (SRVs). Corrective action was taken near monitoring well MW-12 near Robert Street S and the Mississippi River prior to the Army Corps of Engineers (COE) renovation of the flood wall. Confirmation samples collected from the excavation sidewalls from indicated soils left in place had levels of PAHs above current Residential SRVs and DRO above 50 mg/kg. The corrective actions for contamination near MW -3 is discussed as Site 3 - Amdura.

Parcel ID	Street Address	Property Owner	Property Type
Multiple	Multiple	Multiple	Vacant, Parkland/green space, residential

Site Summary
West Side Flats

SITE IMAGES		
		
Street View 2017, looking NE	1950 Fire Insurance Map (west of Robert St.)	1928 Atlas Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887-1901	Residential	Atlas Map, Fire Insurance Map
1901-1991	Industrial: American Hoist and Derrick, American Can Co, Heinz Co.	Atlas Maps, Fire Insurance Maps, Aerial Photographs
1991-2003	Industrial – unknown	Aerial Photographs
1991- Present	Vacant	Aerial Photographs
1991- Present	Office, parking lot	Aerial Photographs

Database Search Listings: WIMN		
Site ID	Name	Activity
SR94	Amdura	State Superfund
SA1288	Am Hoist & Derrick	State Site Assessment
RCRA6166375	Am Hoist & Derrick	RCRA Remediation
LS1288	Am Hoist & Derrick	Leaksite
VP3550	Unocal, City	Voluntary Investigation and Cleanup
LS14181	Am Hoist & Derrick	Leaksite
TS3906	Am Hoist & Derrick	Tank Site

Registered Tanks: None								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
18428	001	UST	1,000	Gasoline	Removed	Unknown	5/26/1995	Unknown

Regulatory File Review:

SR94

The 1986 remedial investigation report indicated the site was occupied by AmHoist and was an industrial facility that manufactured cranes. There was a steel foundry, power house, maintenance shop, machine shops, and paint line. The facility has been in operation since the early 1900s. Previous use was an iron foundry and stables. Twelve soil borings and seven monitoring wells were installed across the site in the 1986. Field screening levels detected organic vapors above 50 parts per million. Fill materials contained brick, ash, glass and concrete. The

Site Summary
West Side Flats, St. Paul, Minnesota

Site ID: 6

Site Rank: High

MPCA Site Name: Amdura

Current Use: Parking lot

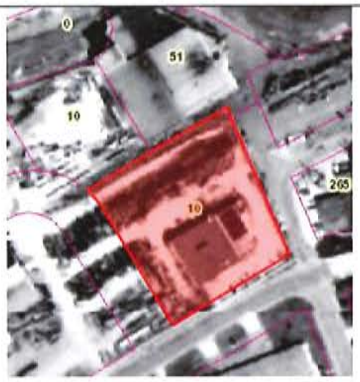
Ranking Rationale: State Superfund Project

Site Summary: Part of AmHoist property. Petroleum contamination was detected during initial investigation of the AmHoist facility. Contamination can likely be attributed to a bulk petroleum facility present from around 1916 until sometime in the 1970s. A significant portion if not all petroleum contamination was excavated. However, fill soils on other portions of the site may still be considered regulated fill if debris is present.

Parcel ID	Street Address	Property Owner	Property Type
05 28 22 23 0032	10 River Park Plaza	River Park Plaza Property Group LLC	Commercial – Paved Parking Lot

SITE IMAGES

Google Street View 2017, Looking N



1985 Aerial Photograph

1928 Historical Atlas Map

Site Summary
West Side Flats, St. Paul, Minnesota

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 - 1915	Residential	Historical Atlas Maps, Fire Insurance Maps
1916 - 1973	Tire and Oil Warehouse, bulk petroleum facility	Historical Atlas Maps, Fire Insurance Maps, Aerial photographs
1974 -1988	Industrial, AmHoist	Aerial photographs, MPCA file review
1989 - Present	Paved parking lot	Aerial photographs

Well Search: A search of the Minnesota Well Index identified two sealed monitoring wells at the property.

Unique No.	Well Name	Total Depth (ft.)	Depth to Water (ft.)	Use	Date Drilled	Date Sealed	Status
50151	Amdura Corporation MW-17	24	15.3	Monitoring	7/22/1989	6/7/1994	Sealed
50153	Amdura Corporation MW-18	24	15.1	Monitoring	6/23/1989	6/7/1994	Sealed

Database Search Listings: WIMN		
Site ID	Name	Activity
SR94	Amdura	State Superfund Project

Registered Tanks: See Site 5 for discussion on all tanks at American Hoist and Derrick

Regulatory File Review:

LEAK SR 94

During the initial investigation in 1986, soil screening detected levels of organic vapors of 100 parts-per-million (ppm) in the 4 - 5 ½ foot below ground surface (bgs) and 55 ppm in the 14 - 15 ½ foot bgs intervals of soil boring MW-3 located in the central portion of this Site. Laboratory analysis of the soil sample from the 4 -o 5 ½ foot interval did not detect any regulated volatile organic compounds above laboratory detection limits. Laboratory analysis of groundwater collected from monitoring MW-3 detected benzene (210 µg/l) at a concentration above current Minnesota Department of Health (MDH) Health Risk Limit (HRL) of 10 µg/l. Total petroleum hydrocarbon as fuel oil (TPH – FO) was also detected in groundwater.

Site Summary
West Site Flats

Site ID: 7

Site Rank: High

MPCA Site Name: US Bank

Current Use: US Bank

Ranking Rationale: Voluntary Investigation and Cleanup

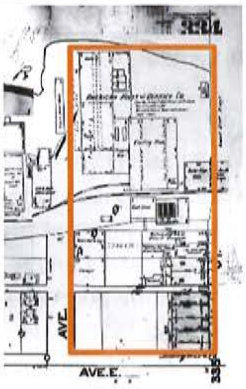
Site Summary: Part of AmHoist Site, redeveloped in early 2000. Certificate of Completion issued.

Parcel ID	Street Address	Property Owner	Property Type
052822230041 062822140022	60 Livingston Ave	Housing and Redev Authority	Office building

SITE IMAGES

Google Street View 2014, Looking E

1950 Fire Insurance Map



1901 Fire Insurance Map

HISTORICAL SUMMARY

Date Range	Property Use	Source
1901-2000s	Industrial	Fire Insurance Maps, Historic Maps, Aerial Photographs
1980s - 2000	Vacant Land	Aerial Photos
2000 - Present	Office Building	Aerial Photographs, WIMN

Site Summary
West Site Flats

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: WIMN		
Site ID	Name	Activity
LS13819	Proposed US Bank Site	Leaksite
VP13820	US Bank Site	Voluntary Investigation and Cleanup

Registered Tanks: None

Regulatory File Review:

LS13819
We are awaiting response from the MPCA.

Site Summary
West Site Flats

Site ID: 8

Site Rank: High

MPCA Site Name: Wabasha Business Center

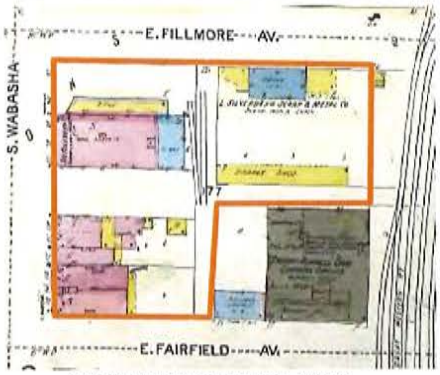
Current Use: Parking Lot
Ranking Rationale: Voluntary Investigation and Cleanup, Institutional Controls, HWG

Site Summary: Soil contamination above residential SRVs, SLVs was found in northern portion of the property in the area of the former scrap metal business. The concentrations of DRO, PCBs, arsenic, barium, cadmium, lead, mercury and silver present in these soils would define the soils as regulated fill. Groundwater is contaminated below regulated levels.

Parcel ID	Street Address	Property Owner	Property Type
62822410037	Unassigned	NJF Properties LLC	Parking Lot

SITE IMAGES

Street View 2017, looking SE



1950 Fire Insurance Map

1887 Historic Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 - 1950/60s	Residential, Commercial	Fire Insurance Maps, Aerial Photo
1950/60s - Present	Vacant/Parking lot	Aerial photographs

Well Search: A search of the Minnesota Well Index did not identify a well at the property.

Database Search Listings: WIMN		
Site ID	Name	Activity
VP13050	Wabasha Business Center	Brownfield

Site Summary
West Site Flats

Registered Tanks: None

Regulatory File Review: VP 13050

Documented use of the property dates back to 1885, when commercial buildings and residences were present. Industrial occupants have included junk/scrap iron yards, chemical manufacturers, pharmaceutical manufacturers, printing/lithography, grain/seed business and other miscellaneous manufacturers of boxes, fences and envelopes.

A Phase II ESA was conducted in 2000. Nine soil borings were advanced. Fill soils contained debris including brick, concrete wood and metal debris. Odor was detected at depth in one boring and soil screening detected organic vapors in excess of 2000 parts-per-million. The eight RCRA metals and PCBs were detected above residential SRVs or SLVs. DRO concentrations were above 50 mg/kg. The Phase II ESA refers to the preparation of a RAP but no information was provided. Low level (less than HRLs) VOCs were detected in the groundwater; most were petroleum related but Trichloroethene was also detected. Figures for the Phase II ESA were not included.

An Affidavit Concerning Real Property Contaminated with Hazardous Substances was recorded on September 5, 2001.

Site Summary
West Site Flats

Site ID: 9

Site Rank: High

MPCA Site Name: WJ Haas

Current Use: Vacant building

Ranking Rationale: Brownfield,
Superfund (non-listed site)

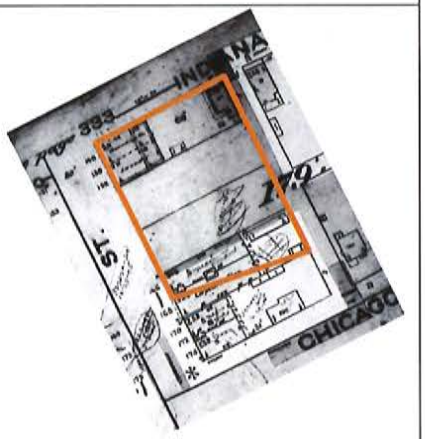
Site Summary: Various solid waste, debris, petroleum odors, the levels of DRO, arsenic and naphthalene impacts in the fill soils render the materials as regulated fill.

