Tumwater Historic Brewery Site Study

12 June 2015

City of Tumwater
Tumwater City Hall
555 Israel Road SW
Tumwater WA 98501

1326 5th Avenue #440
Seattle WA 98101
206 624-2365

TABLE OF CONTENTS

Summary	3
Historic Brewery Tower	7
Seismic Improvements Structural Narrative	11
Seismic Retrofit Plan	19
Historic Brewery Site	23
Site Plan	27
Site Improvement Diagram	29
Utility Site Plan	35
Appendix - Conceptual Cost Plan	

SUMMARY

The City of Tumwater wants to create exciting and vital new projects on the south shore of Capitol Lake at the site of the Historic Olympia Brewery. The development sites on the north side of Custer way combine natural beauty, complex history, industrial heritage, 19th and 20th Century transportation, many cultures, and challenging topography. The resources are many, and the development challenges are just as plentiful.

Much of the historic property is owned by private land owners or the Olympia Tumwater Foundation. The City's plan is to use its municipal leadership role to provide development support. There are two distinct paths for providing this support. One is to create a Tumwater Craft Brewing & Distilling Center that would be a regional teaching and research facility to provide workforce training and support for the expanding craft brewing & distilling field. Two is to consider public projects that would enhance development of the Capitol Lake site such as renovating the Historic Brewery Tower, extending the existing pedestrian trail system, building pedestrian boardwalk access along Capitol Lake, constructing a pedestrian bridge across the Deschutes River, and constructing a parking structure.

Cardinal Architecture and Spinnaker Strategies were selected to evaluate paths for supporting development at the site of the Historic Olympia Brewery. This study specifically addresses the enhancement of the Capitol lake site including the Historic Brewery Tower and site access projects. The study will address the context of each project, and will support project analysis with drawings and cost planning.

PURPOSE OF THE STUDY & BRIEF SITE HISTORY

Tumwater's Olympia Brewing site includes the historic buildings down on Capitol Lake, the Schmidt House and multiple buildings just north of Custer Way, and the more contemporary brewery and warehouse buildings south of Custer Way. The focus of our work will be the historic areas north of Custer Way. This location is challenging for many reasons including dual land ownership, steep topography, and limited access. The location's cultural history, industrial legacy and natural beauty, however, make this a very compelling development site, and the success of the Tumwater Craft Brewing and Distilling Center and the success of the site's development will depend on this strong, historical and meaningful sense of place.

The Historic Brewery Tower on the shore of Capitol Lake and along the Deschutes River the icon for the City of Tumwater. Constructed in 1905 on the same bedrock that formed the Tumwater Falls, the concrete, stone, brick and steel building stands like a billboard for the historic brewing industry. The

square tower with the gabled roof is literally rebuilt in many of Tumwater's contemporary buildings. The building still stands, but it desperately needs a new roof and additional maintenance to preserve it for future generations. A new contemporary use for the tower would also help ensure that it will be maintained and preserved. The design team reviewed and analyzed the building, proposed a structural plan for addressing seismic and other concerns, and proposes potential uses.

Each of the potential public access enhancement projects will be an important improvement for the historic brewery site. As a whole project, the enhancements will provide access to the site for visitors on foot, on a bike, or in a car. Access is essential to any successful development on this site. To create site access, the design team developed designs and costs for extending the existing pedestrian trail system, building pedestrian boardwalk access along Capitol Lake, constructing a pedestrian bridge across the Deschutes River, and constructing a parking structure. Understanding the scope and cost of these essential access projects will guide public investment and development on the site regardless of what is planned. The study was funded by the State of Washington Community Economic Revitalization Board.

PROJECT TEAM

The Project Team included:

John Doan, City of Tumwater City Administrator

Heidi Behrends Cerniwey, City of Tumwater Assistant City Administrator

Tim Smith, City of Tumwater Planning Manager

Chuck Denney, City of Tumwater Parks & Recreation Director

Jay Eaton, City of Tumwater Public Works Director

Michael Matthias, Consultant

George Heidgerken & Jon Potter, Falls Development

The Design Team included:

Jim Cary, Cardinal Architecture PC

Rod Stevens, Spinnaker Strategies

John Howell, Cedar River Group

Trish Drew, Drew Collaborative Group, Cost Analysis

Dan Morrow, Swenson Say Faget, Structural Engineer

Jennifer Kiusalaas, JKLA Landscape Architecture

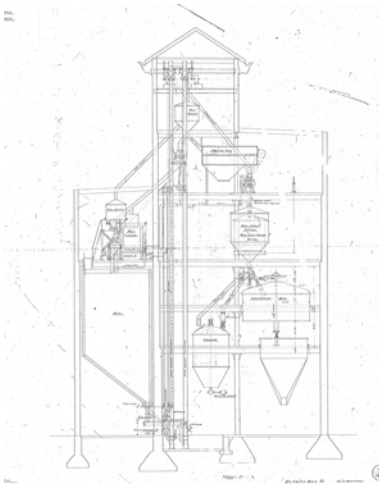
Marc Errichetti, Sitewise Design, Civil Engineer

Mary Thompson, Artifacts, Historic Consultant

PROJECT PROCESS

The process for this study included research of site records, previous reports and studies, and individual and team site visits. The team also discussed the project with City of Tumwater staff, property owners, and designers from earlier reports and studies. The team prepared a structural plan for the Historic Brewery Tower and a new site plan for the historic brewery site. From these documents, a potential cost plan was developed for each site enhancement. The projects would be built mostly on property that is not owned by the City of Tumwater, however the projects are described as if the land ownership issues were resolved in a mutually beneficial way.

HISTORIC BREWERY TOWER



The Historic Brewery Tower was constructed in 1905 out of concrete, brick, stone, steel and wood. The exterior features Italianate Style details in stone & brick, and a wood roof covered in copper. The building is approximately 53' x 64' at its base, is six stories tall, and is about 12,000 square feet total. The building is tall and relatively skinny, as it was designed to take advantage of gravity brewing where the grains and liquids were lifted to the top of the tower and moved down through the building in each stage of production. After the brewing process was complete, the unfermented beer was moved to an adjacent building for fermentation and packaging. The Olympia Brewing Company brewed beer in this facility until 1915, the year the State of Washington began prohibition.

The building has been used little since 1915, and the structure is in remarkably good shape considering its 100 years of deferred maintenance. Virtually all of the brewing equipment has been removed from the building. The single interior stair was built of cast iron, and it is no longer a dependable safe passage. Exterior windows are missing and the building is open to weather. Most importantly, the roof is no longer functional or it is missing altogether. In order to preserve the building, the roof should be repaired as soon as possible, and the exterior envelope should be repaired.

In 2011, Chrisanne Beckner prepared a Historic Structures Report (HSR) for the Historic Brewery Tower. The HSR documented the history of the tower, and provided a guide for understanding and preserving the tower's architectural components. Most of the recommendations were to restore existing architectural components, and to replace missing components with new to match. The building is in relatively good shape considering its age, its unoccupied state, and its wet location.

The Historic Brewery Tower is constructed of a concrete foundation, unreinforced masonry, steel and concrete composite floors, & wood-framed roofs. Original construction drawings show the building constructed on spread footings, and some drawings also

show a field of piles to support the structure. Anecdotal evidence and the relatively stable condition of the 100-year-old Historic Brewery Tower suggest that the structure is built upon the same bedrock that created the adjacent Tumwater Falls. The existing unreinforced masonry walls are in acceptable condition on the lower floors, but the upper walls show a great deal of mortar deterioration and missing bricks, especially at the cornice. The existing tower floors are constructed of composite steel and concrete, and are in acceptable condition except where brewing equipment has been removed. The existing roof structure is in poor condition, where it still stands, and much of the roof is missing or damaged. The roof condition poses the largest immediate concern for the longevity of the tower, and should be repaired as soon as possible.

The attached structural repair plan by Swenson Say Faget outlines a method for reinforcing the unreinforced masonry structure. They suggest an interior steel frame with new steel at floors and cross members between floors. The new frame would be secured to the masonry walls to ensure that the tower stands and masonry stays put during a seismic event. The structural repair would be installed in conjunction with a new roof structure, new roofing & gutters/ downspouts, comprehensive masonry and mortar repair, and restored and new exterior windows & doors. This is the minimal work required to preserve the structure for future generations.

Design work on the tower will be reviewed by your local Historic Preservation Commission and potentially by the State of Washington Department of Archaeology and Historic Preservation. The existing Historic Structures Report will be the guide and benchmark for design and review. If state funds, such as Heritage Capital Grants, are used, then the State of Washingotn DAHP office will review the proposed work. If federal funds or incentives are used, such as Federal Investment Tax Credits, federal review will be required as well. Section 106 Review of the National Historic Preservation Act is the typical path for federal review.

When the tower structure is preserved, the next step will be to find a new use for the tower, and these two steps should likely happen together. One of the common views of historic building preservation is that an historic building in use is typically maintained and preserved. The Historic Tower Building presents a few challenges for reuse, and the main challenge is that it is a tall, skinny building with small floor plates and

little existing vertical circulation. Floors 1 through 4 have potential usable floor areas of approximately 2,500 SF each, of which approximately 550 square feet would be required to accommodate two egress stairs and an elevator. Floors 5 and 6 are even smaller, and floor 6 would consist almost entirely of egress access. Because of this restricting condition, there are a few potential uses that may be possible and even very successful.

One option is to use the Historic Brewery Tower as a local history and natural history museum with a vertical layout. The exterior would be restored, and the interior updated with floors, stairs, and an elevator. The museum floors would contain displays of ascending history of the site from pre-human natural history, early-human settlement, early land settlement, through Tumwater history. The museum experience would finish with a territorial view from the top of the old brewery.

Another option would be to use the Historic Brewery Tower as an observation tower only. There are several local, national, and international examples of ascending a structural landmark to capture a territorial view of the landscape. Examples include The Volunteer Park Water Tower in Seattle, WA; the Scargo Observation Tower in Dennis Village, MA; The Chickatawbut Observation Tower in Quincy, MA; the Stature of Liberty in New York, NY, and even the 8-story Tower of Pisa in Pisa, Italy.

A third option would be to reuse the Historic Brewery Tower as a functioning gravity flow brewery. The building could be used as a working demonstration for the traditional gravity brewing process, possibly as a brewing museum. Restoring the tower to this use would require substantial building upgrades beyond what would be required for basic occupancy, including additional structural upgrades to support the heavy equipment associated with this brewing process. An entirely new mechanical, plumbing, electrical and brewing infrastructure would be required. The reduced usable floor plates due to structural reinforcements would also limit the ability of the tower to support this use.

HISTORIC BREWERY TOWER CONSTRUCTION COSTS

The Historic Brewery Tower renovation will begin with a seismic project to ensure that the tower and its exterior components remain secure and safe during a seismic event. The building has been unused and vacant for almost 100 years, and the work to bring it back to a useful condition is substantial. This seismic work will include foundation improvements, steel seismic framing, new steel and concrete floor framing, and comprehensive work to tie the new construction to the existing historic construction. In addition, it will be necessary to repair or replace internal construction so that floors are complete and safe, and to provide legal access and exiting to and from each of the floors. This work will include adding or replacing floor construction and adding two fire rated exit stairs and an elevator. Finally, the exterior of the building requires a great deal of work to repair or replace the roof and roofing, repair or replace exterior masonry walls, repair or replace windows, and repair or replace historic construction details.

The comprehensive cost study included at the end of this study provides a detailed accounting of the potential work and a cost associated with each scope. The total construction cost associated with seismic and safety work is approximately $5,684,054. The building is located on property currently owned by Falls Development, and an agreement about building ownership, responsibility, use, and future use would be an initial step before proceeding with any restoration plan.

Tumwater Brewery
Historic Site Redevelopment
Brewhouse Seismic Improvements

Structural Narrative

January 13, 2015

SWENSON SAY FAGÉT
A STRUCTURAL ENGINEERING CORPORATION

2124 Third Avenue Ste. 100 Seattle, WA 206. 443. 6212 Fax 206. 443. 4870

Project Narrative

The renovation and seismic improvements to the existing historic Olympia Brewery Brewhouse is part of the Tumwater Brewery Historic site Redevelopment and Craft Brewing and Distilling Center feasibility study being undertaken by the City of Tumwater and several partner agencies and jurisdictions.

The Brewhouse is one of five buildings remaining on the historic Olympia Brewery site in Tumwater, Washington. The site was developed in the late 1800's and early 1900's by Leopold Schmidt. The buildings on the site were used to support the brewery and other functions until the brewery completely closed in 2003. Since then, the buildings have suffered from deferred maintenance, deterioration and vandalism.

The Brewhouse is considered the most historic building on the site and in 1974 was listed on the National Register of Historic places. The building is a six-story building unreinforced masonry (URM) structure constructed of Chehalis brick with Tenino Sandstone pilasters and other ornamentation. The original roof structures were wood framed and original floor structures were cast iron beam and column framing with cast-in-place concrete slabs. Over the years that the building has remained vacant and neglected, the building masonry walls have significantly deteriorated and there are extensive areas requiring repointing and brick repair. In addition, many portions of the building fenestration and ornamentation have been damaged or lost. Nearly all of the glazing in the exterior windows is gone and some portions of the wood roof have collapsed leading to extensive water infiltration in the building. The water infiltration has led to rusting and decay of the interior cast iron floor framing and supporting columns.

While there is significant building decay, much of the historical characteristics of the structure remain and it is hoped that the building could be restored for occupied or unoccupied use. An extensive historic structures report was prepared for the Brewhouse in 2011. The report detailed the current building condition and the appropriate measures to restore the historic materials of the building.

The current structural scope of work is to identify, at a schematic level, the structural repairs and seismic improvements required to bring the building to a level appropriate for occupied or unoccupied use.

Structural Design Criteria for the Seismic Renovation

On October 30, 2014 Swenson Say Faget visited the project site and made extensive observations of the existing Brewhouse structure. Field observations were compared with the available original construction drawings of the building. The building consists of unreinforced masonry walls at the perimeter, and interior where they occur, which vary in thickness from 17″

and 22" at the first floor to 13" at the fifth and sixth floors. The elevated floor structures consist of cast iron and steel beam framing with a cast-in-place concrete slab over the framing. The steel framing is supported at pockets in the perimeter and interior masonry walls and bay a line of steel girders at an interior bearing line. The steel girders are supported on round or built-up cast iron and steel columns. A cast iron and steel stair connects the floors. There is an abandoned elevator structure at the north side of the building.

Partial roof areas exist at the 5th and 6th level and the building is capped above the 6th level. These roof structures are wood framed although in the building's current condition much of the framing is missing at the fifth and sixth levels.

The foundation system for the Brewhouse consists of cast-in-place concrete foundations that are supported on wood piles.

The building's original structural system for resisting lateral loads due to earthquakes and wind consisted of wood framed diaphragms at the roof areas, steel and concrete diaphragms at the second through sixth floors, and interior and perimeter unreinforced masonry walls. As a structural system, the inertia forces generated from ground motions are transferred to the interior and perimeter masonry walls via the wood and concrete diaphragms. The forces are then transferred from the walls and foundations to the surrounding soil through passive pressure of the footings against the soil, and friction forces between foundation surfaces with the soil below.

Seismic Hazard and Past Performance

Western Washington is seismically active. Research indicates that there are three sources of strong ground motion in the Puget Sound region. The first is an interplate event off of the coast of Washington where the Juan de Fuca plate drives under (subducts) the North American plate. Earthquakes up to a Magnitude 9.0 and strong ground motion lasting several minutes are predicted from this source at intervals of approximately 500 years. The 1964 Alaska earthquake was caused by a similar mechanism. The second source is an intraplate event deep in the Juan de Fuca plate directly beneath Puget Sound. This event is thought to be capable of producing a Magnitude 7.5 earthquake with strong ground motion lasting 20 seconds once every 500 years. Our recent earthquakes, the 2001 Nisqually Earthquake (Magnitude 6.8), the 1965 SeaTac Earthquake (Magnitude 6.5), and the 1949 Olympia Earthquake (Magnitude 7.1), are examples of this type of event. The third source is a crustal event, which may occur along known or unknown fault lines. Figure 11, courtesy of the USGS "Seismic Hazards Investigation in Puget Sound" research program (http://earthquake.usgs.gov/regional/pacnw/ships/), illustrates major known crustal fault lines in the Puget Sound area. Since these shallow earthquakes are much closer to the surface, ground motions are expected to be very intense producing a Magnitude 7+ event with 20 second of strong ground motion. While the Tumwater Historic Brewhouse has survived the three major Puget Sound earthquakes of the last century without collapse this is no guarantee of future performance; the ground shaking on in these past earthquakes was comparatively light with likely ground accelerations less than 1/5th of design level ground motions.

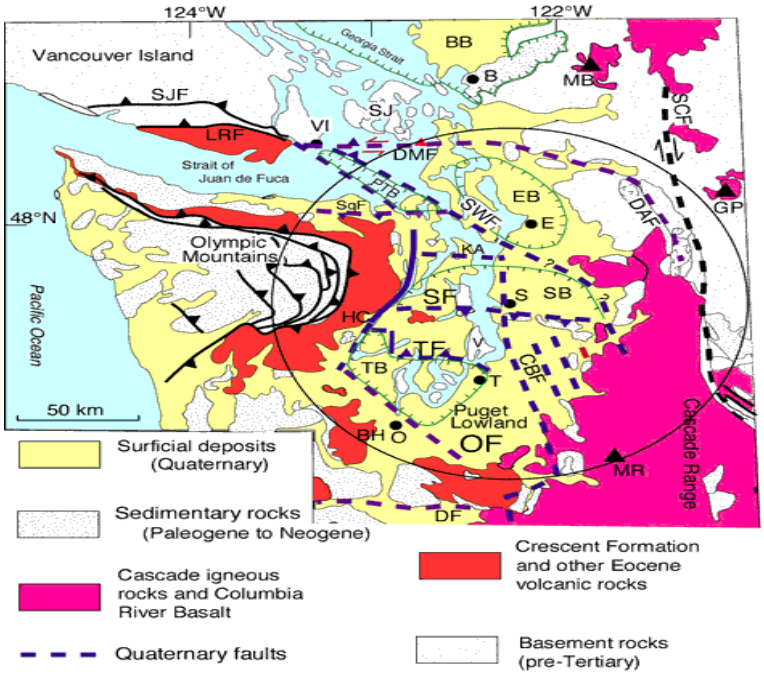


Figure 1: Earthquake Faults in Puget Sound

Performance Objective for Seismic Evaluation and Retrofit

The initial step in the performance of the seismic evaluation of the building was to define the seismic performance objective. The performance objective is described in terms of a post-earthquake damage control state for a particular earthquake. The damage control states range from collapse prevention to fully operational. Collapse prevention is typically reserved for historical and limited use structures that have mitigating circumstances which prevent more comprehensive damage control measures. The post-earthquake damage state is such that the building is on the verge of partial or total collapse with extensive damage to non-structural components. Fully operational is typically reserved for critical facilities that must remain functional after an earthquake including emergency response centers, hospital emergency rooms and fire and police stations. A fully operational damage control state requires that structural components remain undamaged and that non-structural components remain fully functional with negligible damage. For most new and existing buildings, the performance objective is life-safety, an intermediate level between collapse prevention and fully operational. The expected post-earthquake condition of a building meeting the Life-Safety level of performance can be described as follows:

> "Post-earthquake damage state in which significant damage to the structure has occurred, but some margin against either partial or total structural collapse remains. Some structural elements and components are severely damaged, but this has not resulted in large falling debris hazards, either within or outside the building. Injuries may occur during the earthquake; however, it is expected that the overall risk of life-threatening injury as a result of structural damage is low. It should be possible to repair the structure; however for economic reasons this may not be practical. While the damaged structure is not an imminent collapse risk, it would be prudent to implement structural repairs or install temporary bracing prior to re-occupancy."

For the historic Brewhouse building, the goal of this study was to determine what seismic remediation measures would be required for the building for unoccupied and occupied conditions. Because the unoccupied condition may likely be such that the building is not fully occupied but still open for touring, this condition is similar to that of the occupied condition in that the primary performance objective would be that of life safety for occupants. Therefore, the approach taken for evaluating the building and developing the recommended seismic improvement are based on the Life-Safety level of performance.

Seismic Evaluation Methodology

As part of our review of the Brewhouse structure, Swenson Say Faget utilized ASCE 41-13, *Seismic Evaluation and Retrofit of Existing Buildings*. ASCE 41-13 is the current national standard for building seismic evaluation and retrofit. The masonry provisions contained in ASCE 41-13 cover many aspects of existing masonry buildings including visual condition assessment, properties of in-place materials and components, materials testing and assessment, and masonry wall behavior.

For the purposes of our evaluation, we made assumptions concerning the properties of the existing masonry based on our field observations and we made the assumption that, during the building restoration process, the masonry walls would be restored through the replacement of damaged brick and through repointing of masonry mortar joints. Using these basic assumptions concerning the masonry conditions, we evaluated the masonry walls for adequacy to support vertical loads and to resist current building code-level seismic forces.

Existing masonry walls were evaluated for different modes of behavior based on the physical aspect ratios of height vs. in-plane width and height vs. out-of-plane thickness. The height vs. in-plane width ratio helps determine if the wall will act like a pier in which the predominant mode of failure under lateral loads is sliding failure along mortar joint or if the wall will act like a column with the predominant mode of failure being a rocking, or overturning failure of the wall. Walls that have greater length compared to height have a greater capacity to resist in-plane lateral loads whereas tall, shorter segments of wall offer lesser resistance and are more easily damaged during earthquake ground motions. Existence of floor and roof diaphragms supported on walls also influences wall behavior due to added vertical load on the wall which can tend to help make the wall act more like a pier with greater resistance to lateral loads.

The wall height vs. out-of-plane thickness ratio helps determine if the wall will be stable under seismic out-of-plane wall forces. Walls with high height-to-thickness ratios are more unstable and are prone to out-of-plane failure during earthquake ground motions. Out of plane wall failure can result in loss of support for floor and roof structure.

Summary of Findings and Building Retrofit Recommendations

Following is a summary of findings and retrofit recommendations based on our ASCE 41-13 evaluation of the Brewhouse building. Please see the schematic seismic retrofit plan and building elevations at the end of this report for a more detailed description of the recommended retrofit measures. Implied but not explicitly described or detailed is the need for restoration of the existing masonry walls including replacement of damaged or missing brick and repair and repointing of the masonry mortar joints. This work should be completed in conjunction with the recommended work outlined below.

- Portions of the building masonry wall structure have adequate strength to resist earthquake in-plane lateral load while other portions will require strengthening to resist lateral loads. Strengthening of existing walls can take the form of installation of steel braced frames or through the installation of a reinforced concrete facing to the wall. Steel braced frames would be installed on the interior of the building adjacent to the wall and portions of the steel framing would be bolted to the existing wall to deliver the wall lateral loads to the braced frames. For walls requiring a concrete facing, the concrete would be placed directly over the existing masonry at the interior of the wall. Steel reinforcing bar dowels would be drilled and epoxied into the masonry to anchor the wall to the reinforced concrete facing.

- Missing or damaged roof and floor diaphragms must be repairing in order for the existing masonry walls to have adequate wall out-of-plane bracing in these areas. In some areas of the building, we recommend infilling openings in existing floor diaphragms or adding floor diaphragm structure to limit the height of unsupported walls and reduce the potential for wall out-of-plane failure.

- Connections of existing framing to supporting masonry walls should be investigated further and existing connections strengthened where required. We observed that steel floor beams are pocketed into the supporting masonry walls but it is unclear how the members are anchored to the wall. Similarly, we observed wood roof beams pocketed into existing masonry walls. Some wood beams have steel strap ties with simple nail attachment to the wood beam and unknow attachment to the masonry. Under wall out-of-plane movement, beams that are not adequately anchored to the wall could pull free of the wall resulting in partial or total roof or floor collapse. Retrofit measures to strengthen beam anchorage could take the form of steel straps or angles that are bolted or welded to existing wood or steel members and epoxy-bolted to the masonry wall.

- The Brewhouse building is constructed on wood piles due to the presence of compressible or liquefiable soils beneath the building. Liquefiable soils are soils that are fully or partially saturated and that can lose strength under applied stress such as earthquake ground shaking. We believe that the soils under the building offer inadequate strength to transfer the building horizontal seismic forces at the foundation level. Further, we believe that the existing wood piles do not have adequate strength to resist both the vertical and horizontal foundation seismic forces. We recommend installing drilled micropiles at the foundation perimeter to mitigate the foundation deficiencies. Micropiles are small diameter drilled shafts with a central high strength reinforcing bar. The micropiles would be drilled to a depth sufficient to engage competent soils that are neither compressible nor liquefiable. A combination of straight and batter piles would be installed to resist the vertical and lateral seismic forces.

- Existing cast iron and steel framing, including beams and columns, shows signs of significant rust and deterioration. We recommend that the framing be thoroughly cleaned so that an evaluation of the extent of deterioration can be made. Existing members that have significant deterioration and loss of section may need to be strengthened or replaced. Other members with less deterioration should be thoroughly cleaned and treated with a rust converting coating to halt further deterioration.

Limitations

This study represents our opinions based on our site observations and a limited seismic evaluations using ASCE 41-13. Material properties have been assumed based on the original construction documents, our observations, and our experience with similar buildings. No testing of existing material has been performed. Our scope of work was limited to a seismic evaluation of the primary lateral force resisting system. No investigation of the vertical (gravity) load carrying capability of existing structure was undertaken other than to make visual observations of the condition of those elements.

We evaluated the building for the Life-Safety Performance Objective as defined by the *Seismic Evaluation and Retrofit of Existing Buildings* (ASCE 41-13). The Life-Safety level of performance is the standard performance objective for seismic retrofit of occupied, non-essential, buildings. It is also an appropriated level of performance for buildings that may not be occupied full time but will have visitors or occupants periodically. It is important to note that even when a building meets this objective, a design level earthquake may still cause injuries, and may still cause severe damaged to some or all of a building's structural elements. It is possible that the damage may be economically impractical to repair.

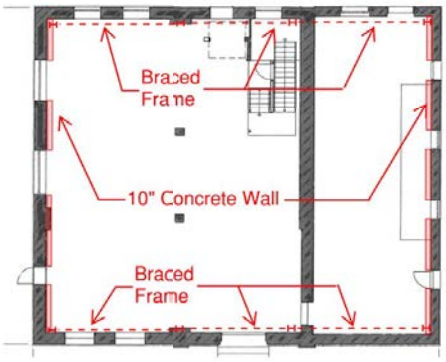
This report is intended for the sole use of Cardinal Architecture, PC and their Clients and consultants. The scope of services performed in the execution on this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or the findings and recommendations presented herein is at the sole risk of the said user.

This evaluation does not represent a warranty or guarantee on the part of Swenson Say Fagét, Inc. that other problems do not exist. Swenson Say Fagét's professional services are performed using the degree of skill and care ordinarily exercised under similar circumstances by reputable structural engineers practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional opinions included in this report.