Parcel ID	Street Address	Property Owner	Property Type
62822410033	162 Wabasha St S	Wabasha Partners LLC	Commerical

SITE IMAGES

Street View 2017, looking NE

1939 Fire Insurance Map



1901 Fire Insurance Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 - 1960s	Residential/Hotel	Phase I ESA
1929 - Present	Vacant/Parking lot	Phase I ESA
1929 - 2016	Various industrial uses	Phase I ESA
2016 – Present	Vacant Commercial Building	Phase I ESA

Site Summary
West Site Flats

Well Search: A search of the Minnesota Well Index did not identify a well at the property.

Database Search Listings: WIMN		
Site ID	Name	Activity
MND985748565	WJ Haas	Hazardous Waste Generator
BF48	160-162 Wabasha St S Property	Brownfield
BF495	Wabasha Commercial Building	Brownfield
SR1436	Haas Properties	Superfund (non-listed site)

Registered Tanks: None

Regulatory File Review: VP 13050

The north end of the Site was used residentially (dwelling, apartments or a hotel) from at least 1885 until between 1964 and 1969, and since then it has been used as a parking lot. The existing building near the south end of the Site was constructed in 1929. Prior to recently vacating the Site, the building had been occupied by WJ Haas (Haas) since 1929. A review of historical records and/or based on the current owner representative, Haas has used the building for auto body repair, sheet metal works and custom metal fabrication. Since the early to mid-1960s, parts of the second floor were leased/rented to tenants that used the space for fiberglass canoe production, dial production, rim and wheel storage, and business form warehousing. Prior to realignment of adjoining streets, a part of the eastern portion of the south end of the Site was occupied by part of a building that was used as a store from at least 1885 to sometime between 1910 and 1925. The building occupied both a part of the Site and land south of the Site. The store use included fur dressing and a machine shop in earlier years. By the mid-1920s the south adjoining building was occupied by WJ Haas Mfg. Co.

The Phase II ESA concluded "...the nature of the identified contaminants was petroleum and undocumented fill that contains both petroleum and non-petroleum consituents. The source appears to be generalized impacts, petroleum spills or de minimis release, and possibly migration from off-site." Various solid waste, debris, petroleum odors, the levels of DRO, arsenic and naphthalene impacts in the fill soils render the materials as regulated fill.

Site Summary
West Side Flats

Site ID: 10

Site Rank: High

MPCA Site Name: MCES Riverview Siphon Reconstruction

Current Use: Utility easement

Ranking Rationale: VIC

Site Summary: The Siphon corridor as it crosses WSF runs from the river east of Wabasha Avenue to the intersection of the rail line then southerly along the east side of the rail line to Plato Boulevard. Historical industrial property use along the Siphon corridor includes a Unocal bulk storage facility, Technical Sealants, a bottling facility, and Stickney/Waterous Site (gasoline engine and hydrant manufacturing). 9,700 cubic yards of soil was excavated for landfill disposal between the river and Plato Boulevard. Analytical sample indicated widespread debris and contamination. However, laboratory analysis indicated isolated areas where contaminants exceeded soil reference values or meet the criteria of hazardous.

Parcel ID	Street Address	Property Owner	Property Type
Multiple – Utility Easement	None – Utility Easement	Multiple – Utility Easement	Easement passes through residential, commercial and former industrial sites

Site Summary
West Side Flats

SITE IMAGES

Street View 2017, Looking NE

1904 Fire Insurance Map

1928 Historic Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 – 1930s	Industrial and street right-of-way	Fire Insurance Maps, Historic Maps
1930s – Present	Utility Easement	Phase I ESA

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings:		
Site ID	Name	Activity
VP22600	MCES Riverview Siphon Reconstruction	Brownfield, Voluntary Investigation and Cleanup

Registered Tanks: None

Regulatory File Review:

The site is an approximately ½ mile corridor for the sanitary sewer system. Approximately 1,600 feet passes through the West Side Flats area from the Mississippi River to Plato Avenue. Four of the ten soil borings

Site Summary
West Side Flats

advanced for geotechnical purposes were advanced within the WSF boundary. Fill soils were present up to 11 feet in depth and had detectable field screening levels between 1.6 and 10.7 parts-per-million. Concrete fragments, brick, cinders and fibers were observed in fill soils. Soil samples for laboratory analysis were only collected from two of the borings. Levels of the 8 RCRA metals were elevated but did not exceed residential SRVs; however, the amount of debris in the fill soils define it as regulated fill. Additional investigation for lead and lead TCLP analytical samples indicated the soils were below the industrial SRV and one of the eight samples meet the 5 mg/L limit for lead TCLP.

2000 cubic yards of contaminated soil excavated from the river to E Fillmore Ave through the former Unoven (Site X) was disposed at a land fill in 2006. Another 7,700 cubic yards of soil was excavated between E Fillmore Ave and Plato Boulevard and disposed at a landfill in 2008.

Site Summary
West Side Flats

Site ID: 11

Site Rank: High

MCPA Site Name: Fillmore Redevelopment Site

Current Use: Vacant Land

Ranking Rationale: Petroleum Brownfield and Voluntary Investigation and Cleanup Site.

Site Summary: The Site has been developed since at least 1885. Former industrial uses include food processing, manufacture of gasoline engines and fire hydrants, textiles, scrap yards, stamp and die shop, a machine shop and a grain mill and elevator. Rail lines and spurs have been present on Site and currently border the western edge of the Site. Fills are typically 10 feet thick and in numerous locations debris consitiutes more than 25% of the volume and areas of localized contamination. Fill soils would be considered regulated fill by MPCA guidance documents. Laboratory analysis of natural sand soils beneath the fill did not detect a release and would be considered unregulated fill by MPCA guidance documents. Soil vapor and groudwater contamination are not a concern at this time.

Parcel ID	Street Address	Property Owner	Property Type
052822320044	E Fillmore Ave and Livingston Ave	Fillmore Avenue Apartments LLC	Vacant Industrial

SITE IMAGES

Street View 2017, Looking SW

1950 Fire Insurance Map

1904 Fire Insurance Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 - 1960s	Residential	Fire Insurance Maps, Aerial Photographs,
1901 - 1980s	Industrial	Fire Insurance Maps, Aerial Photographs
1996 - present	Commercial, gas station	Aerial Photos, Excavation Report

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
PB4487	Fillmore Redevelopment Site	Petroleum Brownfield
VP33230	Fillmore Redevelopment Site	Voluntary Investigation and Cleanup

Registered Tanks: None

Regulatory File Review:

The Site has been developed since at least 1885. Former industrial uses include food processing, manufacture of gasoline engines and fire hydrants, textiles, scrap yards, stamp and die shop, a machine shop and a grain mill and elevator. Rail lines and spurs have been present on Site and currently border the western edge of the Site. Adjoining and upgradient properties are impacted with diesel range organics (DRO), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), arsenic, lead and mercury.

The AET Phase I ESA identified the following recognized environmental conditions in connection with the Site:

- Soils at the Site are impacted with DRO, PAHs, arsenic, lead and mercury above regulated levels. Concentrations of lead exceeded hazardous levels on the eastern portion of the Site.
- Fill at the Site also contains non-soil constituents that include concrete, ash, coal, slag, plastic, brick, sheet metal, iron scrap and possibly foundry sand.
- Based upon the results of the previous investigations, the northern two thirds of the Site, including the area east of the former Custer St right-of-way including rail spurs, and properties with historic uses listed as a machine shop and scrap yards, have not been adequately assessed. Based on these historic uses, the potential exists for impacts to the subsurface in these areas.
- The potential exists for groundwater and soil gas impacts from existing contamination on the Site and migration of contamination from nearby properties.

Site Summary
TH 10 Anoka Solution, Anoka, Minnesota

Site ID: 12

Site Rank: High

MPCA Site Name: Livingston Street

Current Use: Street ROW

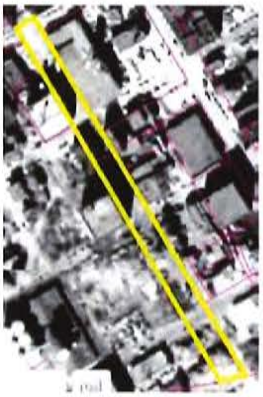
Ranking Rationale: VIC

Site Summary: Investigative work conducted during 2002 and 2003 included extensive sampling of soils and water within the greater West Side Flats area. The 2003 data from Legend documents those borings located within the Fillmore Site boundary, including the portion located within the existing Livingston Street right-of-way. The maps from the Legend Technical Phase II ESA are incomplete; therefore, the exact location of all sampling locations is not known at this time. Former site use include property formerly utilized by American Hoist and Derrick, a former fire station, a textile mill (1950 Fire Insurance Map) and possibly scrap yards (1966 aerial photograph).

Parcel ID	Street Address	Property Owner	Property Type
None	None - Livingston Street right-of-way	City of St. Paul	Right-of-way

SITE IMAGES

Street view 2017, looking NE



1953 Aerial Photograph

1938 Aerial Photograph

Site Summary
TH 10 Anoka Solution, Anoka, Minnesota

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – Present	Right-of-way	Fire Insurance Maps, Historic Maps, Aerial photographs
1887 – 1990s	Commercial	Aerial Photos
1904 – 1990s	Industrial	Fire Insurance Maps, Historic Maps, Aerial photographs
1990s – 2003	Vacant	Aerial photographs, File review

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
VP14341	Livingston Street	Voluntary Investigation and Cleanup

Registered Tanks: None

Regulatory File Review:

A 2002-2003 Legend/AET Phase II (incomplete data, maps are missing) shows soil contaminants above SRVs include mercury and benzo(a)pyrene. Vinyl chloride was detected in the groundwater in an adjoining monitoring well at the US Bank parking ramp. A 2003 test pit investigation confirmed the presence of the mercury and BaP contamination in addition to high levels of lead.

Site Summary
West Side Flats

Site ID: 13

Site Rank: High

MPCA Site Name: Former Fox Chemical

Current Use: Parking lot

Ranking Rationale: Petroleum Brownfield and Voluntary Investigation and Cleanup Site.

Site Summary: First developed before 1916 and occupied by numerous commercial and industrial business including Owens Glass, Helix, and Fox Chemical. The site was included in the Fillmore Redevelopment Site investigations. Regulated and unregulated fill soils are present.