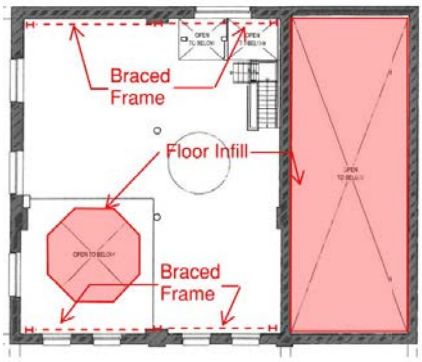
SWENSON SAY FAGÉT
A STRUCTURAL ENGINEERING CORPORATION
Seattle: 2124 Third Avenue · Suite 100 · Seattle · WA 98121
Tel: 206·443·6212 Fax: 206·443·4870
Tacoma: 934 Broadway · Suite 100 · Tacoma · WA 98402
Tel: 253·284·9470 Fax: 253·284·9471

Tumwater Brewery
Seismic Retrofit Plan

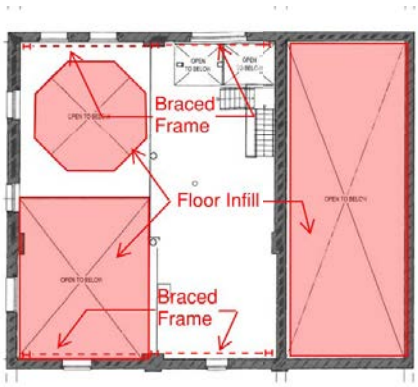
11/14/2014



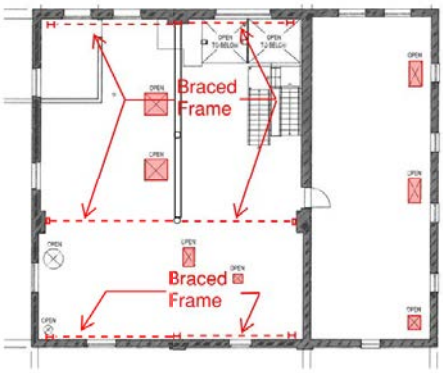
1st Floor



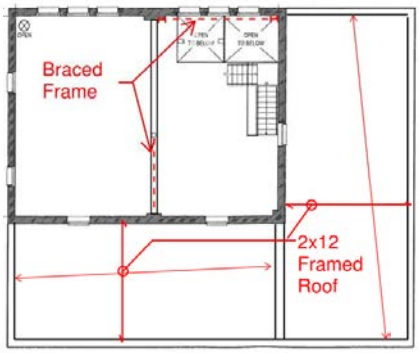
2nd Floor



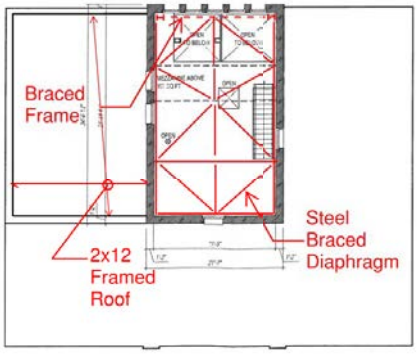
3rd Floor



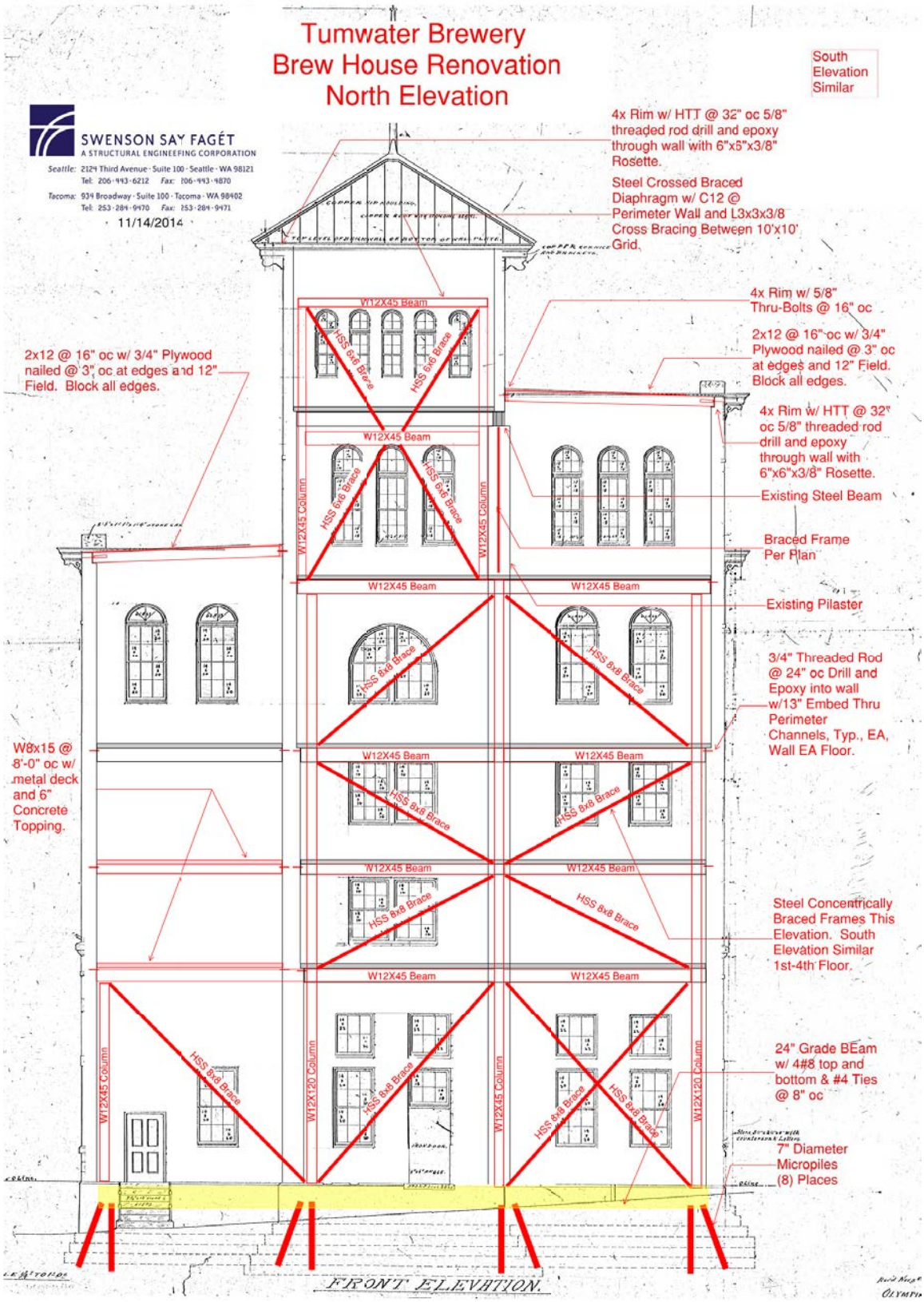
4th Floor

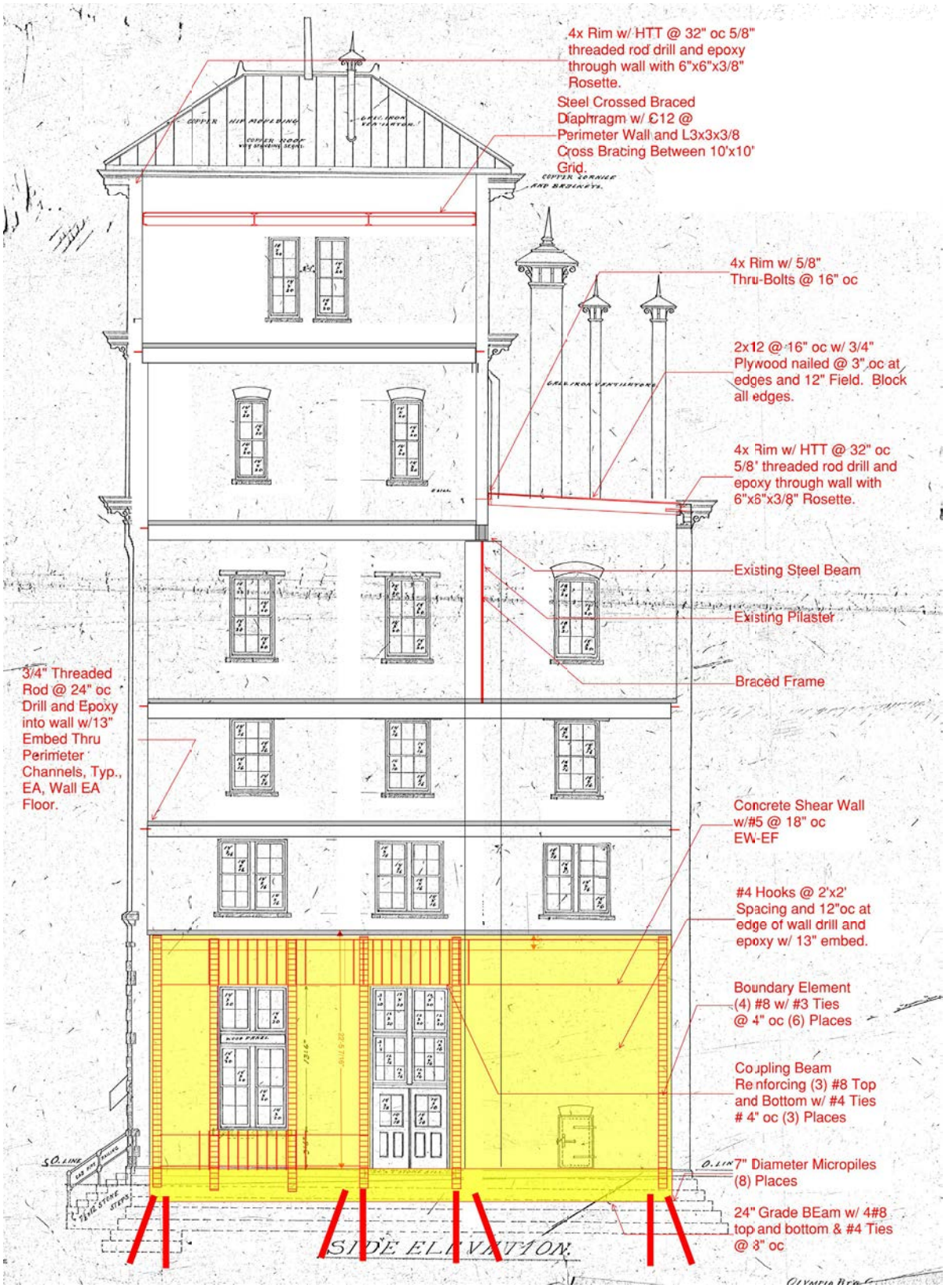


5th Floor



6th Floor


Tumwater Brewery
Brew House Renovation
North Elevation
South Elevation Similar
SWENSON SAY FAGÉT
A STRUCTURAL ENGINEERING CORPORATION
Seattle: 2124 Third Avenue · Suite 100 · Seattle · WA 98121
Tel: 206·443·6212 Fax: 206·443·4870
Tacoma: 934 Broadway · Suite 100 · Tacoma · WA 98402
Tel: 253·284·9470 Fax: 253·284·9471
11/14/2014
4x Rim w/ HTT @ 32" oc 5/8" threaded rod drill and epoxy through wall with 6"x5"x3/8" Rosette.
Steel Crossed Braced Diaphragm w/ C12 @ Perimeter Wall and L3x3x3/8 Cross Bracing Between 10'x10' Grid.
4x Rim w/ 5/8" Thru-Bolts @ 16" oc
2x12 @ 16" oc w/ 3/4" Plywood nailed @ 3" oc at edges and 12" Field. Block all edges.
2x12 @ 16" oc w/ 3/4" Plywood nailed @ 3" oc at edges and 12" Field. Block all edges.
4x Rim w/ HTT @ 32" oc 5/8" threaded rod drill and epoxy through wall with 6"x6"x3/8" Rosette.
Existing Steel Beam
Braced Frame Per Plan
Existing Pilaster
3/4" Threaded Rod @ 24" oc Drill and Epoxy into wall w/13" Embed Thru Perimeter Channels, Typ., EA, Wall EA Floor.
W8x15 @ 8'-0" oc w/ metal deck and 6" Concrete Topping.
Steel Concentrically Braced Frames This Elevation. South Elevation Similar 1st-4th Floor.
24" Grade BEam w/ 4#8 top and bottom & #4 Ties @ 8" oc
7" Diameter Micropiles (8) Places
W12X45 Beam
HSS 8x8 Brace
W12X45 Column
W12X120 Column
FRONT ELEVATION.


4x Rim w/ HTT @ 32" oc 5/8" threaded rod drill and epoxy through wall with 6"x6"x3/8" Rosette.
Steel Crossed Braced Diaphragm w/ £12 @ Perimeter Wall and L3x3x3/8 Cross Bracing Between 10'x10' Grid.
4x Rim w/ 5/8" Thru-Bolts @ 16" oc
2x12 @ 16" oc w/ 3/4" Plywood nailed @ 3" oc at edges and 12" Field. Block all edges.
4x Rim w/ HTT @ 32" oc 5/8" threaded rod drill and epoxy through wall with 6"x6"x3/8" Rosette.
Existing Steel Beam
Existing Pilaster
Braced Frame
3/4" Threaded Rod @ 24" oc Drill and Epoxy into wall w/13" Embed Thru Perimeter Channels, Typ., EA, Wall EA Floor.
Concrete Shear Wall w/#5 @ 18" oc EW-EF
#4 Hooks @ 2'x2' Spacing and 12"oc at edge of wall drill and epoxy w/ 13" embed.
Boundary Element (4) #8 w/ #3 Ties @ 4" oc (6) Places
Coupling Beam Reinforcing (3) #8 Top and Bottom w/ #4 Ties # 4" oc (3) Places
7" Diameter Micropiles (8) Places
24" Grade BEam w/ 4#8 top and bottom & #4 Ties @ 8" oc
SIDE ELEVATION

HISTORIC BREWERY SITE

The historic brewery site on the shore of Capitol Lake and along the base of the falls of the Deschutes River is the actual south end of Puget Sound. The location has deep cultural history, industrial legacy, and natural beauty; and this strong sense of place is why the location holds so much potential for community enhancements and development.

The specific site that this study covers is the land north of Custer Way, west of the railroad tracks, east of the Deschutes River, and up to Interstate 5. Currently the site has several owners with the majority owned by Falls Development. In addition, the Olympia-Tumwater Foundation owns portions of the site. For this study, the City of Tumwater wanted to know more about the types of City of Tumwater investments that might help with the enhancement and development of the site. Specifically, the study provides a direction and cost for a new access road, new utility access, additional walking trails, a new boardwalk in wetland areas, a new pedestrian bridge across the Deschutes River to connect the site to the City of Tumwater Park on the west shore to the historic brewery site, and adding a parking garage to support new development.

Because of the location of the site on the Deschutes River, most design work and construction will require preliminary review through an Environmental Impact Study. The study will predict the positive or negative impact of potential projects on the existing site. The City of Tumwater has begun this study with the support of the land owners, and they study is reviewing several project scopes from basic site access projects through development of the existing historic buildings and the addition of residential multi-family housing and a parking garage. In addition to environmental review, most design work and construction will require historic landmark review.

All of the proposed new construction for this study is shown on the attached site plan, and additional information is included on civil engineering drawing from Sitewise Design, and landscape architecture drawings from JKLA. We limited the scope of work to that described above, and are not including the additional historic structures adjacent to the Historic Brewery Tower or additional structures that could be proposed for the site.

ACCESS ROAD & UTILITIES

The proposed new access road would essentially follow the existing access road, and would be a new 22' wide, 2- lane asphalt concrete road. To create the wider road, the road would cut into the existing hill and be supported with new retaining walls. In addition, for the upper road, a walking path would be added to the road width to provide pedestrian access from Custer Way down to the site. The path would switch to the west side of the road, where it would meet with existing trails along the river. The road would wind down the slope to the historic buildings then turn east to wrap around the buildings and would end at a turn-around on the north side of the historic structures.

In addition to the construction of the access road, the study recommends including new wet utility systems below the new roadbed. Storm water control would be required for the road construction, and new water and sewer would be required for any new proposed development at the historic site.

WALKING TRAILS & BOARDWALK

Existing walking trails on the east side of the Deschutes River currently stop short of the historic brewery site and cross the river at a bridge just above the lower falls. This study shows an extension of the existing trails to connect with new trails and a boardwalk at the historic brewery site. In addition, the trails would extend up to new walking paths adjacent to the new Access road. At the Historic Brewery Site, the trails would change to boardwalks to lift the walkway above wetlands.

PEDESTRIAN BRIDGE

The brewery site was historically connected to the west shore by a low, wooden trestle bridge as early as 1910. The bridge was eventually removed by storm flooding during the mid-1970s. There is still a desire to connect the two sides of the river to complete trail loops and to build more access to the historic brewery site. At roughly the location of the historic trestle bridge, this study proposes building a new pedestrian and bicycle bridge from the base of the Historic Brewery Tower to the west shore and City of Tumwater Historical Park. This would connect any new development to the Henderson House and Crosby house and parking on the west shore. The bridge would likely be a steel framed bridge with an asphalt concrete deck surface.

Design work and construction would be reviewed by the Army Corps of Engineers, and would also be reviewed by landmarks due to its proximity to historic structures on either side of the river.

PARKING GARAGE

In addition to the access and utility projects, the City of Tumwater wanted this study to review the construction of a parking garage on the south side of the historic buildings. The site plan shows a location for a multi-story parking garage, and the study also provides cost analysis for parking garages.

One of the proposed development projects that we reviewed in our research included a multi-level parking garage that captured the 120 foot grade change from the Schmidt House above down to the historic brewery site. The intention is to drive off of the side of the hill at grade to the top of the parking garage, and use the parking garage to descend down to the historic brewery site. In this scheme, the access road would be improved only to provide public safety access.

Instead, this study recommends building the new access road to provide all means of access, and to right-size the parking garage to what is needed for the potential development. The parking demands might be high, in which case a multi-level parking garage might be needed. Parking demands might be lower, in which case, the parking garage could be constructed much lower and a multi-story structure would not be needed to create site access. In addition, a right-sized parking structure could be built to follow the contours of the existing hill which would decrease construction costs dramatically.

While this study only reviewed a single use parking structure, there may be multiple-use alternatives to a single-use parking structure that may warrant consideration and future study. Including additional uses such as housing, restaurants or retail in the design of the parking structure could generate income that would help to offset the cost of the garage.

HISTORIC BREWERY SITE CONSTRUCTION COSTS

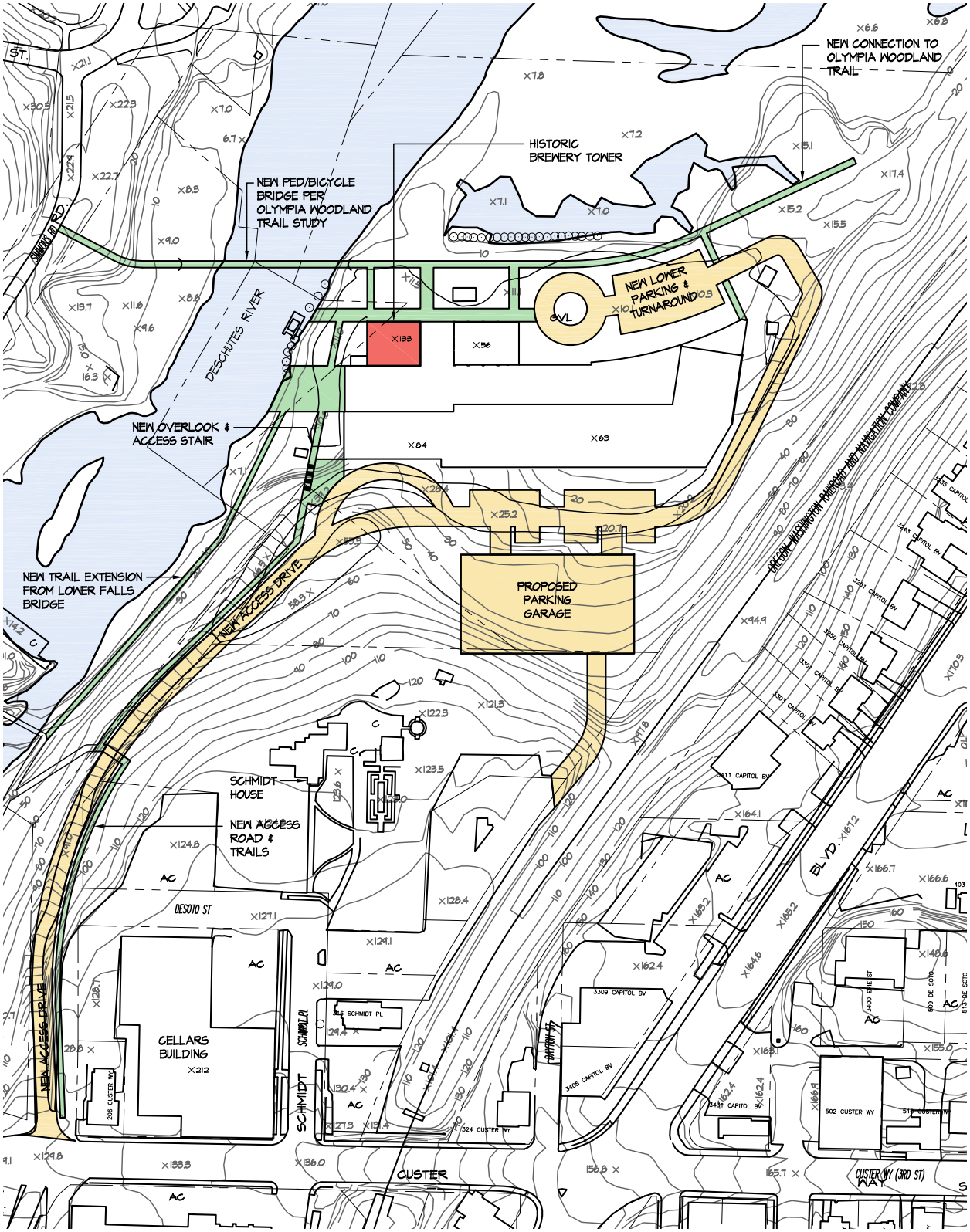
The construction costs associated with the development of the Historic Brewery Site are outlined in detail in a comprehensive cost study included at the end of this study. This study describes work that could be undertaken by the City of Tumwater or other public entities to support future development, or it could be undertaken to provide access to the historic property without development. The work is divided into several large projects, and each project is analyzed with costs for each component. This study provides a better understanding of the costs associated with the individual improvement projects.

The following is a summary of the costs for each component:

Scope	Approximate Cost
Access Road & Utilities	$11,214,081
Includes utilities & stormwater management	
Trail Extensions	$4,485,434
Pedestrian Bridge	$5,110,104
Parking Garages*	
300 Car	$11,542,310
500 Car	$19,237,184
1,000 Car	$38,476,135

*Estimates assume single-use garage only. Multiple-use alternatives exist that may generate income to offset construction costs.

For the total scope of Historic Brewery Site work, the grand total is $64,969,809. This total scope however anticipates full development of the site and the potential need to park 1,000 cars on the site. Depending on the development plan or the way that the site is developed, the scope and costs can be dramatically reduced.

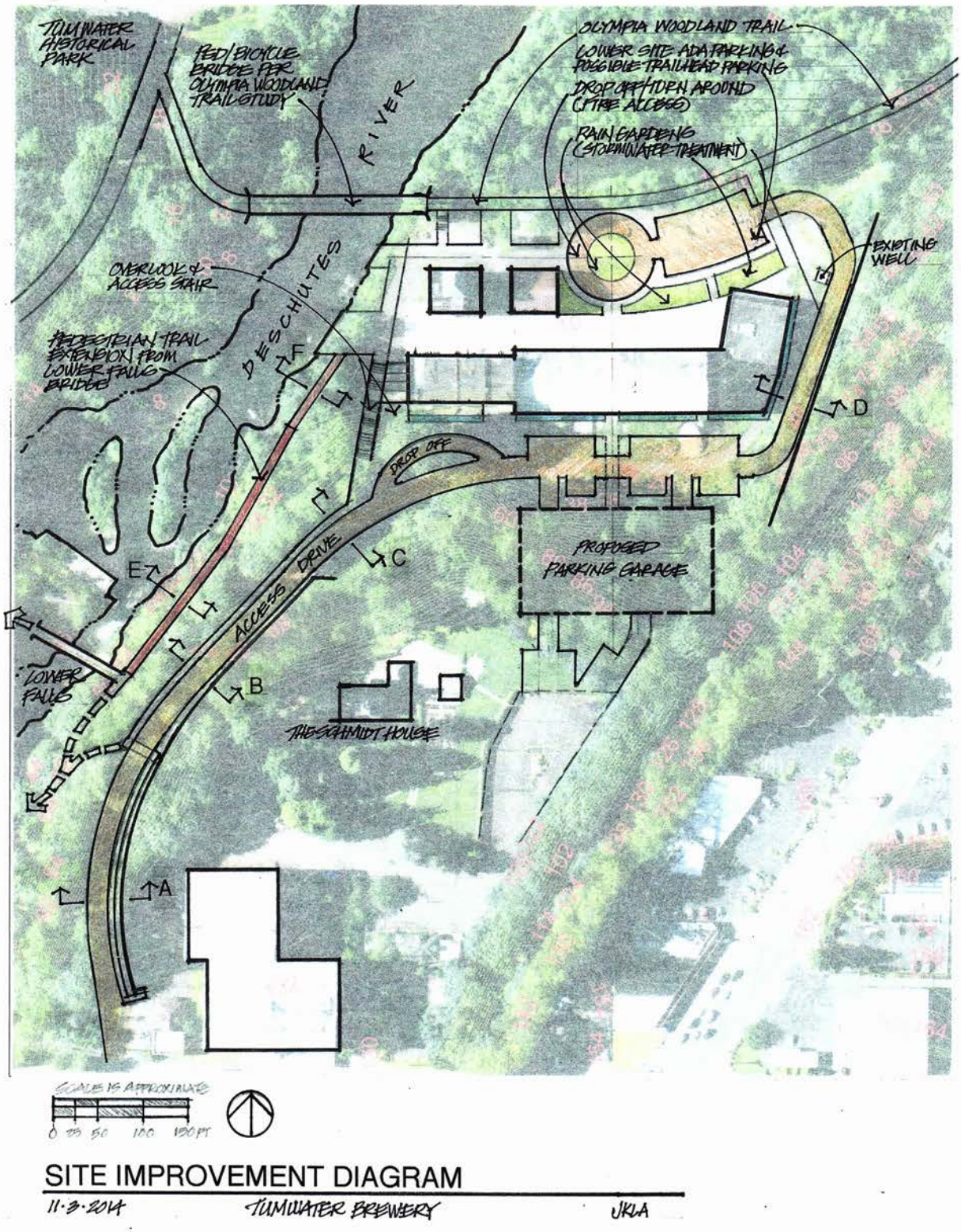


SITE PLAN 1

N

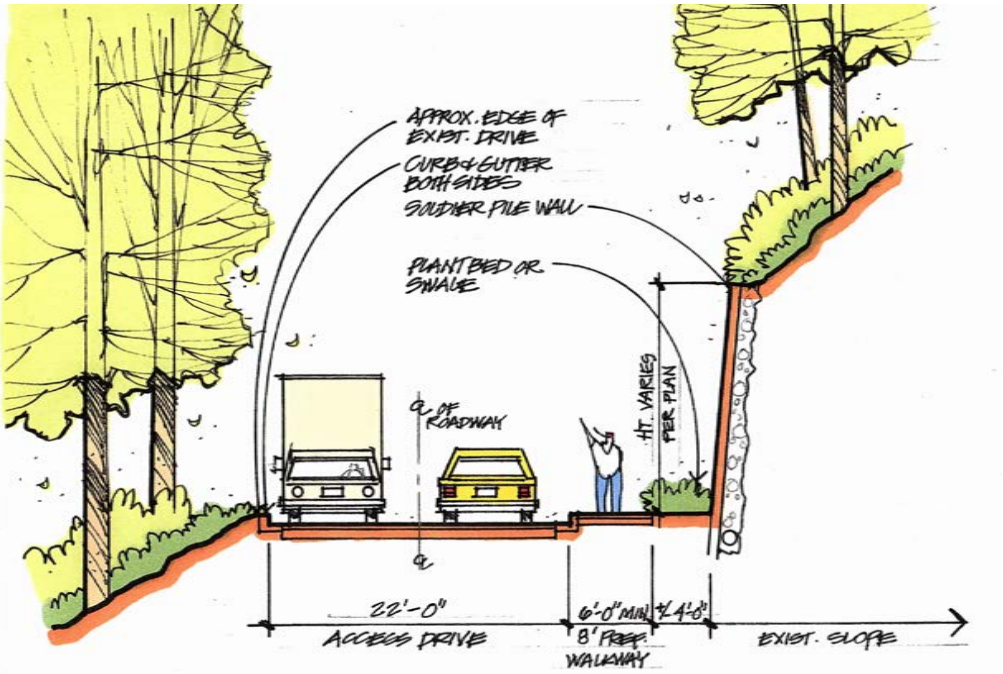
0' 50' 150' 300'