Parcel ID	Street Address	Property Owner	Property Type
0528223210041 and 0528223210042	137-149 South Robert St	HRA City of St. Paul	Parking lot

SITE IMAGES

Street View, Looking SW

1950 Fire Insurance Map

1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1910s – 1990s	Warehouse	Fire Insurance Maps, Aerial Photographs,
1940s – 1990s	Industrial	Fire Insurance Maps, Aerial Photographs
1990s – Present	Parking lot	Aerial Photos

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
VP6650	Fox Chemical	Voluntary Investigation and Cleanup
LS9077	Former Fox Chemical	Leaksite

Registered Tanks: None

Regulatory File Review:

First developed before 1916 and occupied by numerous commercial and industrial business including Owens Glass, Helix, and Fox Chemical. The site was included in the Fillmore Redevelopment Site investigations. Regulated and unregulated fill soils are present.

Site Summary
West Side Flats, St. Paul, Minnesota

Site ID: 14

Site Rank: High

MPCA Site Name: American Red Cross

Historical Site Name(s): Unknown

Ranking Rationale: Closed leak site, Regulated Fill

Site Summary: A 15,000- gallon fuel oil UST was removed in 1997. Laboratory analysis detected contamination in soils around tank. Subsequent investigation did not detect contamination in soil or groundwater. Debris such as glass, bricks, wood was noted in the fill soils. Consultant suggested the source of the contamination was the fill material not the UST.

Parcel ID	Street Address	Property Owner	Property Type
0528222330017	134 Fillmore Ave E (100 S Robert St)	American National Red Cross	Commercial – Charitable Institution

SITE IMAGES

Site Photo, Looking South

1970 Aerial Photograph

1940 Aerial Photograph

Site Summary
West Side Flats, St. Paul, Minnesota

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1885 - 1907	Vacant	Historical Atlas Maps
1885 -1975	Street	Historical Atlas Maps, Aerial photographs
1907 - 1974	Commercial, unknown	Historical Atlas Maps, Aerial photographs
1975 - Present	Office building	County data

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: WIMN		
Site ID	Name	Activity
TS3577	American Red Cross	UST
LS10768	American Red Cross	Closed Leak Site
MND080239619	American Red Cross	VSQ HWG

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
3577	001	UST	15,000	Fuel Oil	Removed	05/01/1981	05/14/1986	8/5/1997

Regulatory File Review:

LEAK 10768

During the removal of Tank 1, soil screening detected low levels of organic vapors (0.0 to 5.7 part-per-million (ppm)). Soil analytical results detected diesel range organics (DRO) at 15 and 290 mg/kg.

One soil boring was advanced through Tank 1 basin. The soil boring indicated 14 feet of fill that contained debris including glass and brick. Soil screening detected low levels of organic vapors (0.6 to 2.3 ppm). Soil and groundwater analytical results did not detect contamination.

2.3 Identify and describe the source or suspected source(s) of the release.

Excavation bottom samples (sample # 1704-BW) on the west side of the tank contained 290 mg/kg Diesel Range Organics (DRO), and the east side contained (sample # 1704- BE) 15 mg/kg. There were no visual or measurable amounts of contaminants above background observed during removal activities. The fill pipe was located on the opposite side of the tank from where the samples were obtained. The tank was generally in good condition

While the excavation was taking place, numerous articles of glass, brick, and wood debris, etc. were removed from the excavation. It is possible that the contamination found in the two soil samples is originating from the surrounding fill material and not a result of a release from the UST system.

Site Summary
West Side Flats

Site ID: 15

Site Rank: High

MPCA Site Name: Mickeys – Eric Mattson Property

Current Use: Vacant

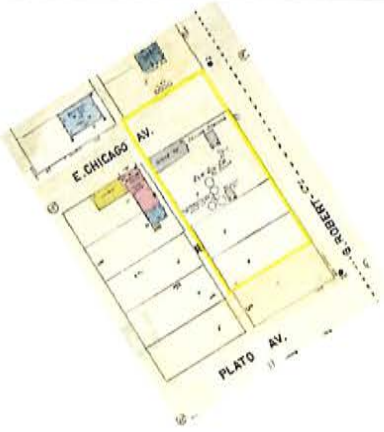
Ranking Rationale: USTs,
Former bulk petroleum facility

Site Summary: Petroleum bulk storage facility and filling station from at least 1928 until sometime before 1974. No tank closure assessment or investigation data is on file at the MPCA. This site was included in the Phase II investigation for the Fillmore Redevelopment Site. Regulated and unregulated fill soils are present.

Parcel ID	Street Address	Property Owner	Property Type
052822320016	193 S Robert Street	Fillmore Ave Apartments, LLC	Commercial, Restaurant

SITE IMAGES

Street View2017, looking W



1953 Fire Insurance Map

1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1920s - 1989	Bulk petroleum, filling station, rail lines	Fire Insurance Maps, Historic Maps, Aerial Photos
1996 - present	Commercial, gas station	Aerial Photos, Excavation Report

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
TS12906	Mickeys – Eric Mattson Property	UST

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
12906	001	UST	1000	Diesel	Removed	Unknown	4/5/1989	4/10/1989
12906	002	UST	9000	Diesel	Removed	Unknown	4/5/1989	4/10/1989
12906	003	UST	7500	Diesel	Removed	Unknown	4/5/1989	4/10/1989
12906	004	UST	7500	Diesel	Removed	Unknown	4/5/1989	4/10/1989
12906	005	UST	7500	Diesel	Removed	Unknown	4/5/1989	4/10/1989
12906	006	UST	4000	Gasoline	Removed	Unknown	4/5/1989	4/10/1989

Regulatory File Review: see Site 11: Fillmore Redevelopment Site.

Site Summary
West Side Flats

Site ID: 16

Site Rank: High

MPCA Site Name: Rexam Beverage Can Co

Current Use: Rexam Beverage Can Co

Ranking Rationale: USTs,
Closed Leaksite,
Voluntary Investigation and Cleanup, State Site Assessment,
Institutional controls

Site Summary: Fire insurance maps and aerial photographs indicate the site was developed from 1887 until the 1960s with residential or store properties. In the 1960s the site was redeveloped as a can manufacturer. The presence of DRO at concentrations above 50 mg/kg resulted in excavation and disposal of 677 tons of soil from two locations. Fill soils impacted with low level contamination and debris remains on the site. Groundwater beneath the site is impacted with metals and diesel range organics.

Parcel ID	Street Address	Property Owner	Property Type
052822320001	139 Eva Street	First Industrial LP	Manufacturing

SITE IMAGES

Site Photo, Looking West

1940 Aerial Photograph

1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 - 1960s	Residential, Streets	Fire Insurance Maps, Historic Maps, Aerial Photos
1960s - Present	Industrial	Aerial Photos

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
TS3719	Rexam Beverage Can Co – St. Paul	USTs
MND059034694	Rexam Beverage Can Co	Small Quantity Generator
VP25050	Rexam Beverage Can	Voluntary Investigation and Cleanup
LS6879	American National Can Co	Leaksite
SA1306	National Can Co	State Site Assessment

Registered Tanks:

MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
3719	001	UST	8000	Lube Oil	Removed	1969	5/15/1986	Unknown
3719	002	UST	8000	Lube Oil	Removed	1969	5/15/1986	Unknown
3719	003	UST	8000	Other	Removed	1969	5/15/1986	10/7/1993
3719	004	UST	8000	Lube Oil	Removed	1978	1978	10/7/1993
3719	005	UST	8000	Aviation	Removed	1978	1978	10/7/1993
3719	006	UST	6000	Other	Removed	1978	1978	10/7/1993
3719	007	UST	6000	Other	Removed	1978	1978	10/7/1993
3719	008	UST	6000	Other	Removed	1978	1978	10/14/1993
3719	009	UST	10000	U/W oil	Removed	1980	1980	Unknown
3719	010	UST	7500	Unreg	Removed	1978	1978	Unknown
3719	011	UST	7500	Unreg	Removed	1978	1978	Unknown

Regulatory File Review:

LS6879
Soil samples were collected during underground storage removal excavations. There were visual indications of contamination but laboratory analysis did not detect any contamination. No maps were included in the file.

VP25050
Investigations conducted in 2009 and 2010 identified soils contaminated with petroleum and chlorinated hydrocarbons. The presence DRO at concentrations above 50 mg/kg resulted in excavation and disposal of 677 tons of soil from two locations. Fill soils impacted with low level contamination and debris remain on the site. Groundwater beneath the site is impacted with metals and diesel range organics.

Site Summary
West Side Flats

Site ID: 17

Site Rank: High

MPCA Site Name: None

Current Use: Parking lot/Industrial

Ranking Rationale: Former bulk storage facilities, Industrial use

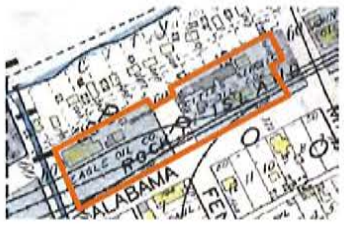
Site Summary: Bulk petroleum facilities noted on the 1928 Historic Map and visible on the 1940 and 1953 aerial photographs. Currently owned by the same individual as Pier Foundry and Pattern Shop

Parcel ID	Street Address	Property Owner	Property Type
052822240032	State Street & Alabama St.	Randall Grilz	Industrial

SITE IMAGES

Street View 2009, looking NE

1950 Fire Insurance Map



1904 Fire Insurance Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1920s	Residential	Historic Maps
1920s – 1960s	Bulk Petroleum Facilities	Historic Maps, Aerial photographs
1960s- Present	Parking lot/Industrial	Aerial Photographs

Database Search Listings: None

Registered Tanks: None

Regulatory File Review: None

Site Summary
West Side Flats, St. Paul, Minnesota

Site ID: 18

Site Rank: High

MPCA Site Name: Pier Foundry & Pattern Shop

Current Use: Pier Foundry & Pattern Shop

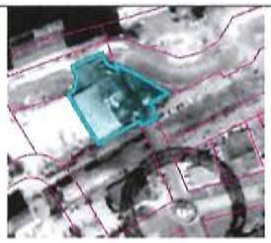
Ranking Rationale: CERCLIS Site, Sate Site Assessment, Industrial Stormwater

Site Summary: Foundry has been present since at least 1928.