CARDINAL ARCHITECTURE PC



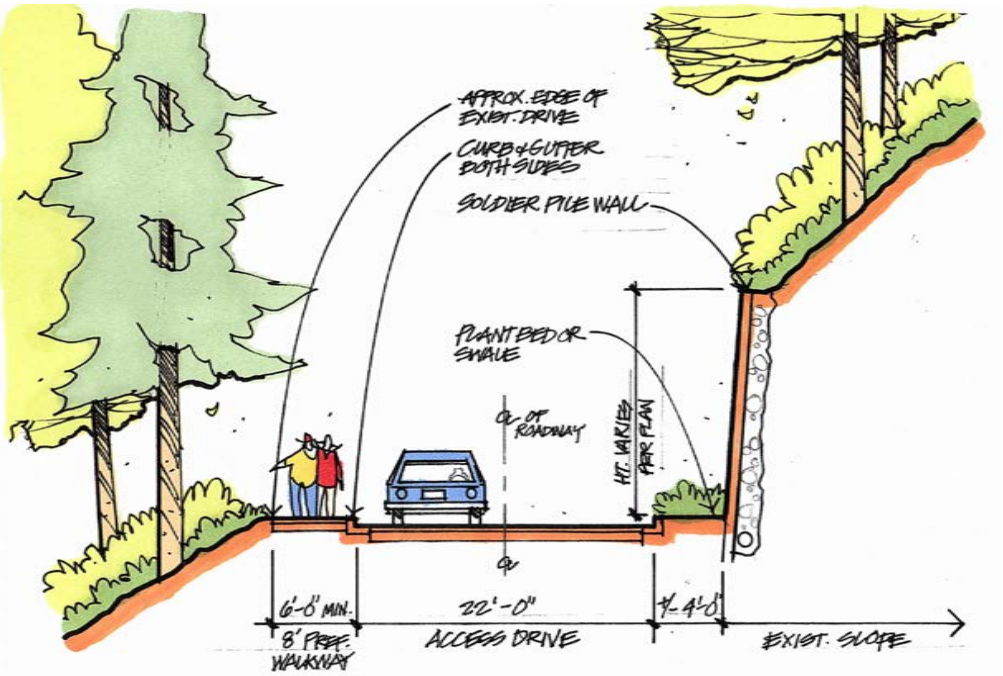
SITE IMPROVEMENT DIAGRAM

11·3·2014 TUMWATER BREWERY JKLA



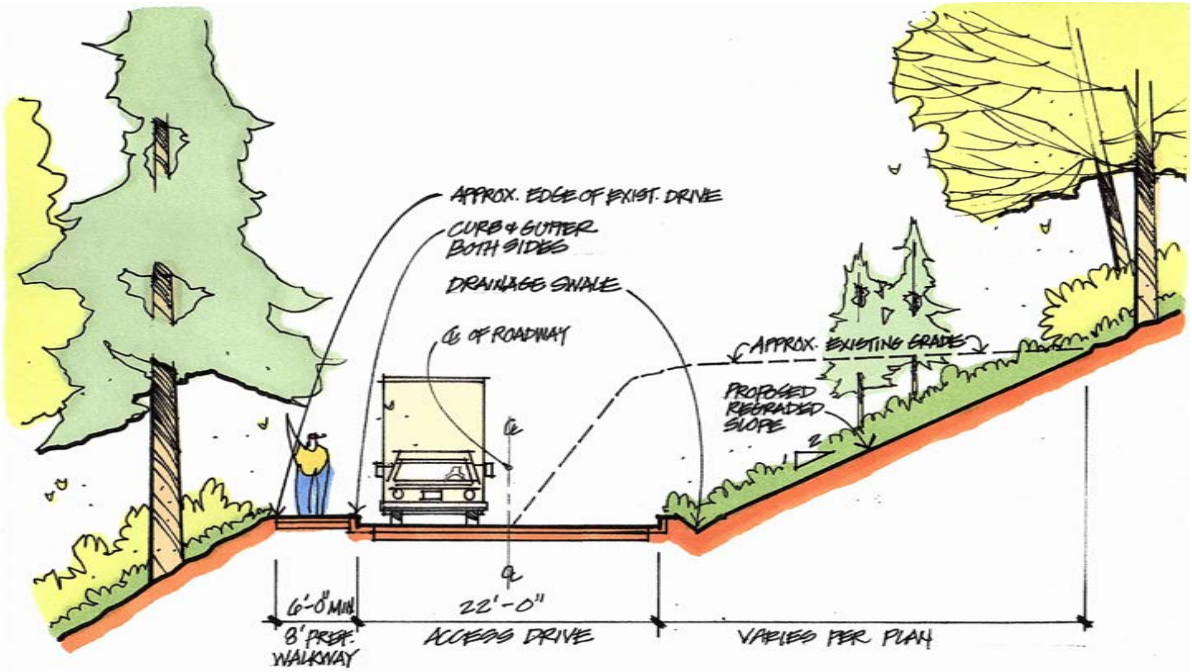
SECTION A ACCESS DRIVE

11·4·14 TUMWATER BREWERY OKLA



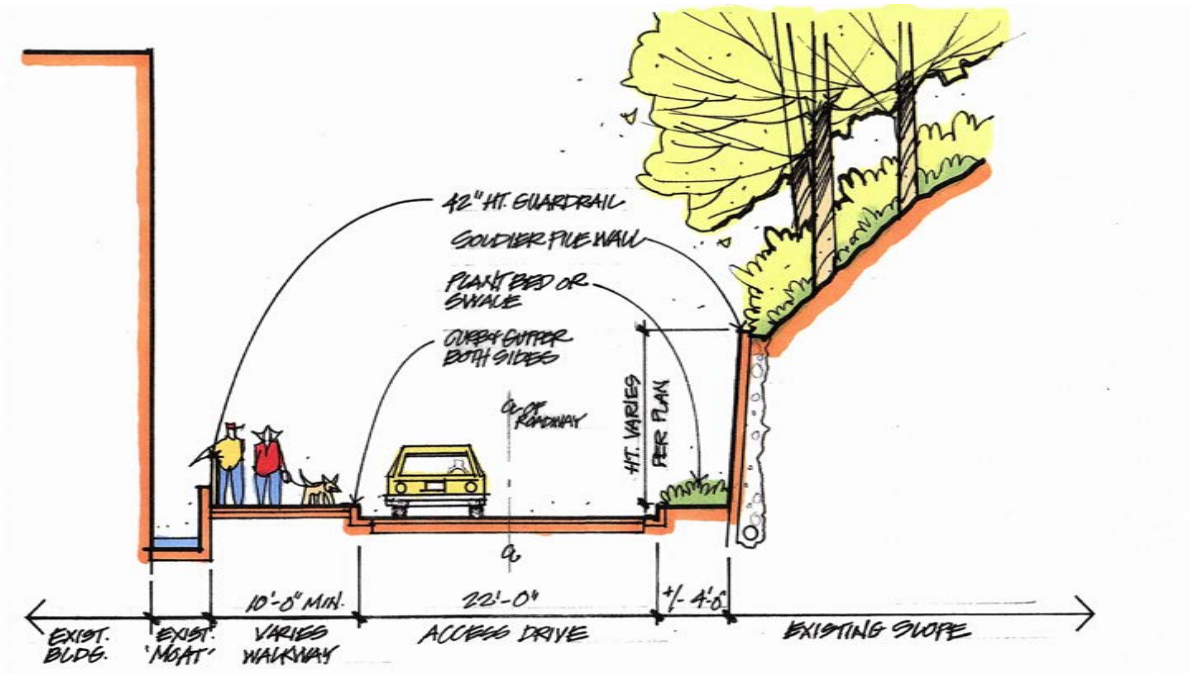
SECTION B ACCESS DRIVE

11·4·14 TUMWATER BREWERY OKLA



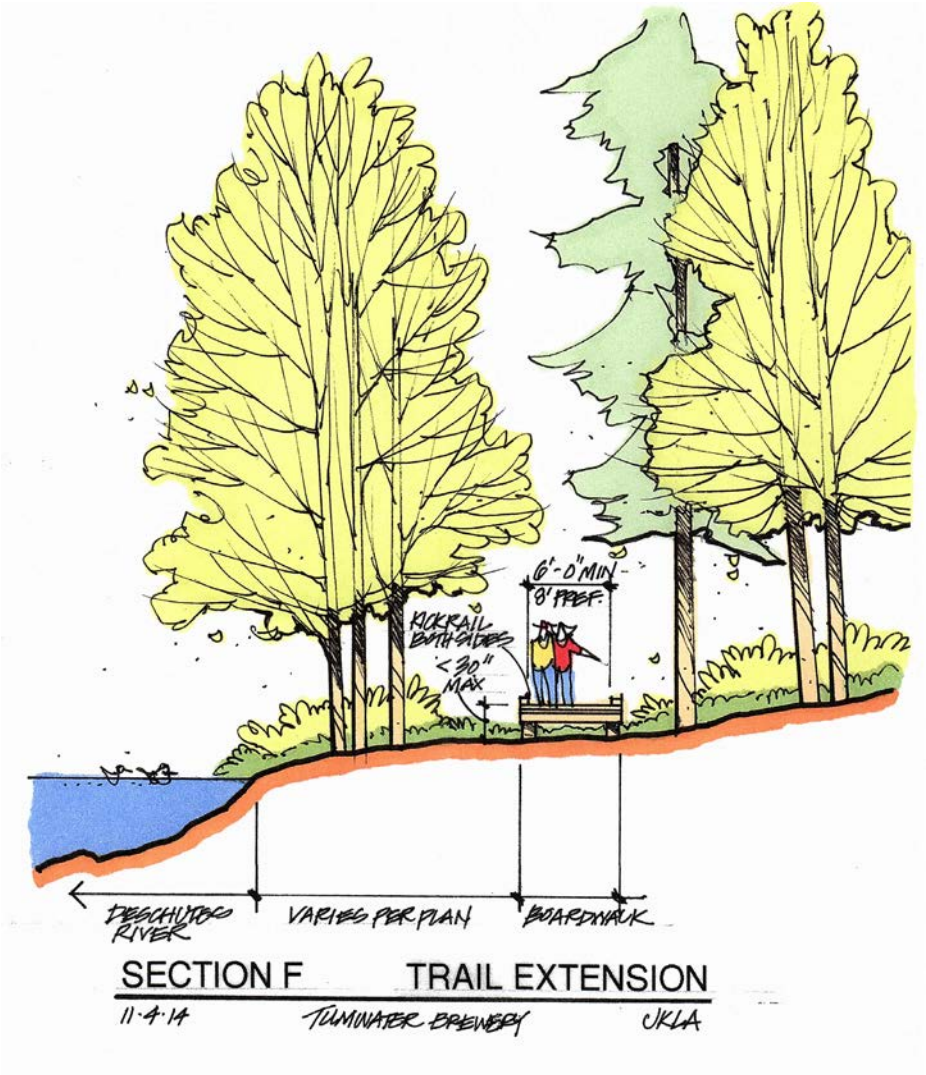
SECTION C ACCESS DRIVE

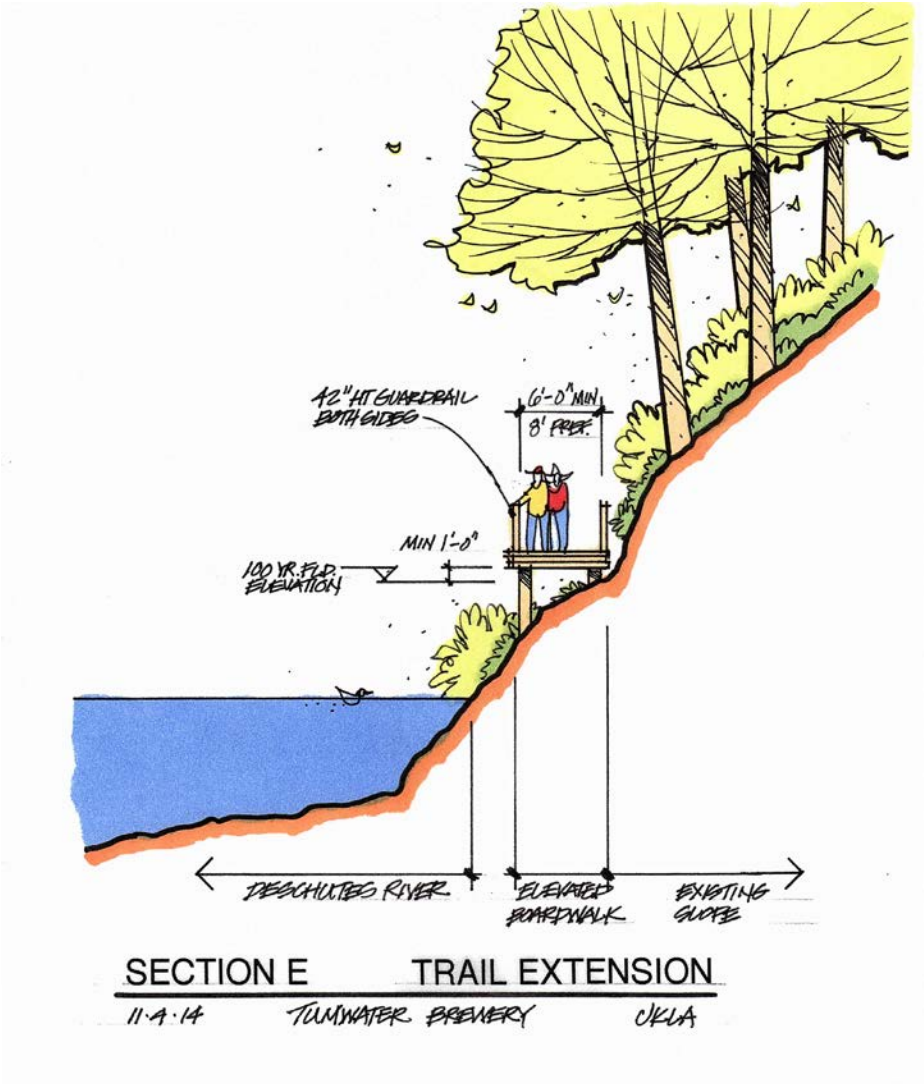
11·4·14 TUMWATER BREWERY CKLA



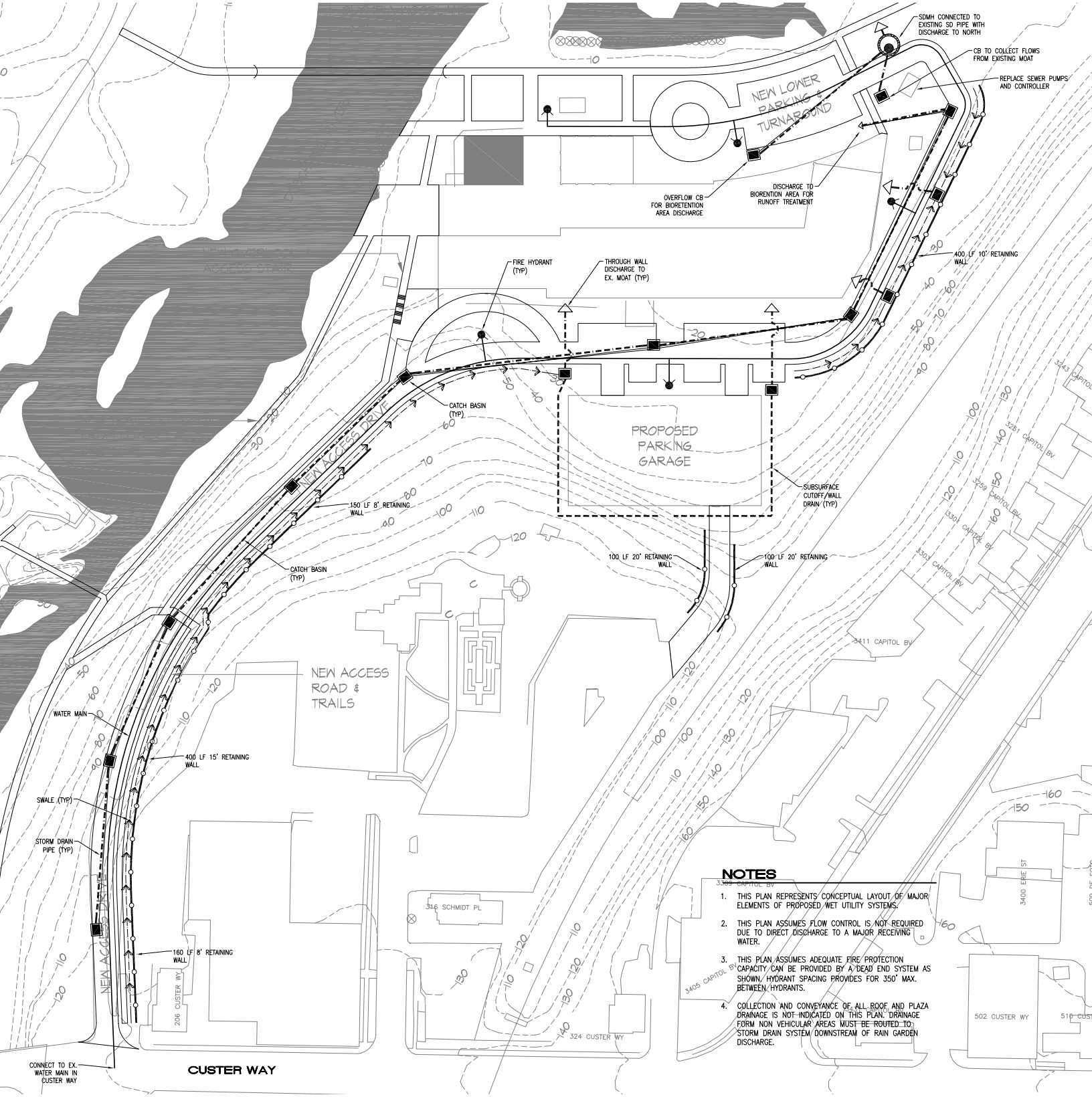
SECTION D ACCESS DRIVE

11·4·14 TUMWATER BREWERY CKLA


6'-0" MIN
8' PREF.
KICKRAIL BOTH SIDES
< 30" MAX
DESCHUTES RIVER
VARIES PER PLAN
BOARDWALK
SECTION F
TRAIL EXTENSION
11·4·14
TUMWATER BREWERY
JKLA