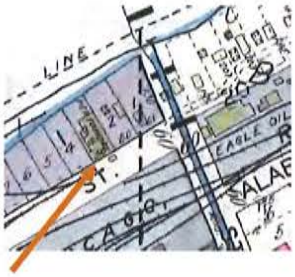
Parcel ID	Street Address	Property Owner	Property Type
052822230037	51 State Street	Randall R Grilz	Industrial - Foundry

SITE IMAGES

Street View 2009, looking SW



1974 Aerial Photograph



1928 Historical Atlas Map

HISTORICAL SUMMARY

Date Range	Property Use	Source
1900s-Present	Foundry	Fire Insurance Maps, Historical Maps, Aerial photographs

Well Search: None

Database Search Listings: WIMN

Site ID	Name	Activity
MND006149157	Pier Foundry & Pattern Shop	VSQ HWG, CERCLIS Site
SA1311	Pier Foundry & Pattern Shop	State Site Assessment
MNR537JK	Pier Foundry & Pattern Shop	Industrial Stormwater
MNR058N3	Pier Foundry & Pattern Shop	Industrial Stormwater

Registered Tanks: None

Site Summary
West Side Flats, St. Paul, Minnesota

Regulatory File Review: None, the MPCA was unable to locate any files. The EPA website had no additional information.

Site Summary
West Side Flats

Site ID: 19

Site Rank: Medium

MPCA Site Name: Brightbill Auto Service & Solange Auto Service

Current Use: Solange Auto Services

Ranking Rationale: Auto Repair,
UST,
HWG

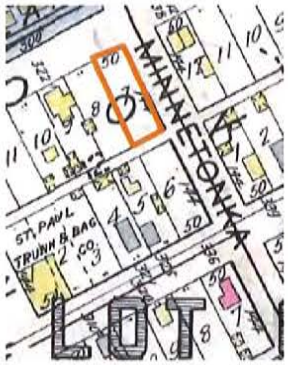
Site Summary: Auto repair 1970s to present, one 500 gallon used/waste oil UST was removed.

Parcel ID	Street Address	Property Owner	Property Type
052822240009	291 Fillmore Ave E	Cha Sur Vang	Auto Repair

SITE IMAGES

Street View 2015, looking N

1940 Fire Insurance Map



1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887- 1960s	Residential	Historic Maps
1960s - Present	Auto Repair	Aerial photographs, Database Report

Database Search Listings: WIMN		
Site ID	Name	Activity
TS20752	Brightbill Auto Service	UST
MNR000020461	Solange Auto Repair	VSQ HWG
MND071758320	Solange Auto Services	Inactive HWG

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
20752	001	UST	500	U/W oil	Removed	10/14/1998	8/17/1998	Unknown

Regulatory File Review: None

Site Summary
West Side Flats

Site ID: 20

Site Rank: High

MPCA Site Name: Peoples Electrical Contractors

Current Use: Peoples Electrical Contractors

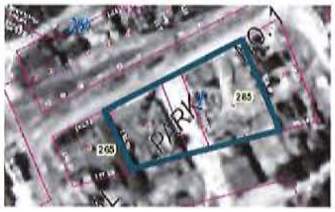
Ranking Rationale: UST, VSQ HWG, Historic Scrap Yard

Site Summary: Gasoline USTs, historic use by a scrap yard

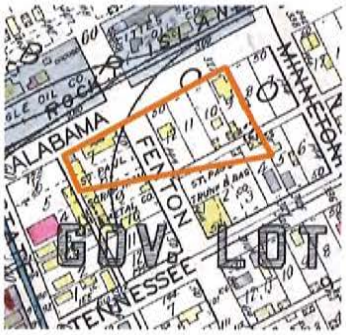
Parcel ID	Street Address	Property Owner	Property Type
05282220012	277 & 285 State Street	Peoples Electrical Co Inc	Commercial

SITE IMAGES

Street View 2017, looking NE



1940 Aerial Photograph



1928 Historical Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1950s	Residential	Historic Maps, Aerial Photographs
1920s- 1950s	Scrap yard	Fire Insurance Maps, Historic Maps
1950s – 1970s	Commercial - Unknown	Aerial photographs
1970s – Present	Electrical Contractor	Aerial Photographs, Database Report

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
TS3468	Peoples Electrical Contractors	UST
MND985680826	Peoples Electrical	VSQ HWG

Site Summary
West Side Flats

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
3468	001	UST	2000	Gasoline	Removed	6/27/1979	3/31/1986	Unknown
3468	002	UST	2000	Gasoline	Removed	6/27/1979	3/31/1986	Unknown

Regulatory File Review: None

Site Summary
West Side Flats

Site ID: 21

Site Rank: High

MPCA Site Name: Upper River Services

Current Use: Upper River Services

Ranking Rationale: HWG, Industrial Stormwater Permit, Industrial use

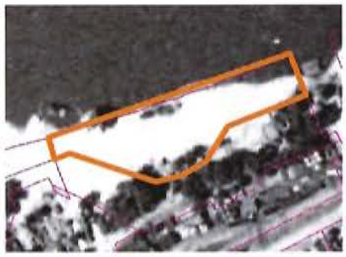
Site Summary: Gasoline USTs, historic use by a scrap yard.

Parcel ID	Street Address	Property Owner	Property Type
052822210021	282 Alabama St E	St. Paul Port Authority	Industrial

SITE IMAGES

Street View 2017, looking NW

1985 Aerial Photograph



1940 Aerial Photograph

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1920s -1950s	River shore	Historic Maps, Aerial Photographs
1950s -1970s	Vacant land	Aerial Photographs
1970s - Present	Barge cleaning and repair	Aerial photographs

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MND985711522	Upper River Services	VSQ HWG
MNR0538TX	Upper River Services	Industrial Stormwater Permit
MNR0537DD	Upper River Services	Industrial Stormwater Permit

Registered Tanks: None

Regulatory File Review: None

Site Summary
West Side Flats

Site ID: 22

Site Rank: High

MPCA Site Name: Vomela Specialties, Camada Limited Partnership

Current Use: Vomela Specialties

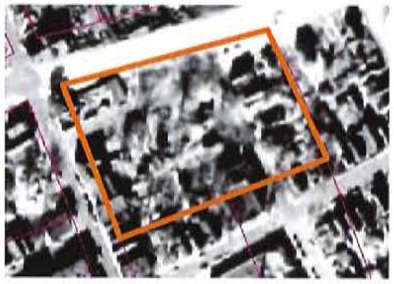
Ranking Rationale: Closed Leaksite, HWG, Wastewater Permit, Industrial Stormwater

Site Summary: Small quantity hazardous waste generator with wastewater permit with recorded violations. The debris in the fill materials along the north side of the site render these materials as regulated fill. No investigation/explanation for the non-petroleum contamination detected in the groundwater on the south side of the site. Groundwater is impacted with petroleum on the northern portion of the Site.

Parcel ID	Street Address	Property Owner	Property Type
052822240014	274 Fillmore Ave E	Camada Limited Partnership	Industrial

SITE IMAGES

Street View 2017, looking SW



1958 Aerial Photograph

1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s -1960s	Residential, unspecified small stores/commercial	Historic Maps, Aerial Photographs
1970s – Present	Commercial	Aerial Photographs

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MND980898126	Vomela Specialties	SQ HWG
MNU000987	Vomela Specialties	Wastewater
MNRNE3CLC	Vomela Specialty	Industrial Stormwater
LS8918	Camada Limited Partnership	Leaksite

Registered Tanks: None

Regulatory File Review:

LS8918

Nine soil borings were advanced at the site. Soil and groundwater samples were submitted for laboratory analysis for petroleum and volatile organic compounds (VOCs). Laboratory analysis of groundwater samples detected low levels of petroleum contamination at the north end of the site. One non-petroleum constituent was detected in groundwater at the south end of the site. Fill soils in the borings on the north side of the site contained debris such as ash, cinders, bituminous pavement mix, fragments of wood, glass, wire, sandstone. The petroleum contamination was closed as a non-tank leak.

Site Summary
West Side Flats

Site ID: 23

Site Rank: High

MPCA Site Name: Asset Recovery Corp – St. Paul

Current Use: ABC Supply Co Inc

Ranking Rationale: UST,
SQ HWG,
Leaksite

Site Summary: Gasoline USTs, historic use by a scrap yard

Parcel ID	Street Address	Property Owner	Property Type
05282220012	277 & 285 State Street	Peoples Electric Co Inc	Commercial

SITE IMAGES

Google Street View 2017, looking NE

1940 Aerial Photograph

1928 Historical Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1966	Residential Neighborhood and School	Historic Maps, Aerial Photographs
1966 – 1991	United Parcel Service	Aerial Photographs, Database
1991 - ?	Commercial – Asset Recovery Corp	WIMN
2017 - Present	ABC Supply	Google Earth

Database Search Listings: WIMN		
Site ID	Name	Activity
MNR000030791	Asset Recovery Corp – St. Paul	Small Quantity HWG
LS2921	United Parcel Service	Leaksite
TS3801	United Parcel Service	Tanks

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
3801	001	UST	6000	Gasoline	Removed	1966	5/15/1986	07/1990
3801	002	UST	6000	Diesel	Removed	1966	5/15/1986	07/1990
3801	003	UST	6000	Gasoline	Removed	1966	5/15/1986	07/1990
3801	004	UST	550	U/W Oil	Removed	1966	5/15/1986	07/1990
3801	005	UST	1000	F Oil	Removed	1966	5/15/1986	07/1990

Regulatory File Review:

The Phase II investigation completed for Site 22 included a file review for Leaksite LS2921. Five USTs were removed in July 1990; approximately 270 cubic yard of soil was excavated and disposed of of-site. A petroleum sheen was noted on the water in the tank basin. A remedial investigation in 1991 included the advancement of 5 soil borings. Soil contamination was "minimal" near the water table. Three monitoring wells were completed; groundwater flow was basically north with variations to the northeast and northwest likely due to influence of the Mississippi River. Groundwater contamination included MTBE and cis-1-2-dichloroethene.

We have not received a response to our submitted request to the MPCA to directly review the Leaksite file.