42" HT GUARDRAIL BOTH SIDES
6'-0" MIN
8' FREE
MIN 1'-0"
100 YR. FLD. ELEVATION
DESCHUTES RIVER
ELEVATED BOARDWALK
EXISTING SLOPE
SECTION E TRAIL EXTENSION
11·4·14 TUMWATER BREWERY OKLA

UTILITY SITE PLAN



NOTES

1. THIS PLAN REPRESENTS CONCEPTUAL LAYOUT OF MAJOR ELEMENTS OF PROPOSED WET UTILITY SYSTEMS.
2. THIS PLAN ASSUMES FLOW CONTROL IS NOT REQUIRED DUE TO DIRECT DISCHARGE TO A MAJOR RECEIVING WATER.
3. THIS PLAN ASSUMES ADEQUATE FIRE PROTECTION CAPACITY CAN BE PROVIDED BY A DEAD END SYSTEM AS SHOWN. HYDRANT SPACING PROVIDES FOR 350' MAX. BETWEEN HYDRANTS.
4. COLLECTION AND CONVEYANCE OF ALL ROOF AND PLAZA DRAINAGE IS NOT INDICATED ON THIS PLAN. DRAINAGE FORM NON VEHICULAR AREAS MUST BE ROUTED TO STORM DRAIN SYSTEM DOWNSTREAM OF RAIN GARDEN DISCHARGE.

UTILITY SITE PLAN

N

50 0 50

SCALE: 1" = 50'

sitewise design PLLC
A CIVIL ENGINEERING COMPANY
219 First Avenue S., Suite 401
Seattle WA 98104
206 402 4644

Tumwater Brewery Comprehensive Study

Tumwater Brewery
Comprehensive Study

Contents

Overall Summary	3
Detailed Cost Summary	4
Scope of Work	5
Historic Brew House- Renovation	7
Parking Garage 1000- Stall	14
Access roads, parking, retaining walls	21
Lower Falls trail extension	24
Olympic trails extension	27
Overlook and access stairs	30
Planting and raingardens	32
Site utilities	36
Pedestrian Bridge	39
Alternates	41

Tumwater Brewery
Comprehensive Study

Overall Summary

		SF	$/SF	TOTAL
B2	Historic Brew House- Renovation	9,819	578.88	5,684,054
B3	Parking Garage 1000- Stall	320,000	120.24	38,476,135
B4	Access roads, parking, retaining walls	108,900	51.75	5,635,062
B5	Lower Falls trail extension	6,534	188.30	1,230,347
B6	Olympic trails extension	26,136	86.24	2,253,872
B7	Overlook and access stairs	8,864	112.95	1,001,215
B8	Planting and raingardens	5,240	437.46	2,292,272
B9	Site utilities	155,674	21.11	3,286,747
B10	Pedestrian Bridge	1,760	32.83	5,110,104
TOTAL CONSTRUCTION		155,674	417.35	64,969,809
RECOMMENDED BUDGET				**64,969,809**

Alternate 1: 300 stall Parking structure in lieu of 1000 stall	(26,932,058)
Alternate 2: 500 stall Parking structure in lieu of 1000 stall	(19,237,184)

Tumwater Brewery
Comprehensive Study

Detailed Cost Summary

		1		2		3		4		5		6		7		8		9	
		Historic Brew House-Renovation		Parking Garage 1000- Stall		Access roads, parking, retaining walls		Lower Falls trail extension		Olympic trails extension		Overlook and access stairs		Planting and raingardens		Site utilities		Pedestrian Bridge	
		$/SF	TOTAL	$/SF	TOTAL	$/ACRE	TOTAL	**$/SF**	**TOTAL**	**$/SF**	**TOTAL**	$/SF	TOTAL	$/SF	TOTAL	**$/SF**	**TOTAL**	$/SF	TOTAL
		9,819 SF		320,000 SF		108,900 SF		6,534 SF		26,136 SF		8,864 SF		5,240 SF		155,674 SF		1,760 SF	
A10	Foundations	5.18	50,831	18.43	5,896,850	4.12	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
A20	Basement Construction	0.00	0	11.26	3,604,333	29.08	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
A	Substructure	5.18	50,831	29.69	9,501,183	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
B10	Superstructure	19.39	190,391	31.52	10,085,096	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
B20	Exterior Enclosure	146.60	1,439,469	1.07	342,222	33.20	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
B30	Roofing	22.06	216,600	0.02	7,800	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
B	Shell	188.05	1,846,460	32.61	10,435,118	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
C10	Interior Construction	32.57	319,837	0.02	7,000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
C20	Stairways	47.36	465,000	0.94	300,000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
C30	Interior Finishes	28.36	278,500	0.42	133,338	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
C	Interiors	108.29	1,063,337	1.38	440,338	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
D10	Conveying Systems	0.87	8,500	0.84	270,000		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
D20	Plumbing Systems	0.00	0	1.01	323,000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
D30	Heating, Ventilation & Air Conditioning	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
D40	Fire Protection	0.00	0	4.33	1,386,668	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
D50	Electrical Lighting, Power & Communications	35.00	343,665	5.50	1,760,000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
D	Services	35.87	352,165	11.69	3,739,668	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
E10	Equipment	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
E20	Furnishings	0.45	4,419	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
E	Equipment & Furnishings	0.45	4,419	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
F10	Special Construction	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
F20	Selective Demolition	25.00	245,475	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
F	Special Construction & Demolition	25.00	245,475	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
G10	Site Preparation	0.00	0	0.00	0	4.12	448,900	3.44	22,477	3.25	84,942	5.58	49,433	3.50	18,340	0.00	0	0.23	35,200
G20	Site Improvements	0.00	0	0.00	0	29.08	3,166,950	117.39	767,000	52.09	1,361,300	66.90	593,017	277.20	1,452,542	0.00	0	20.84	3,243,800
G30	Site Mechanical Utilities	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	6.60	1,027,800	0.00	0
G40	Site Electrical Utilities	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	6.95	1,081,207	0.00	0
G90	Other Site Construction	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
G	Building Sitework	0	0	0	0	33.20	3,615,850	120.83	789,477	55.34	1,446,242	72.48	642,450	280.70	1,470,882	13.55	2,109,007	21.07	3,279,000
ELEMENTAL COST BEFORE CONTINGENCIES		362.84	3,562,686	75.36	24,116,307	33.20	3,615,850	120.83	789,477	55.34	1,446,242	72.48	642,450	280.70	##########	13.55	2,109,007	21.07	3,279,000
Z10	Contingency	72.57	712,537	15,072.69	4,823,261	6.64	723,170	24.17	157,895	11.07	289,248	14.50	128,490	56.14	294,176	2.71	421,801	4.21	655,800
ELEMENTAL COST INCLUDING CONTINGENCIES		435.40	4,275,224	90.44	28,939,569	39.84	4,339,020	145.00	947,372	66.41	1,735,490	86.98	770,940	336.84	##########	16.26	2,530,808	25.28	3,934,800
Z21	Field Requirements	39.19	384,770	8.14	2,604,561	3.19	347,122	11.60	75,790	5.31	138,839	6.96	61,675	26.95	141,205	1.30	202,465	2.02	314,784
Z22	Office Overhead & Profit	28.48	279,600	5.91	1,892,648	1.94	210,876	7.05	46,042	3.23	84,345	4.23	37,468	16.37	85,782	0.79	122,997	1.23	191,231
Z23	Bonds and insurance	10.06	98,792	2.09	668,736	0.90	97,940	3.27	21,384	1.50	39,173	1.96	17,402	7.60	39,841	0.37	57,125	0.57	88,816
Z24	Mobilization	46.18	453,455	9.59	3,069,496	4.13	449,546	15.02	98,153	6.88	179,806	9.01	79,874	34.90	182,870	1.68	262,206	2.62	407,667
CONSTRUCTION COST BEFORE ESCALATION		559.31	5,491,840	116.17	37,175,010	50.00	5,444,505	181.94	1,188,741	83.33	2,177,654	109.14	967,358	422.66	2,214,756	20.40	3,175,601	31.72	4,937,298
Z30	Escalation to Start Date (Jun 2015)	19.58	192,214	4.07	1,301,125	1.75	190,558	6.37	41,606	2.92	76,218	3.82	33,858	14.79	77,516	0.71	111,146	1.11	172,805
RECOMMENDED BUDGET		578.88	5,684,054	120.24	38,476,135	51.75	5,635,062	188.31	1,230,347	86.25	2,253,872	112.96	1,001,215	437.45	2,292,272	21.11	3,286,747	32.83	5,110,104

Alternate 1: 300 Stall Garaç (26,932,058)

Alternate 2: 500 Stall Garaç (19,237,184)

Tumwater Brewery
Comprehensive Study

Scope of Work

Project Scope Description

The project comprises site development options for the Tumwater Brewing historic site including The Tower building, access roads, trails ,a pedestrian bridge, landscaping, utilities and a 1000 car garage. Options are provided for a 300 and 500 car garage in lieu of the 1000 car garage.

Project Design

The project costs are based on conceptual drawings, site observations and narratives from the design team.

Exclusions

Costs reflect a 20 mile hauling distance for soils and site clearing elements. Costs do not include, site water features, art or furnishings. The costs provided herein are for budgeting purposes. As the project develops, consideration must be considered for phasing, bid timing, market conditions and contractor availability.

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation Areas & Control Quantities

	SF			SF
Areas				
Enclosed Areas			Program Areas	
Level 1- useable space	2,756			
Level 2 - useable space	1,588			
Level 3 - useable space	1,071			
Level 4 - useable space	2,828			
Level 5 - useable space	1,120			
Level 6 - useable space	456			
Subtotal of Enclosed Areas		9,819		
TOTAL GROSS FLOOR AREA		**9,819**	**Efficiency:** **34%**	**9,819**

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation Summary

			%	$/SF	TOTAL
			Gross Area:	9,819 SF	
A10	Foundations		1%	5.18	50,831
A20	Basement Construction		0%	0.00	0
A	Substructure		1%	5.18	50,831
B10	Superstructure		3%	19.39	190,391
B20	Exterior Enclosure		25%	146.60	1,439,469
B30	Roofing		4%	22.06	216,600
B	Shell		32%	188.05	1,846,460
C10	Interior Construction		6%	32.57	319,837
C20	Stairways		8%	47.36	465,000
C30	Interior Finishes		5%	28.36	278,500
C	Interiors		19%	108.29	1,063,337
D10	Conveying Systems		0%	0.87	8,500
D20	Plumbing Systems		0%	0.00	0
D30	Heating, Ventilation & Air Conditioning		0%	0.00	0
D40	Fire Protection		0%	0.00	0
D50	Electrical Lighting, Power & Communications		6%	35.00	343,665
D	Services		6%	35.87	352,165
E10	Equipment		0%	0.00	0
E20	Furnishings		0%	0.45	4,419
E	Equipment & Furnishings		0%	0.45	4,419
F10	Special Construction		0%	0.00	0
F20	Selective Demolition		4%	25.00	245,475
F	Special Construction & Demolition		4%	25.00	245,475
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			63%	362.84	3,562,686
Z10	Contingency	20.00%	13%	72.57	712,537
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			75%	435.40	4,275,224
Z21	Field Requirements	9.00%	7%	39.19	384,770
Z22	Office Overhead & Profit	6.00%	5%	28.48	279,600
Z23	Bonds and Insurance	2.00%	2%	10.06	98,792
Z24	Mobilization	9.00%	8%	46.18	453,455
BUILDING CONSTRUCTION COST BEFORE ESCALATION			97%	559.31	5,491,840
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	19.58	192,214
RECOMMENDED BUDGET			100%	578.88	5,684,054

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation

	Quantity	Unit	Rate	Total
A10 Foundations				
A1020 Special Foundations	**9,819**	**SF**	**4.33**	**42,563**
7" micro piles (8 places -25' deep)	400	LF	85.00	34,000
Reinforced 24" Grade beam (below grade)	10	CY	850.00	8,563
A1030 Slab On Grade	**9,819**	**SF**	**0.84**	**8,268**
Slab repair	2,756	SF	3.00	8,268
				50,831
A20 Basement Construction				
A2010 Basement Excavation	**9,819**	SF		
No work required				
				0
B10 Superstructure				
B1010 Floor Construction	**9,819**	**SF**	**12.83**	**125,991**
Structural floor infill support	22	TN	5,000.00	108,225
Metal decking	1,974	SF	3.00	5,922
Concrete topping slab	1,974	SF	6.00	11,844
B1020 Roof Construction	**9,819**	**SF**	**6.56**	**64,400**
2x12 and plywood roof construction including hardware	2,300	SF	28.00	64,400
				190,391
B20 Exterior Enclosure				
B2010 Exterior Walls	**9,819**	**SF**	**100.06**	**982,469**
Structural steel support framing				
W shapes	39	TN	5,000.00	195,525
HSS	21	TN	4,800.00	99,456
Steel braced diaphragm 6th floor	3	TN	4,800.00	14,400
Channels, connections and plates	24	TN	5,000.00	120,000
Thru bolts and rosettes	56	LOC	250.00	14,000