Site Summary
West Side Flats

Site ID: 24

Site Rank: High

MPCA Site Name: Riverview Business Center, see below for additional names

Current Use: Riverview Business Center

Ranking Rationale: Voluntary Investigation and Cleanup, HWGs

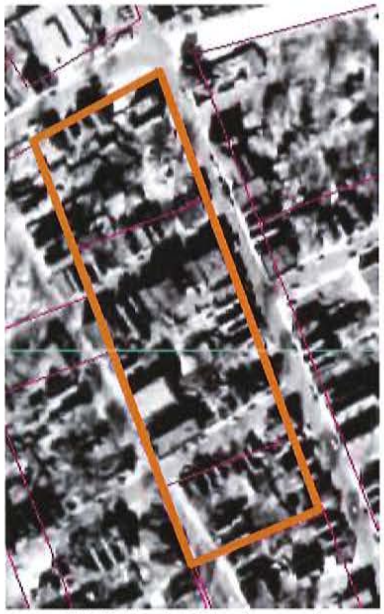
Site Summary:

Parcel ID	Street Address	Property Owner	Property Type
0528222240018	105 State Street	Badger Properties Riverview, LLC	Industrial
0528222240019	135 State Street		
0528222310003	143 State Street		

Site Summary
West Side Flats

SITE IMAGES

Street View 2017, looking SW



1953 Aerial Photograph

1909 Historic Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s -1960s	Residential, unspecified small stores/commercial	Historic Maps, Aerial Photographs
1970s - Present	Commercial	Aerial Photographs, WIMN

Database Search Listings: WIMN		
Site ID	Name	Activity
VP28970	Riverview Business Center	Voluntary Investigation and Cleanup
MND020476867	Shervin-Williams Store 3233	SQ HWG
MND175564814	Asset Recovery Corp – 115 State St	Inactive HWG
MNR000105593	Custom Tape Co	VSQ HWG
MND985748615	JAP	Inactive HWG
MNR000078261	Modernistic Industrial	VSQ HWG
MND985743210	American Drive Axle	Inactive HWG
MNR000115360	DuBois Thomas E	Inactive HWG

Registered Tanks: None

Regulatory File Review:
VP28970
The file has not been made available; we are waiting for a response from the MPCA

Site Summary
West Side Flats

Site ID: 25

Site Rank: High

MPCA Site Name: Tursso Companies

Current Use: Tursso Companies

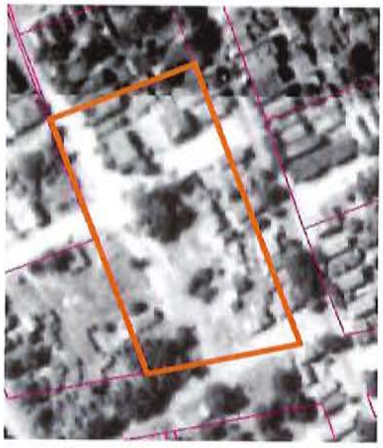
Ranking Rationale: HWG, Industrial Stormwater Permits, Industrial use

Site Summary: Suspected long term occupancy by custom printer.

Parcel ID	Street Address	Property Owner	Property Type
0528222310004	223 Plato Blvd E	Dennis J Tursso & Tursso Companies	Industrial

SITE IMAGES

Street View 2017, looking NE



1940 Aerial Photograph

1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s -1960s	Residential, unspecified small stores/commercial	Historic Maps, Aerial Photographs
1969 – Present	Commercial	Aerial Photographs

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
AQ1230060	Tursso Companies	Air Quality
MND981959752	Tursso Companies	VSQ HWG
MNRNE37ZP	Tursso Companies	Industrial Stormwater
MNRNE36VD	Tursso Companies	Industrial Stormwater

Registered Tanks: None

Regulatory File Review: None

SITE ID: 25 - High

Site Summary
West Side Flats

Site ID: 26

Site Rank: Low

MPCA Site Name: St. Paul Funeral Home

Current Use: St. Paul Funeral Home

Ranking Rationale: HWG

Site Summary: Limited information on occupants since 1973. Formerly a large portion of a residential block. A blacksmith was indicated on the 1950 fire insurance map.

Parcel ID	Street Address	Property Owner	Property Type
0528222310005	199 Plato Blvd E	Marcos Gomez	Commercial – Funeral Home

SITE IMAGES

Street View 2017, looking NE

1950 Fire Insurance Map

1928 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s -1960s	Residential, unspecified small stores/commercial (black smith)	Historic Maps, Aerial Photographs
1973– Present	Commercial	Aerial Photographs, County Information

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MNS000224667	St. Paul Funeral Home	MQ HWG

Registered Tanks: None

Regulatory File Review: None

SITE ID: 26 - Low

Site Summary
West Side Flats

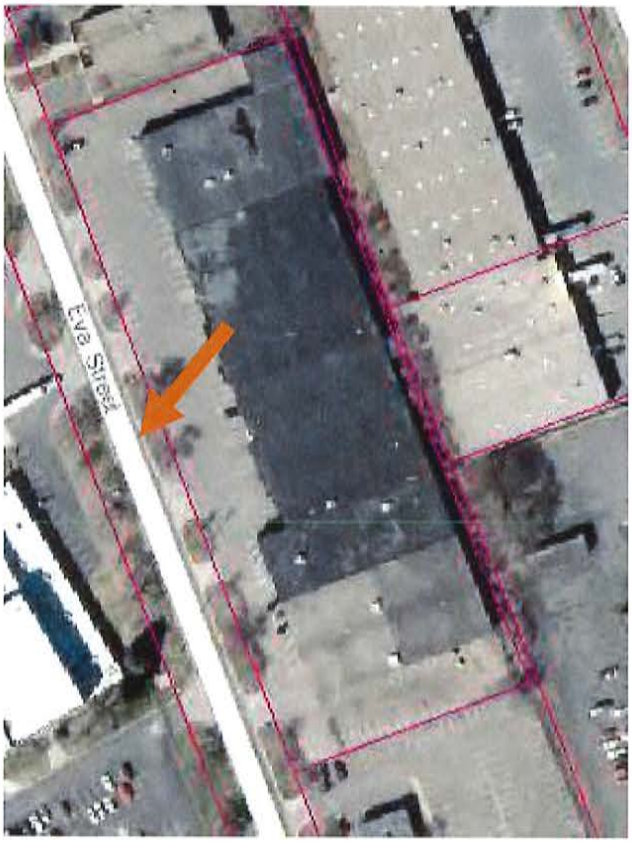
Site ID: 27

Site Rank: Medium

MPCA Site Name: None

Current Use: Eva St ROW

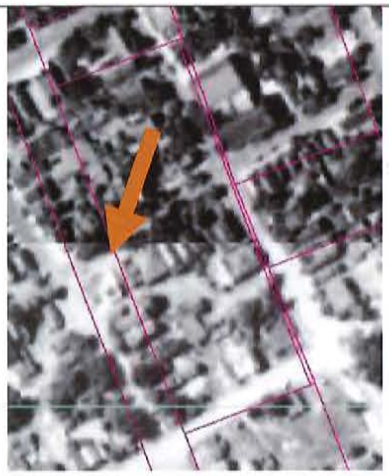
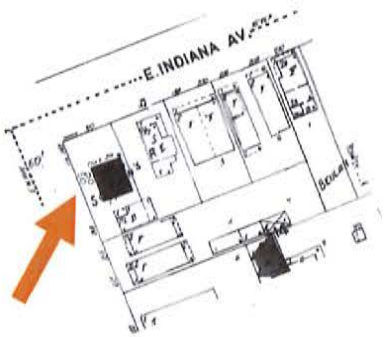
Ranking Rationale: Former Filling Station



Site Summary: Fire insurance maps identified a filling station present likely from the 1930s to the 1960s.

Parcel ID	Street Address	Property Owner	Property Type
0528222310027	150 Eva Street	Riverview Industrial Ventures LLC	Industrial

Site Summary
West Side Flats

SITE IMAGES		
 Google Street View 2014, looking NE	 1940 Aerial Photograph	 1909 Historic Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s –1930s	Residential, unspecified small stores/commercial	Fire Insurance Maps, Historic Maps,
1930s – 1960s	Filling Station	Fire Insurance Maps
1965 – Present	ROW	Aerial Photographs, County Information

Database Search Listings: None

Registered Tanks: None

Regulatory File Review: None

Site Summary
West Side Flats

Site ID: 28

Site Rank: High

MPCA Site Name: Twin Cities Newspaper Service

Current Use: Twin Cities Newspaper Service

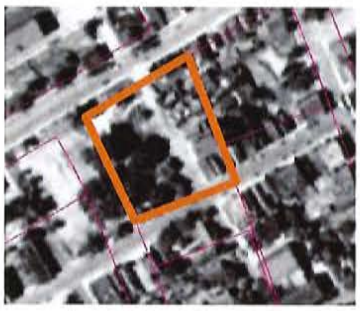
Ranking Rationale: UST, HWG, Closed Leaksite, Industrial Use

Site Summary: Part of a former neighborhood block, junk yard was present from the 1930 to 1960s.

Parcel ID	Street Address	Property Owner	Property Type
05282220012	277 & 285 State Street	Peoples Electric Co Inc	Commercial

SITE IMAGES

Street View 2014, looking SE



1940 Aerial Photograph

1928 Historical Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1960s	Residential Neighborhood/open land	Historic Maps, Aerial Photographs
1930s – 1960s	Junk Yard	Fire Insurance Map
1969 – 1980s	Commercial	Aerial Photographs
1982 – Present	Twin Cities Newspaper Services	Database, Aerial photographs

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MND002855351	Twin Cities Newspaper Service	Very Small Quantity HWG
LS11004	Twin Cities Newspaper Service	Leaksite
TS19045	Twin Cities Newspaper Service	Tanks

Registered Tanks:								
MPCA Tank ID	Tank #	AST/UST	Size	Contents	Status	Install Date	Registered Date	Removed/ Closed Date
19045	001	UST	12500	Gasoline	Removed	Unknown	1/4/95	Unknown
19045	002	UST	12500	Diesel	Removed	Unknown	1/4/95	Unknown
19045	003	UST	560	U/W Oil	Removed	Unknown	1/4/95	Unknown
19045	004	UST	20000	Diesel	Temp	12/5/1997	12/18/97	Unknown
19045	1001	AST	560	M Oil	Closed	1982	2/16/2007	Unknown
19045	1002	AST	560	M Oil	Closed	12/08/1997	2/16/2007	Unknown

Regulatory File Review:

We have submitted a request to the MPCA to review the file.

Site Summary
West Side Flats

Site ID: 29

Site Rank: High

MPCA Site Name: Summit Door, Hydralift Amclyde – Warehouse and Riverpoint Media Group

Current Use: Riverview Industrial, a multi- tenant Industrial Property

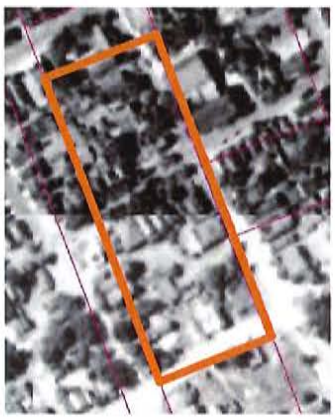
Ranking Rationale: HWG, Industrial Stormwater, Industrial Use

Site Summary:

Parcel ID	Street Address	Property Owner	Property Type
052822310027	130-170 Eva	Riverview Industrial Ventures	Commercial

SITE IMAGES

Street View 2014, looking NE



1940 Aerial Photograph

1908 Historic Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s -1960s	Residential, unspecified small stores/commercial (black smith)	Historic Maps, Aerial Photographs
1965– Present	Commercial	Aerial Photographs, County Information

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MNS000197467	Hydralift Amclyde - Warehouse	Inactive HWG
MN0000066183	Summit Door LLC	Inactive HWG
MND006151732	Riverpoint Media Group	Inactive HWG
A00023190	Riverpoint Media Group	Inactive Industrial Stormwater

Registered Tanks: None

Regulatory File Review: None

SITE ID: 29 - High

Site Summary
West Side Flats

Site ID: 30

Site Rank: Medium

MPCA Site Name: None

Current Use: Keran

Ranking Rationale: Former Machine Shop

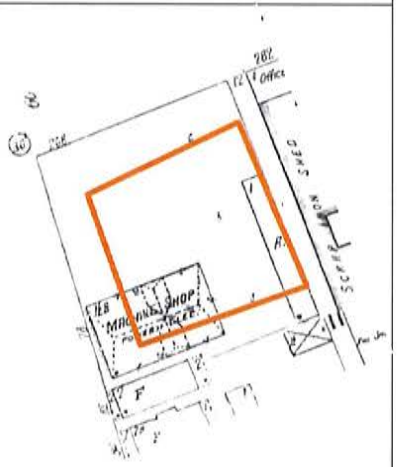
Site Summary: Fire Insurance Maps indicate the former presence of a machine shop and long term industrial use.

Parcel ID	Street Address	Property Owner	Property Type
0528222240013	265 Fillmore Ave E	Kappa Properties LLC	Industrial

SITE IMAGES

Street View 2017, looking S

1953 Aerial Photograph



1950 Fire Insurance Map

HISTORICAL SUMMARY

Date Range	Property Use	Source
1887s – 1920s	Residential, Vacant	Fire Insurance Maps, Historic Maps,
1920s – 1960s	Machine Shop	Fire Insurance Maps, Historic Maps, Aerial Photographs
1965 – Present	Industrial	Aerial Photographs, County Information

Database Search Listings: None

Site Summary
West Side Flats

Registered Tanks: None

Regulatory File Review: None

Site Summary
West Side Flats

Site ID: 31

Site Rank: High

MPCA Site Name: Genoa Healthcare, Old Science Renovation, Lowertown Printing, Wabasha Business Center Norris

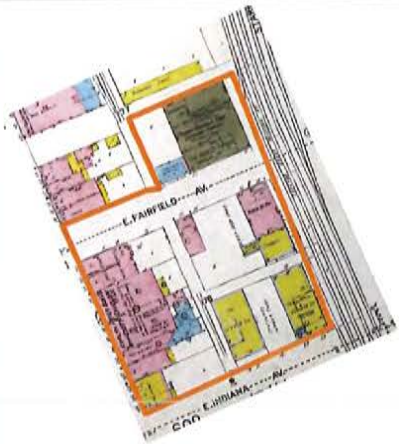
Current Use: Multi-tenant, commercial/ industrial building

Ranking Rationale: HWG, Industrial use

Site Summary: Historical uses include a creamery (1913- 1950s) envelope manufacturer (1930s-1960s) and a junk yard (1939 Fire Insurance Map). The Wabasha Business Center investigation may include portions of the Site but maps do not provide boring locations.

Parcel ID	Street Address	Property Owner	Property Type
0628222410019	122 Wabasha St S	NJF Properties LLC	Industrial
0628222410025	120 Wabasha St S		Commercial
0628222410026	None		Commercial
0628222410036	140 Wabasha St S		Commercial

Site Summary
West Side Flats

SITE IMAGES		
 Street View 2017, looking NE	 1950 Fire Insurance Map	 1928 Historic Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887s – 1960s	Residential, unspecified small stores/commercial	Fire Insurance Maps, Historic Maps, Aerial Photographs
1913 – 1960s	Industrial	Aerial Photographs, County Information
1973 – Present	Commercial	Aerial Photographs, County Information

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MNS000194779	Genoa Healthcare	MQ HWG
MNR000034199	Lowertown Printing	Inactive HWG
MND985769371	Wabasha Business Center Norris	Inactive HWG
MND982072191	Old Science Renovation	

Registered Tanks: None

Regulatory File Review: None

Site Summary
West Site Flats

Site ID: 32

Site Rank: High

MPCA Site Name: LIT Midway LLT

Current Use: Vacant Office Building

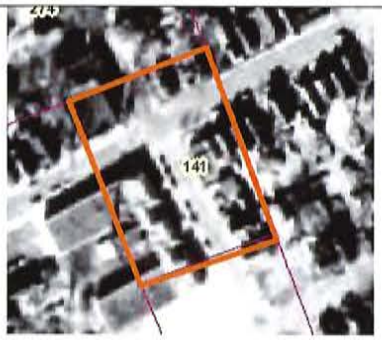
Ranking Rationale: HWG,
Unknown Industrial uses since the 1960s.

Site Summary: Inactive HWG – building is currently vacant

Parcel ID	Street Address	Property Owner	Property Type
052822240015	141 Lafayette Frontage Rd	Happy Star LLC	Industrial

SITE IMAGES

Street View 2017, Looking SW



1953 Aerial Photograph

1946 Fire Insurance Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1901 - 1960s	Residential neighborhood, school and church	Fire Insurance Maps, Historic Maps, Aerial Photographs
1960s - Present	Industrial	Aerial Photos

Well Search: A search of the Minnesota Well Index did not identify any wells at the property.

Site Summary
West Site Flats

Database Search Listings: WIMN		
Site ID	Name	Activity
MND006162176	LIT Midway LLT	MQ HWG

Registered Tanks: None

Regulatory File Review: None

Site Summary
West Side Flats

Site ID: 33

Site Rank: High

MPCA Site Name: Former Gas Station

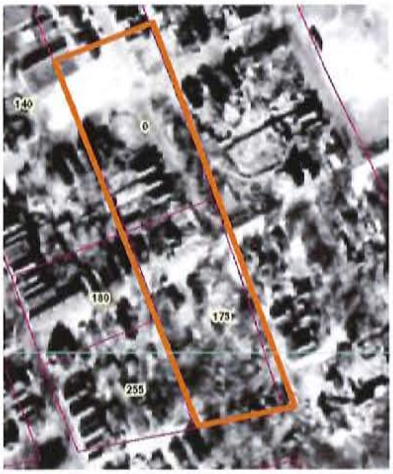
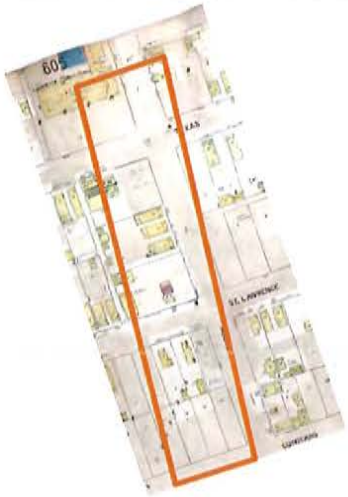
Current Use: Affinity Plus Credit Union

Ranking Rationale: Leaksite, Regulated fill is present on Site

Site Summary: Gasoline USTs, historic use by a scrap yard

Parcel ID	Street Address	Property Owner	Property Type
052822310001	175 Lafayette Road S	State Capitol Federal Credit Union	Commercial – Office Building

Site Summary
West Side Flats

SITE IMAGES		
 Google Street View 2017, looking NE	 1940 Aerial Photograph	 1946 Fire Insurance Map

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1960s	Residential Neighborhood and School	Fire Insurance Maps, Historic Maps, Aerial Photographs
1930s – 1960s	Filling Station	Fire Insurance Maps
1960s – 1989	Vacant Land	Aerial photographs
1989 – Present	Office Building	Aerial Photographs, County Data

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
LS12409	Former gas station	Leaksite

Registered Tanks: None

Regulatory File Review:

Leaksite 12409
Filling station occupied the central portion of the parcel from at least 1939 until at least 1946. The vacant station remained on site until sometime before 1974. A Phase II investigation detected petroleum contaminated soils; field and laboratory results indicated soils would be considered regulated fill. Boring logs indicate cinders were observed in boring SB-1 at 5 feet and in boring SB-3 at 6 feet.

Site Summary
West Side Flats

Site ID: 34

Site Rank: High

MPCA Site Name: None

Current Use: Fillmore Ave E ROW

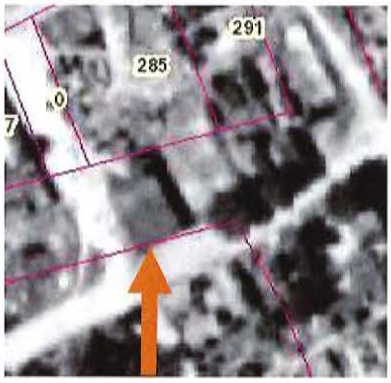
Ranking Rationale: Former Industrial Site

Site Summary: Trunk Manufacturer with machine shop from the 1900s through the 1920s.