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation

	Quantity	Unit	Rate	Total
Reinforced concrete shear walls incl connections	2,332	SF	28.00	65,296
Tuck-pointing and brick restoration	21,536	SF	22.00	473,792
B2020 Exterior Windows	**9,819**	**SF**	**44.00**	**432,000**
Restore all exterior windows	108	EA	4,000.00	432,000
B2030 Exterior Doors	**9,819**	**SF**	**2.55**	**25,000**
Restore exterior doors	5	EA	5,000.00	25,000
				1,439,469
B30 Roofing				
B3010 Roof Coverings	**9,819**	**SF**	**22.06**	**216,600**
Membrane roof system at lower roof (colored)	2,300	SF	26.00	59,800
Restore copper roof atop tower	560	SF	280.00	156,800
				216,600
C10 Interior Construction				
C1010 Partitions	**9,819**	**SF**	**28.13**	**276,199**
Restore interior walls, columns and bulkheads walls	29,074	SF	9.50	276,199
C1020 Interior Doors	**9,819**	**SF**	**2.44**	**24,000**
Restore interior doors	6	EA	4,000.00	24,000
C1030 Fittings	**9,819**	**SF**		**19,638**
New signage and placards	9,819	SF	2.00	19,638
				319,837
C20 Stairways				
C2010 Stair Construction	**9,819**	**SF**	**47.36**	**465,000**
Steel guardrails	300	LF	250.00	75,000
New steel stair	6	FLT	25,000.00	150,000
Restore existing stair and make safe	6	FLT	40,000.00	240,000

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation

	Quantity	Unit	Rate	Total
				465,000
C30 Interior Finishes				
C3010 Wall Finishes	**9,819**	**SF**	**10.36**	**101,758**
Wall painting	29,074	SF	3.50	101,758
C3020 Floor Finishes	**9,819**	**SF**	**14.00**	**137,466**
Floor restoration and painting	9,819	SF	14.00	137,466
C3030 Ceiling Finishes	**9,819**	**SF**	**4.00**	**39,276**
Ceiling painting	9,819	SF	4.00	39,276
				278,500
D10 Conveying Systems				
D1010 Elevators & Lifts	**9,819**	**SF**	**0.87**	**8,500**
Make safe existing lift (not for use)	1	LS	8,500.00	8,500
				8,500
D20 Plumbing Systems				
D2010 Plumbing Fixtures	**9,819**	**SF**		
Not required				
				0
D30 Heating, Ventilation & Air Conditioning				
D3010 Energy Supply	**9,819**	**SF**		
Not required				*NIC*
				0
D40 Fire Protection				

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation

	Quantity	Unit	Rate	Total
D4010 Sprinklers	**9,819**	**SF**	**5.40**	**53,023**
Fully sprinkled	9,819	SF	5.40	53,023
				0
D50 Electrical Lighting, Power & Communications				
D5010 Electrical Service & Distribution	**9,819**	**SF**	**35.00**	**343,665**
Electrical service including conduit, wire and emergency lighting	9,819	SF	35.00	343,665
				343,665
E10 Equipment				
E1010 Commercial Equipment	**9,819**	**SF**		
None required				*NIC*
				0
E20 Furnishings				
E2010 Fixed Furnishings	**9,819**	**SF**	**0.45**	**4,419**
Placards and wayfinding	9,819	SF	0.45	4,419
				4,419
F10 Special Construction				
F1010 Special Structures	**9,819**	**SF**		
None required				*NIC*
				0
F20 Selective Demolition				
F2010 Building Elements Demolition	**9,819**	**SF**	**25.00**	**245,475**

Tumwater Brewery
Comprehensive Study

Historic Brew House- Renovation

	Quantity	Unit	Rate	Total
Complete interior and exterior cleaning	98,190	SF	2.50	245,475
F2020 Hazardous Components Abatement	**9,819**	**SF**		
None anticipated				*NIC*
				245,475

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall Areas & Control Quantities

	SF			SF
Areas				
Enclosed Areas			Program Areas	
Level 1	53,335		320 SF per stall includes circulation	
Level 2	53,333			
Level 3	53,333			
Level 4	53,333			
Level 5	53,333			
Level 6	53,333			
Subtotal of Enclosed Areas		320,000		
TOTAL GROSS FLOOR AREA		**320,000**	**Efficiency:**	**1099%** **320,000**

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall Summary

			%	$/SF	TOTAL
			Gross Area:	320,000 SF	
A10	Foundations		15%	18.43	5,896,850
A20	Basement Construction		9%	11.26	3,604,333
A	Substructure		25%	29.69	9,501,183
B10	Superstructure		26%	31.52	10,085,096
B20	Exterior Enclosure		1%	1.07	342,222
B30	Roofing		0%	0.02	7,800
B	Shell		27%	32.61	10,435,118
C10	Interior Construction		0%	0.02	7,000
C20	Stairways		1%	0.94	300,000
C30	Interior Finishes		0%	0.42	133,338
C	Interiors		1%	1.38	440,338
D10	Conveying Systems		1%	0.84	270,000
D20	Plumbing Systems		1%	1.01	323,000
D30	Heating, Ventilation & Air Conditioning		0%	0.00	0
D40	Fire Protection		4%	4.33	1,386,668
D50	Electrical Lighting, Power & Communications		5%	5.50	1,760,000
D	Services		10%	11.69	3,739,668
E10	Equipment		0%	0.00	0
E20	Furnishings		0%	0.00	0
E	Equipment & Furnishings		0%	0.00	0
F10	Special Construction		0%	0.00	0
F20	Selective Demolition		0%	0.00	0
F	Special Construction & Demolition		0%	0.00	0
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			63%	75.36	24,116,307
Z10	Contingency	20.00%	13%	15,072.69	4,823,261
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			75%	90.44	28,939,569
Z21	Field Requirements	9.00%	7%	8.14	2,604,561
Z22	Office Overhead & Profit	6.00%	5%	5.91	1,892,648
Z23	Bonds and Insurance	2.00%	2%	2.09	668,736
Z24	Mobilization	9.00%	8%	9.59	3,069,496
BUILDING CONSTRUCTION COST BEFORE ESCALATION			97%	116.17	37,175,010
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	4.07	1,301,125
RECOMMENDED BUDGET			100%	120.24	38,476,135

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall

	Quantity	Unit	Rate	Total
A10 Foundations				
A1010 Standard Foundations	**320,000**	**SF**	**0.67**	**213,340**
Footings continuous and spread	53,335	SF	4.00	213,340
A1020 Special Foundations	**320,000**	**SF**	**15.33**	**4,906,820**
Impact piles on grid	53,335	SF	92.00	4,906,820
A1030 Slab On Grade	**320,000**	**SF**	**2.43**	**776,690**
8" Slab on grade	53,335	SF	14.00	746,690
Access and driveways	2,500	SF	12.00	30,000
				5,896,850
A20 Basement Construction				
A2020 Basement Walls	**320,000**	**SF**	**11.26**	**3,604,333**
Hillside retaining wall-full height with shoring (back wall)	18,000	SF	88.00	1,584,000
Vehicle connection retaining wall with shoring	4,000	SF	88.00	352,000
Imported back fill	13,333	CY	55.00	733,333
Haul away unusable soil	17,000	CY	55.00	935,000
				3,604,333
B10 Superstructure				
B1010 Floor Construction	**320,000**	**SF**	**31.09**	**9,947,605**
Form and place columns	632	CY	550.00	347,665
Form and place PT decks (5 levels over SOG)	266,665	SF	36.00	9,599,940
B1020 Roof Construction	**320,000**	**SF**	**0.43**	**137,491**
Concrete elevator shaft - 10 x 10 (2 EA)	142	CY	650.00	92,491
Roof over elevator and stairways- steel	300	SF	150.00	45,000
				10,085,096
B20 Exterior Enclosure				
B2010 Exterior Walls	**320,000**	**SF**	**1.07**	**342,222**
Form and place minor walls and curbs	622	CY	550.00	342,222

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall

	Quantity	Unit	Rate	Total
B2020 Exterior Windows	**320,000**	**SF**		
Not required				
B2030 Exterior Doors	**320,000**	**SF**		
Not required				
				342,222
B30 Roofing				
B3010 Roof Coverings	**320,000**	**SF**	**0.02**	**7,800**
Membrane roof over elevator and stairways	300	SF	26.00	7,800
B3020 Roof Openings	**320,000**	**SF**		
None required				
				7,800
C10 Interior Construction				
C1010 Partitions	**320,000**	**SF**	**0.02**	**7,000**
Storage area	200	SF	35.00	7,000
				7,000
C20 Stairways				
C2010 Stair Construction	**320,000**	**SF**	**0.94**	**300,000**
Steel stairs and rails (2 sets)	12	FLT	25,000.00	300,000
				300,000
C30 Interior Finishes				
C3010 Wall Finishes	**320,000**	**SF**		

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall

	Quantity	Unit	Rate	Total
None required				
C3020 Floor Finishes	**320,000**	**SF**	**0.42**	**133,338**
Seal SOG	53,335	SF	2.50	133,338
C3030 Ceiling Finishes	**320,000**	**SF**		
None required				
				133,338
D10 Conveying Systems				
D1010 Elevators & Lifts	**320,000**	**SF**	**0.84**	**270,000**
2- 2500# elevators	2	EA	135,000.00	270,000
				270,000
D20 Plumbing Systems				
D2010 Plumbing Fixtures	**320,000**	**SF**		
None required				*NIC*
D2020 Domestic Water Distribution	**320,000**	**SF**	**0.11**	**35,000**
4" fire line and standpipe	100	LF	350.00	35,000
D2030 Sanitary Waste	**320,000**	**SF**		
None required				*NIC*
D2040 Rain Water Drainage	**320,000**	**SF**	0.90	288,000
Floor drains and oil separators	320,000	SF	0.90	288,000
				323,000
D30 Heating, Ventilation & Air Conditioning				
D3010 Energy Supply	**320,000**	**SF**		
None required				*NIC*

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall

	Quantity	Unit	Rate	Total
				0
D40 Fire Protection				
D4010 Sprinklers	**320,000**	**SF**	4.33	1,386,668
Fully sprinkled system	266,667	SF	5.20	1,386,668
				1,386,668
D50 Electrical Lighting, Power & Communications				
D5010 Electrical Service & Distribution	**320,000**	**SF**	5.50	1,760,000
Electrical branch service Interior lighting -decks and stairs, roof top	320,000	SF	5.50	1,760,000
				1,760,000
E10 Equipment				
E1010 Commercial Equipment	**320,000**	**SF**		
None required				*NIC*
				0
E20 Furnishings				
E2010 Fixed Furnishings	**320,000**	**SF**		
None required				*NIC*
				0
F10 Special Construction				
F1010 Special Structures	**320,000**	**SF**		
None required				*NIC*

Tumwater Brewery
Comprehensive Study

Parking Garage 1000- Stall

	Quantity	Unit	Rate	Total
				0
F20 Selective Demolition				
F2010 Building Elements Demolition	**320,000**	**SF**		
None required				*NIC*
F2020 Hazardous Components Abatement	**320,000**	SF		
None required				*NIC*
				0

Tumwater Brewery
Comprehensive Study

Access roads, parking, retaining walls Areas & Control Quantities

		ACRE		SF
Areas				
Site area	2.5 ACRES			
Site area		108,900		
TOTAL GROSS AREA		**108,900**	**Efficiency:**	**0% 0**

Tumwater Brewery
Comprehensive Study

Access roads, parking, retaining walls Summary

			%	$/SF	TOTAL
			Gross Area:	108,900 SF	
G10	Site Preparation		8%	4.12	448,900
G20	Site Improvements		56%	29.08	3,166,950
G	Building Sitework		64%	33.20	3,615,850
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	33.20	3,615,850
Z10	Contingency	20.00%	13%	6.64	723,170
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	39.84	4,339,020
Z21	Field Requirements	8.00%	6%	3.19	347,122
Z22	Office Overhead & Profit	4.50%	4%	1.94	210,876
Z23	Bonds and Insurance	2.00%	2%	0.90	97,940
Z24	Mobilization	9.00%	8%	4.13	449,546
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	50.00	5,444,505
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	1.75	190,558
RECOMMENDED BUDGET			100%	51.75	5,635,062

Tumwater Brewery
Comprehensive Study

Access roads, parking, retaining walls

	Quantity	Unit	Rate	Total
G10 Site Preparation				
G1010 Site Clearing	**108,900**	**SF**	0.74	80,586
Clear and grub	108,900	SF	0.74	80,586
G1020 Site Demolition and Relocations	**108,900**	**SF**	0.86	93,314
Removal of structures and obstructions	108,900	SF	0.26	28,314
Dewatering	1	LS	65,000.00	65,000
G1030 Site Earthwork	**108,900**	**SF**	2.53	275,000
Excavation cut to haul	5,000	CY	55.00	275,000
G1040 Hazardous Waste Remediation	**108,900**	**SF**		
Not required				
				448,900
G20 Site Improvements				
G2010 Roadways	**108,900**	**SF**	**8.14**	**886,000**
12" base rock	3,800	CY	65.00	247,000
AC Paving	9,000	SY	40.00	360,000
Curb and gutter	3,100	LF	90.00	279,000
Standard curbing	2,600	LF	55.00	143,000
Parking lot striping, signs and wayfinding	1	LS	15,000.00	15,000
Wheel stops	100	EA	100.00	10,000
G2030 Pedestrian Paving	**108,900**	**SF**	**1.37**	**149,050**
8 ft. concrete pedestrian walkway	880	SY	100.00	88,000
Standard curb and lower pedestrian walkway	1,110	LF	55.00	61,050
G2040 Site Development	**108,900**	**SF**	**18.03**	**1,963,900**
Retaining walls				
Soldier piles w/wood lagging - upper	8,512	FF	135.00	1,149,120
Native back fill	2,500	CY	45.00	112,500
Import gravel fill	1,280	CY	80.00	102,400
Soldier piles w/wood lagging - lower	4,800	FF	100.00	480,000
Native back fill	1,400	CY	45.00	63,000
Import gravel fill	711	CY	80.00	56,880
				3,166,950

Tumwater Brewery
Comprehensive Study

Lower Falls trail extension Areas & Control Quantities

		SF			SF
Areas					
Site Area	.15 ACRES				
Site area		6,534			
TOTAL GROSS AREA		**6,534**	**Efficiency:**	**22%**	**6,534**