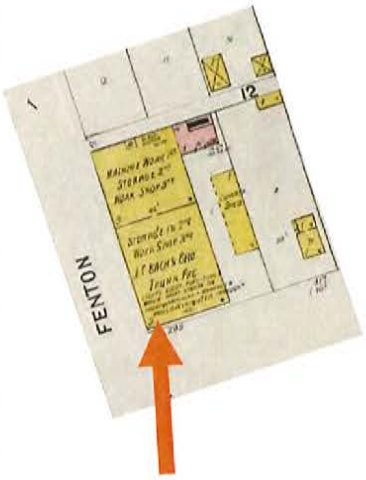
Parcel ID	Street Address	Property Owner	Property Type
None	Fillmore Ave E ROW	City of St. Paul	Street ROW

SITE IMAGES

Google Street View 2015, looking W



1940 Aerial Photograph



1904 Fire Insurance Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1900s	Residential Neighborhood	Fire Insurance Maps, Historic Maps
1900s– 1940s	Industrial	Fire Insurance Maps, Historic Maps
1940s – 1950s	Vacant Land	Fire Insurance Maps, Aerial photographs
1950s – Present	Street ROW	Fire Insurance Maps, Aerial Photographs

Database Search Listings: None

Registered Tanks: None

Regulatory File Review: None

SITE ID: 33 - High

Site Summary
West Side Flats

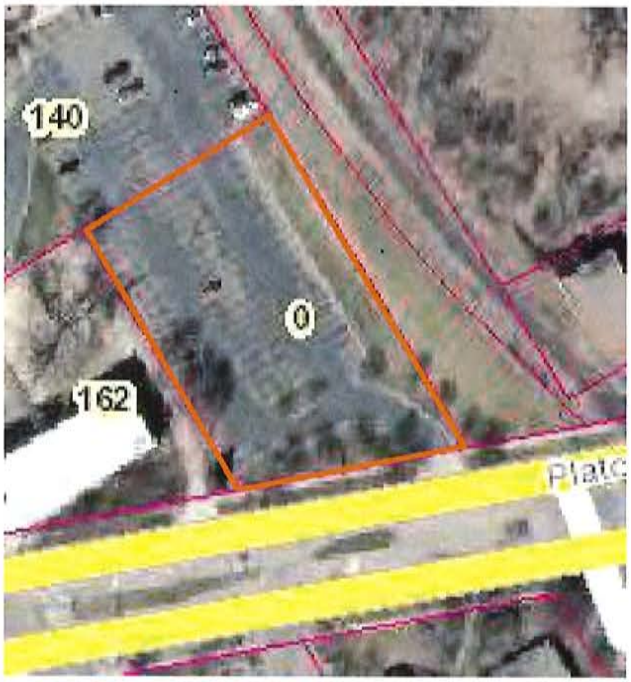
Site ID: 35

Site Rank: High

MPCA Site Name: Plato Boulevard

Current Use: Paved Parking Lot

Ranking Rationale: Voluntary Investigation and Cleanup, Institutional Controls

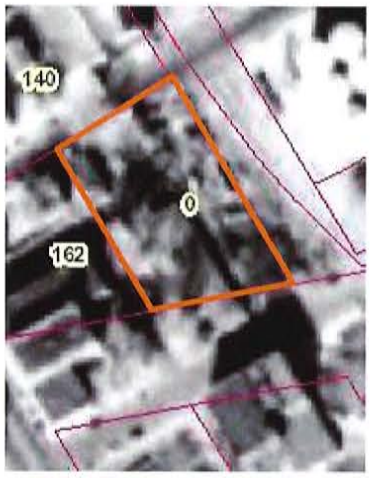


Site Summary: Past industrial use, two distinct layers of fill, the lower unit (>4 feet bgs) includes debris, lead and DRO contamination that renders it regulated fill.

Parcel ID	Street Address	Property Owner	Property Type
062822410037	None	NJF Properties	Commercial

SITE IMAGES

Street View 2017, looking N



1953 Aerial Photograph

1904 Fire Insurance Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1960s	Residential	Fire Insurance Maps, Historic Maps, Aerial Photographs
1887 – 1960s	Industrial	Fire Insurance Maps, Historic Maps, Aerial Photographs
1960s – 2000s	Vacant Land	Aerial photographs, WIMN
2001 – Present	Paved Parking Lot	Aerial photographs, WIMN

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
VP14110	Plato Boulevard	Voluntary Investigation and Cleanup

Registered Tanks: None

Regulatory File Review:

VP14110

Historical research indicates that the property was occupied by a livery stable (~1904-1923), lumber yard (1950s), lime and cement warehouse (~1904-1939), sewer pipe and concrete yard (~1939-1945) and a drum cleaning operation (~1955-1965).

The site is underlain by at least two distinct layers of fill. The upper unit is approximately 4 feet thick and fairly homogenous. The lower unit is visually distinct from the upper unit and contains debris including brick, concrete, cinders, glass and wood. Lead is present above industrial soil reference values (SRVs) and DRO concentrations above unregulated fill levels. An institutional control in the form of an affidavit has been filed regarding the identified contamination.

Site Summary
West Side Flats

Site ID: 36

Site Rank: High

MPCA Site Name: MN State Bank Building

Current Use: Am Red Cross

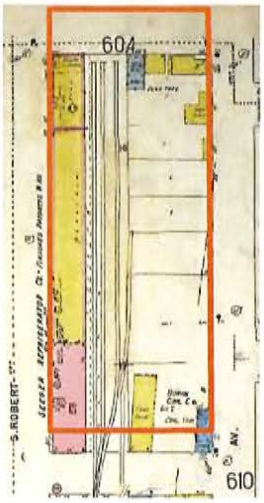
Ranking Rationale: HWG, Long term industrial use

Site Summary: Long term use of site by a freight depot/warehouse, rail spur and the presence of a scrap yard indicate the potential for soil contamination.

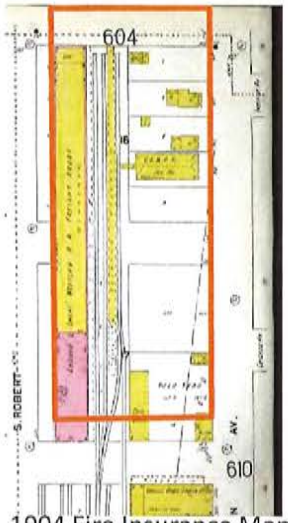
Parcel ID	Street Address	Property Owner	Property Type
052822320004	176 Robert St S	American Red Cross	Commercial

SITE IMAGES

Street View 2017, looking N



1950 Fire Insurance Map



1904 Fire Insurance Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1930s	Residential	Fire Insurance Maps, Historic Maps
1887- 1960s	Industrial, Freight warehouse, Junk yard, Coal yard	Fire Insurance Maps, Historic Maps, Aerial Photographs
1971 – Present	Office Building	Aerial photographs, WIMN

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MND006221097	MN State Bank Building	MQ HWG

Registered Tanks: None

Regulatory File Review: None

SITE ID: 36 - High

Site Summary
West Side Flats

Site ID: 37

Site Rank: Low

MPCA Site Name: RTC Inc

Current Use: Unknown

Ranking Rationale: HWG

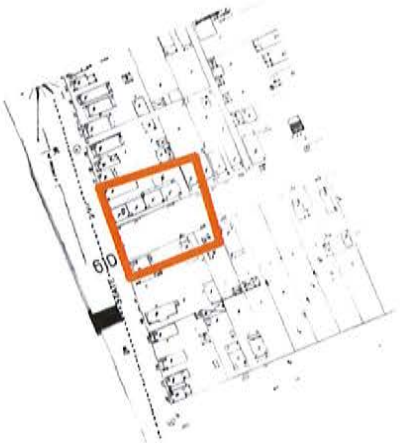
Site Summary: Long term use of site by a fright depot/warehouse, rail spur and the presence of a scrap yard indicate the potential for soil contamination.

Parcel ID	Street Address	Property Owner	Property Type
052822310025	180 State Street	Affinity Plus Fed Credit Union	Industrial

SITE IMAGES

Street View 2017, looking E

1953 Aerial Photograph



1950 Fire Insurance Map

Site Summary
West Side Flats

HISTORICAL SUMMARY		
Date Range	**Property Use**	**Source**
1887 – 1960s	Residential	Fire Insurance Maps, Historic Maps, Aerial Photographs
1960s – 1987	Vacant	Aerial Photographs
1987 – Present	Office Building	Aerial photographs, WIMN

Database Search Listings: HIG, WIMN		
Site ID	Name	Activity
MND985718030	RTC Inc	Inactive HWG

Registered Tanks: None

Regulatory File Review: None

SITE ID: 37 - Low

Appendix B

Resumes

AMERICAN ENGINEERING TESTING, INC.

Gail A. Cederberg, Ph.D.

Vice President, Environmental Services Division

Education

Fellow, Public Policy, Humphrey Institute of Public Affairs, Univeristy of Minnesota, 2008

Ph.D. Civil/Environmental Fluid Mechanics
Stanford University

M.S. Civil/ Environmental Engineering
Stanford University

B.A. Physics, Carleton College

Registrations/Certifications

40-hour OSHA-approved Hazmat training, supervisor, and annual refresher courses

RCRA Hazardous Waste Certification

Employment

American Engineering Testing, Inc.
Vice President, Environmental Services, 2016-present.
Principal, Environmental Services, 2010 – present

Environmental Consulting for the Business Community, Principal Engineer, 2008-2010

Imation Corp.
Director, Global Environmental, Health and Safety and Corporate Chief Safety Officer, 2003-2008;
Senior Remediation and Environmental Compliance Specialist, 1997-2003

GeoTrans, Inc.
Principal and Operations Manager, 1993-1997

Environ Corp.
Remediation and Engineering Manager, 1988 – 1993

Los Alamos National Laboratory
Team Lead, Hydrogeology and Modeling, 1984-1988

Professional Memberships

Midway Chamber of Commerce: ex-Board Member
Co-Chair Economic Development Committee

Environmental Initiative: Board Member, Business and Environment Committee, 2007-present; Member of the Year, 2011

Economic Development Association of Minnesota

Air & Waste Management Association

AET Responsibilities

- Project management, business development, project-related work, and senior technical review of projects.
- Clients served include commercial, industrial, manufacturing, and government sectors.
- Project experience includes comprehensive environmental, health and safety compliance & audit programs; air emissions assessments and permitting; brownfields redevelopment; due diligence for property transfers; RCRA, US EPA CERCLA/ Superfund, and state-specific remedial investigations and remedial actions; and solid and hazardous waste management.
- Development of ISO 14001 and environmental management systems and EHS auditing and training programs.
- Expert in sustainability and green initiatives.
- Experienced facilitator for environmental stakeholder groups, community groups, and business and agency interactions.

Project Experience

Central Corridor Brownfield Assessment 2011-2017

Program Manager for the City of St. Paul's Central Corridor Brownfield Assessment Project; funded by a U.S. EPA grant. Conducting environmental assessments and remediation of multiple properties that have redevelopment potential. Developed EPA-approved Quality Assurance Project Plans and Sampling and Analysis Plans. AET was awarded the first project from the City and assisted with securing $2.2 million in grant funding for property acquisition and remediation.

Energy Park 2011-2013

Program Manager for the environmental issues and assessment related to the installation of underground utilities in Energy Park for the St. Paul Port Authority. Providing overall management for Phase I and Phase II ESAs, Response Action Plan, and Response Action Implementation under the MPCA VIC Program.

Whitmoyer Superfund Site

Led the $200 million remedial design and remediation of the arsenic-contaminated Whitmoyer Superfund Site. Oversaw a multi-disciplined staff of EHS professional and remediation contractors. Responsible for EAWs, EISs, technical reports, budgets, schedules, and communications with agencies, communities, and responsible parties. Remediation included a pump-and-treat groundwater system, excavation of contaminated soils and sludges, demolition of buildings, off-site incineration, and Level-B removal of wastes from storage areas. Property returned to a city park.

Imation Corp. Property Assessments and Remediation

Managed the $6 million corporate program for groundwater, soil, RCRA, and asbestos remediation programs. Conducted Phase I and Phase II ESAs and soil and groundwater remediation for all properties, evaluated the costs and liabilities associated with the sale and purchase of businesses, and managed regulatory agencies and consultative relationships.

AMERICAN ENGINEERING TESTING, INC.

C.V.(Trey) Howard III, P.G., (MN, WI) CHMM

Senior Geologist

Education

B.S. Geology & Geophysics, University of Wisconsin, Madison, 1985

Registrations/Certifications

Licensed Professional Geologist, States of Minnesota and Wisconsin

Certified Hazardous Materials Manager No. 14311, Institute of Hazardous Materials Management

Certified Professional Geologist No. 10582, American Institute of Professional Geologists

National Radon Proficiency Program
Mitigation Provider No. 108041

40-hour OSHA HAZWOPER training, 1990;
OSHA Annual 8 hr HAZWOPER refresher courses

Employment

American Engineering Testing, Inc.
Senior Geologist, 2005 – present

Omni Environmental, Inc.
Senior Project Geologist, 1997-2005

Twin City Testing Corporation
Environmental Geologist, 1990-1997

Professional Memberships

American Institute of Professional Geologists, MN Section
Secretary/Treasurer 2004-2007
Minnesota Ground Water Association
Alliance of Hazardous Materials Professionals, North Star
Chapter Director at Large 2010-2011

AET Responsibilities

- Supervise and manage environmental projects of various phases and complexities in several different states
- Develop corrective action designs and response action plans
- Negotiate clean-up goals that are agreeable to the responsible party and the regulatory agency
- Oversee installation and permitting of remediation/ mitigation systems
- Conduct compliance testing for remediation/mitigation systems and report results to regulators
- Draft and review reports for various projects
- Prepare and review proposals; monitor project budgets
- Supervise and perform environmental field testing and monitoring

Project Experience

Sowles Properties, Eagan MN – 2012- Present

Chlorinated solvents were detected in the soil, groundwater and soil vapors at the site. The level of impacts was very high in soil gas (greater than regulatory levels for acute exposure). Mr. Howard proposed source area soil vapor extraction (SVE) and sub-slab depressurization (SSD). The MPCA approved Mr. Howard's Response Action Plan (RAP). A pilot test was performed. Mr. Howard designed the SVE and SSD remediation system per MPCA guidance and the results of the pilot test and was approved by the MPCA. Bids for the system installation were collected and reviewed by AET. Once a contractor was selected, the system installation was overseen by Mr. Howard. The system has reduced the soil vapors to acceptable levels.

Mn/DOT Asbestos and Regulated Waste Pre-Qualified List Program, Throughout Minnesota - 2009-Present

Mr. Howard obtained prequalification from Mn/DOT for AET to perform Asbestos and Regulated Waste inspections and removal oversight. These services are performed for Mn/DOT on bridges and properties/buildings owned or annexed by Mn/DOT. Mr. Howard oversees projects for the Mn/DOT Pre-Qualified List Program.

AMERICAN ENGINEERING TESTING, INC.

C.V.(Trey) Howard III, P.G., (MN, WI) CHMM

Senior Geologist

Beacon Bluff Site (3M St. Paul Campus) - 2008 to present
For the current owner of the site, Mr. Howard has been observing the previous owners remediation of soil and groundwater impacts. Also, he has been assisting with work plans, investigations, response action plans, and site remediation.

TH 52, Elk Run Interchange Design-Build Project, Pine Island and Oronoco, MN - 2010-2011
Mr. Howard was given the task of preparing the Contaminated Materials Management Plan for this Design-Build project. Part of the area of this project was previously inhabited by animals with chronic wasting disease. When alternative routes were being evaluated Mr. Howard supervised the drilling investigation to assess the feasibility of the alternative routes

Waseca Wastewater Treatment Plant, Waseca, MN - 2008-2012
The city needed to expand their WWTP but the expansion had to go over the old city dump. Mr. Howard developed a construction contingency plan to reconsolidate the old dump material within the old dump foot print. The state approved Mr. Howard's plan. This saved the city a substantial amount of money in waste disposal fees.

Metro Council Carver Interceptor Segment B, Carver, MN - 2012
Directed environmental investigation and materials management during construction along a 1.5-mile sewer corridor along an old railroad bed. Arsenic levels were above action levels. However, with the data obtained during the investigation Mr. Howard convinced the regulators that the elevated arsenic concentrations were natural, background concentrations.

AMERICAN ENGINEERING TESTING, INC.

Susan K. Mickus, P.G.

Project Geologist

Education

B.S. Geology, Bradley University, 1991

Registrations/Certifications

Licensed Professional Geologist #40846, State of Minnesota, since 2001

40-hour OSHA HAZWOPER training, 1992;
OSHA Annual 8 hour HAZWOPER refresher course

Certified Minnesota Asbestos Inspector No. AI11601, Minnesota Department of Health

Employment

American Engineering Testing, Inc.
Geologist II, 1998-2003, 2008-2009, 2012-Present

EnPro Assessment Corporation, St. Paul
Project Manager, 2006-2012, 1995;
Senior Information Specialist/Senior Field Technician, 1993-1995;
Information Specialist/Field Technician, 1992-1993

Maxim Technologies, Inc., St. Paul
Geologist/Project Manager II, 1995-1999

Bradley University, Geology Department, Peoria, IL
Teaching Assistant 1989-1991

Professional Memberships

American Institute of Professional Geologists, Secretary/Treasurer 2008-2011
Geological Society of America, member
Minnesota Ground Water Association, member

AET Responsibilities

- Conduct environmental audits and assessments
- Asbestos and hazardous material surveys
- Environmental due diligence at construction sites
- Reporting for various projects
- Prepare proposals and monitor project budgets
- Manage communications with regulatory agencies

Project Experience

3M/Beacon Bluff, St. Paul, MN 2008 to present

The 3M/Beacon Bluff an award-winning, 45-acre, brownfield redevelopment site. Ms. Mickus has performed duties as an environmental technician, and assisted in preparation of reports including; asbestos inspections/regulated waste surveys, Phase I and Phase II ESAs, and implementation reports.

West Side Flats, St. Paul, MN 2016 to present

AET is currently assisting the City of St. Paul and the Environmental Protection Agency (EPA) with redeveloping the former, industrial West Side Flats (WSF) area. Ms. Mickus is currently managing and directing environmental data collection for multiple properties within the West Side Master Plan project area and conducting a Phase I ESA on the Fillmore Site portion of the WSF.

Multi-Site Portfolios for Phase I ESA

AET recently conducted 16 Phase I ESAs for environmental due diligence to support the transfer of 16 leased truck repair facilities in Minnesota, Wisconsin and South Dakota. Ms. Mickus managed collection of environmental data, completed site visits and completed Phase I ESA reports.

Multi-Site Portfolios for Phase I ESA

AET is currently conducting Phase I ESAs for environmental due diligence to support a client in obtaining leases on a portion of 20 undeveloped properties in Minnesota. Ms. Mickus is managing the project including collection of environmental data, completing site visits, and report preparation.

Diverse Project Types and Clients

Performed environmental consulting and testing services on construction, redevelopment, commercial, industrial, residential, agricultural, drainage, and parks projects for diverse clients including state and municipal governments, developers, construction/ earthwork contractors, banks, lawyers, and private individual

APPENDIX J: BROWNFIELDS EDUCATION MATERIALS

Brownfield Cleanup : Step by Step

- The City of St. Paul is committed to the cleanup and redevelopment of brownfield sites.
- Brownfield sites are properties where future use is impacted by real or perceived contamination from historical activities.
- Brownfield redevelopment includes many stakeholders who must work together to gather information, evaluate contaminants, make a cleanup plan, and complete cleanup before the property is ready for future use.

WHO IS INVOLVED?

FEDERAL & STATE AGENCIES: Environmental Oversight & Funding

LOCAL GOVERNMENT: Planning/Zoning & Development Review

DISTRICT COUNCILS: Platform for Citizens to Discuss Land-Use Issues

ENVIRONMENTAL CONSULTANT: Conducts Assessments, Testing, & Cleanup

PROPERTY OWNER: Initiates Environmental Review & Redevelopment

CITIZENS: Provide Input to Planning & Site Development

HOW DOES IT HAPPEN?

Step 1

Environmental Site Assessment

- ✓ Phase I: Review of site history and records to determine if contamination is present.
- ✓ Phase II: If contamination is present, site testing is conducted evaluate contamination levels and potential risks.
- ✓ Results of Phase I & II influence creation of a cleanup plan.

Step 2

Response Action Plan & Cleanup

- ✓ Response Action Plans outline steps to safely clean the site.
- ✓ The intended use of the land drives the cleanup process. There are different standards for commercial/industrial versus recreational/residential.
- ✓ Minnesota Pollution Control Agency approves and monitors plan.

Step 3

Redevelopment

- ✓ When the cleanup process is complete, the site owner can move forward with redevelopment.
- ✓ Site redevelopment plans involve the City and community input.

Learn More: www.stpaul.gov/brownfields | www.mnbrownfields.org