Tumwater Brewery
Comprehensive Study

Lower Falls trail extension Summary

			%	$/SF	TOTAL
			Gross Area:	6,534 SF	
G10	Site Preparation		2%	3.44	22,477
G20	Site Improvements		62%	117.39	767,000
G	Building Sitework		64%	120.83	789,477
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	120.83	789,477
Z10	Contingency	20.00%	13%	24.17	157,895
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	144.99	947,372
Z21	Field Requirements	8.00%	6%	11.60	75,790
Z22	Office Overhead & Profit	4.50%	4%	7.05	46,042
Z23	Bonds and Insurance	2.00%	2%	3.27	21,384
Z24	Mobilization	9.00%	8%	15.02	98,153
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	181.93	1,188,741
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	6.37	41,606
RECOMMENDED BUDGET			100%	188.30	1,230,347

Tumwater Brewery
Comprehensive Study

Lower Falls trail extension

	Quantity	Unit	Rate	Total
G10 Site Preparation				
G1010 Site Clearing	**6,534**	**SF**	**2.00**	**13,068**
Clearing and grubbing	6,534	SF	2.00	13,068
G1020 Site Demolition and Relocations	6,534	**SF**	**1.44**	**9,409**
Removal of site structures and obstructions	6,534	SF	1.44	9,409
				22,477
G20 Site Improvements				
G2030 Pedestrian Paving	**6,534**	**SF**	**117.39**	**767,000**
8 FT boardwalk with handrails on piles	480	LF	1,525.00	732,000
Signage and wayfinding	1	LS	35,000.00	35,000
				767,000

Tumwater Brewery
Comprehensive Study

Olympic trails extension Areas & Control Quantities

		SF			SF
Areas					
Site Areas	.60 ACRES				
SITE		26,136			
TOTAL GROSS FLOOR AREA		**26,136**	**Efficiency:**	**100%**	**26,136**

Tumwater Brewery
Comprehensive Study

Olympic trails extension Summary

			%	$/SF	TOTAL
			Gross Area:	26,136 SF	
G10	Site Preparation		4%	3.25	84,942
G20	Site Improvements		60%	52.09	1,361,300
G	Building Sitework		64%	55.34	1,446,242
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	55.34	1,446,242
Z10	Contingency	20.00%	13%	11.07	289,248
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	66.40	1,735,490
Z21	Field Requirements	8.00%	6%	5.31	138,839
Z22	Office Overhead & Profit	4.50%	4%	3.23	84,345
Z23	Bonds and Insurance	2.00%	2%	1.50	39,173
Z24	Mobilization	9.00%	8%	6.88	179,806
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	83.32	2,177,654
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	2.92	76,218
RECOMMENDED BUDGET			100%	86.24	2,253,872

Tumwater Brewery
Comprehensive Study

Olympic trails extension

	Quantity	Unit	Rate	Total
G10 Site Preparation				
G1010 Site Clearing	**26,136**	**SF**	**2.00**	**52,272**
Clearing and grubbing	26,136	SF	2.00	52,272
G1020 Site Demolition and Relocations	**26,136**	**SF**	**1.25**	**32,670**
Removal of site structures and obstructions	26,136	SF	1.25	32,670
				84,942
G20 Site Improvements				
G2030 Pedestrian Paving	**26,136**	**SF**	**50.55**	**1,321,300**
Olympia Woodland Trail East of Deschutes 8 ft Wide lumber composite on Piling	890	LF	680.00	605,200
Olympia Woodland Trail West of Deschutes to Simmons on Piling	100	LF	700.00	70,000
8 ft Connector Boardwalks and rails @ Lower Site on Footings	216	LF	850.00	183,600
16 ft Connector Boardwalks and rails @ Lower Site on Footings	370	LF	1,250.00	462,500
Striping and signage	1	LS	40,000.00	40,000
				1,361,300

Tumwater Brewery
Comprehensive Study

Overlook and access stairs Areas & Control Quantities

			SF			SF
Areas						
Site Areas		0.2 ACRES				
SITE	8,864	SF				
TOTAL GROSS FLOOR AREA			**8,864**	**Efficiency:**	**100%**	**8,864**

Tumwater Brewery
Comprehensive Study

Overlook and access stairs Summary

			%	$/SF	TOTAL
			Gross Area:	8,864 SF	
G10	Site Preparation		5%	5.58	49,433
G20	Site Improvements		59%	66.90	593,017
G	Building Sitework		64%	72.48	642,450
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	72.48	642,450
Z10	Contingency	20.00%	13%	14.50	128,490
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	86.97	770,940
Z21	Field Requirements	8.00%	6%	6.96	61,675
Z22	Office Overhead & Profit	4.50%	4%	4.23	37,468
Z23	Bonds and Insurance	2.00%	2%	1.96	17,402
Z24	Mobilization	9.00%	8%	9.01	79,874
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	109.13	967,358
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	3.82	33,858
RECOMMENDED BUDGET			100%	112.95	1,001,215

Tumwater Brewery
Comprehensive Study

Overlook and access stairs

	Quantity	Unit	Rate	Total
G10 Site Preparation				
G1010 Site Clearing	**8,864**	**SF**	**4.33**	**38,353**
Clearing and grubbing	8,864	SF	2.00	17,728
Excavation	375	CY	55.00	20,625
G1020 Site Demolition and Relocations	**8,864**	**SF**	**1.25**	**11,080**
Removal of site structures and obstructions	8,864	SF	1.25	11,080
				49,433
G20 Site Improvements				
G2030 Pedestrian Paving	**8,864**	**SF**	**66.90**	**593,017**
12" Baserock	250	CY	65.00	16,250
4000 PSI Reinforced concrete	249	CY	550.00	136,767
Handrails	350	LF	550.00	192,500
Access stairs and railings	45	RF	5,500.00	247,500
				593,017

Tumwater Brewery
Comprehensive Study

Planting and raingardens Areas & Control Quantities

	SF			SF
Areas				
SITE Areas				
SITE	5,240			
TOTAL GROSS FLOOR AREA	**5,240**	**Efficiency:**	**100%**	**5,240**

Tumwater Brewery
Comprehensive Study

Planting and raingardens Summary

			%	$/SF	TOTAL
			Gross Area:	5,240 SF	
G10	Site Preparation		1%	3.50	18,340
G20	Site Improvements		63%	277.20	1,452,542
G	Building Sitework		64%	280.70	1,470,882
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	280.70	1,470,882
Z10	Contingency	20.00%	13%	56.14	294,176
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	336.84	1,765,058
Z21	Field Requirements	8.00%	6%	26.95	141,205
Z22	Office Overhead & Profit	4.50%	4%	16.37	85,782
Z23	Bonds and Insurance	2.00%	2%	7.60	39,841
Z24	Mobilization	9.00%	8%	34.90	182,870
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	422.66	2,214,756
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	14.79	77,516
RECOMMENDED BUDGET			100%	437.46	2,292,272

Tumwater Brewery
Comprehensive Study

Planting and raingardens

	Quantity	Unit	Rate	Total
G10 Site Preparation				
G1010 Site Clearing	**5,240**	**SF**	**2.00**	**10,480**
Clearing and grubbing	5,240	SF	2.00	10,480
G1020 Site Demolition and Relocations	**5,240**	**SF**	**1.50**	**7,860**
Removal of site structures and obstructions	5,240	SF	1.50	7,860
				18,340
G20 Site Improvements				
G2050 Landscaping	**5,240**	**SF**	**277.20**	**1,452,542**
Planting swale at access drive including ex., mulch and medium	1,110	LF	65.00	72,150
Revegitation allowance	155,674	SF	8.00	1,245,392
Rain gardens	1	LS	85,000.00	85,000
Signage and wayfinding	1	LS	50,000.00	50,000
				1,452,542

Tumwater Brewery
Comprehensive Study

Site utilities Areas & Control Quantities

	SF			SF
Areas				
Site Areas				
SITE	155,674			
TOTAL GROSS FLOOR AREA	**155,674**	**Efficiency:**	**100%**	**155,674**

Tumwater Brewery
Comprehensive Study

Site utilities Summary

			%	$/SF	TOTAL
			Gross Area:	155,674 SF	
G10	Site Preparation		0%	0.00	0
G20	Site Improvements		0%	0.00	0
G30	Site Mechanical Utilities		31%	6.60	1,027,800
G40	Site Electrical Utilities		33%	6.95	1,081,207
G	Building Sitework		64%	13.55	2,109,007
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	13.55	2,109,007
Z10	Contingency	20.00%	13%	2.71	421,801
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	16.26	2,530,808
Z21	Field Requirements	8.00%	6%	1.30	202,465
Z22	Office Overhead & Profit	4.50%	4%	0.79	122,997
Z23	Bonds and Insurance	2.00%	2%	0.37	57,125
Z24	Mobilization	9.00%	8%	1.68	262,206
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	20.40	3,175,601
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	0.71	111,146
RECOMMENDED BUDGET			100%	21.11	3,286,747

Tumwater Brewery
Comprehensive Study

Site utilities

	Quantity	Unit	Rate	Total
G30 Site Mechanical Utilities				
G3010 Water Supply	**155,674**	**SF**	**3.10**	**482,950**
Cut in on Custer Way	1	LS	6,000.00	6,000
12" DIP Water Main	2,110	LF	185.00	390,350
12" Fittings	12	EA	1,300.00	15,600
12" Gate Valves	5	EA	2,700.00	13,500
Fire Hydrants	5	EA	7,500.00	37,500
Traffic Control on Custer Way	1	LS	5,000.00	5,000
Potholing and Patching Custer Way	1	LS	15,000.00	15,000
G3020 Sanitary Sewer	**155,674**	**SF**	**1.51**	**235,000**
Replace Sewer Pumps and Alarms	1	LS	225,000.00	225,000
Use existing force main- no replacement required				*NIC*
Reinstate SS West of Deschutes	1	LS	10,000.00	10,000
G3030 Storm Sewer	**155,674**	**SF**	**1.99**	**309,850**
Connect to Existing	1	LS	1,500.00	1,500
Storm Manhole	1	LS	10,000.00	10,000
Catch Basins	14	EA	4,500.00	63,000
Area drains and connections	1	LS	75,000.00	75,000
6" Subsurface Drain Pipe at Parking Garage	510	LF	60.00	30,600
8" Storm Drain Piping & Discharge Lines	700	LF	70.00	49,000
10" Storm Drain Piping	525	LF	85.00	44,625
12" Storm Drain Piping	175	LF	95.00	16,625
FLOW SWALE	1,300	LF	15.00	19,500
				1,027,800
G40 Site Electrical Utilities				
G4010 Electrical Distribution	**155,674**	**SF**	**2.50**	**389,185**
Electrical service and distribution to site	155,674	SF	2.50	389,185
G4020 Site Lighting	**155,674**	**SF**	**4.45**	**692,022**
Light poles and bases	15	EA	15,000.00	225,000
Lighting- general	155,674	SF	3.00	467,022
				1,081,207

Tumwater Brewery
Comprehensive Study

Pedestrian Bridge Areas & Control Quantities

		SF			SF
Areas					
SITE Areas	220 LF				
Pedestrian bridge		1,760			
TOTAL GROSS AREA		**1,760**	**Efficiency:**	**100%**	**1,760**

Tumwater Brewery
Comprehensive Study

Pedestrian Bridge Summary

			%	$/SF	TOTAL
			Gross Area:	155,674 SF	
G10	Site Preparation		1%	0.23	35,200
G20	Site Improvements		63%	20.84	3,243,800
G	Building Sitework		64%	21.06	3,279,000
SITE ELEMENTAL COST BEFORE CONTINGENCIES			64%	21.06	3,279,000
Z10	Contingency	20.00%	13%	4.21	655,800
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			77%	25.28	3,934,800
Z21	Field Requirements	8.00%	6%	2.02	314,784
Z22	Office Overhead & Profit	4.50%	4%	1.23	191,231
Z23	Bonds and Insurance	2.00%	2%	0.57	88,816
Z24	Mobilization	9.00%	8%	2.62	407,667
SITE CONSTRUCTION COST BEFORE ESCALATION			97%	31.72	4,937,298
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	1.11	172,805
RECOMMENDED BUDGET			100%	32.83	5,110,104

Tumwater Brewery
Comprehensive Study

Pedestrian Bridge

	Quantity	Unit	Rate	Total
G10 Site Preparation				
G1010 Site Clearing	**1,760**	**SF**	**8.00**	**14,080**
Clear and grub connection areas as required	1,760	SF	8.00	14,080
G1020 Site Demolition and Relocations	**1,760**	**SF**	**12.00**	**21,120**
Removal of structures and obstructions including waterway	1,760	SF	12.00	21,120
				35,200
G20 Site Improvements				
G2010 Roadways	**1,760**	**SF**	**1,843.07**	**3,243,800**
Drilled in water piles	36	EA	12,500.00	450,000
Steel framed pedestrian and bicycle bridge	1,760	SF	1,455.00	2,560,800
Steel side rails	440	LF	450.00	198,000
Pathway connections	1	LS	35,000.00	35,000
				3,243,800

Tumwater Brewery
Comprehensive Study

Alternates

Item Description	Quantity	Unit	Rate	Total
Alternate 1: 300 stall Parking structure in lieu of 1000 stall				
Delete 1000 car parking (direct cost)	320,000	SF	(75.36)	(24,115,200)
Add 300 car parking	96,000	SF	75.36	7,234,560
Alternate Cost Before Markups				**(16,880,640)**
Z10 Contingency	20.00%			(3,376,128)
Z21 Field Requirements	9.00%			(1,823,109)
Z22 Office Overhead & Profit	6.00%			(1,324,793)
Z23 Bonds and Insurance	2.00%			(468,093)
Z24 Mobilization	9.00%			(2,148,549)
Z30 Escalation to Start Date (Jun 2015)	3.50%			(910,746)
				(26,932,058)
NOTE: TOTAL COST 300 stall parking garage	**11,542,310**			
Alternate 2: 500 stall Parking structure in lieu of 1000 stall				
Delete 1000 car parking (direct cost)	320,000	SF	(75.36)	(24,115,200)
Add 500 car parking	160,000	SF	75.36	12,057,600
Alternate Cost Before Markups				**(12,057,600)**
Z10 Contingency	20.00%			(2,411,520)
Z21 Field Requirements	9.00%			(1,302,221)
Z22 Office Overhead & Profit	6.00%			(946,280)
Z23 Bonds and Insurance	2.00%			(334,352)
Z24 Mobilization	9.00%			(1,534,678)
Z30 Escalation to Start Date (Jun 2015)	3.50%			(650,533)
				(19,237,184)
NOTE: TOTAL COST 500 stall parking garage	**19,237,184**			