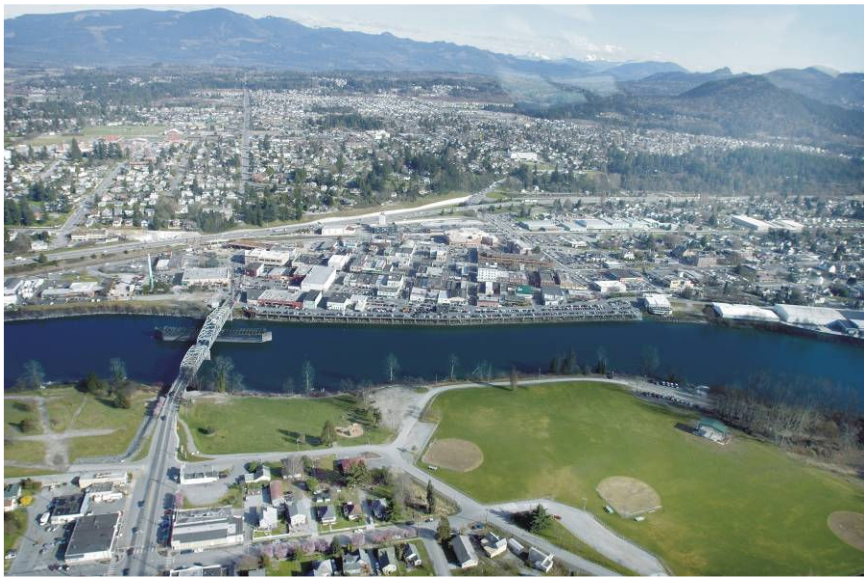
Draft Environmental Impact Statement

Mount Vernon Downtown Flood Protection Alternatives



January 19, 2007

Prepared for:

City of Mount Vernon

Prepared by:

PACIFIC INTERNATIONAL ENGINEERING PLLC

kpff Consulting Engineers

Draft Environmental Impact Statement

Mount Vernon Downtown Flood Protection Alternatives

Prepared for:

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Fact Sheet

Title:	Mount Vernon Downtown Flood Protection Alternatives Draft Environmental Impact Statement
Description of Proposal and Alternatives:	The proposal involves evaluation of alternatives for protecting the City's downtown area from flood damage up to and including the 100-year event on the Skagit River. The threat of flooding on the Skagit River and identification of downtown within the FEMA 100-year floodplain poses a major barrier to investment in the downtown area and thus limits the City's ability to develop a comprehensive redevelopment plan for its historic downtown area. In addition to flood protection, the City's goals include enhancing public access to the shoreline and maintaining the existing availability of parking in the downtown area. The alternatives evaluated in detail include an "Action" alternative and "No Action." The Action alternative involves modifying the existing flood protection system by raising the existing earthen levee and constructing new floodwall and levee segments in some locations along the downtown waterfront. In addition, a new ring dike would be constructed around the Mount Vernon Wastewater Treatment Plant. These structures would be designed to provide FEMA-certified 100-year flood protection for the downtown area. A new pedestrian pathway and promenade would be incorporated into the flood protection system. The floodwall/earthen levee constructed under the Action alternative would be designed to comply with U.S. Army Corps of Engineers engineering specifications and guidelines for levees. This would enable the affected Dike District to qualify for public support under PL 84-99, which provides federal funds for maintenance and repair of flood protection structures. The City would also need to enter into an agreement with Dike District No. 3 for regular inspection and maintenance of the flood protection system. Under the No Action alternative, the City would not raise the existing levee, construct floodwalls, or undertake other actions to provide permanent 100-year flood protection for its historic downtown area. Current plans that are in place to respond to flood emergencies would remain in force. The downtown area would continue to be at risk from damaging floods and redevelopment efforts would be limited by the potential uncertainties and potential harm associated with future floods.
Proponent and Proposed Date for Implementation:	City of Mount Vernon No specific date for implementation of flood protection measures is proposed at this time.
Lead Agency and Responsible Official:	City of Mount Vernon Community and Economic Development Department Jana Hanson, Director P. O. Box 809 Mount Vernon, WA 98273 (360) 336-6214
Permits and Approvals Required:	• National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activities, Washington Department of Ecology • Section 404 Permit, U.S. Army Corps of Engineers

	• Water Quality Certification, Washington Department of Ecology • Hydraulic Project Approval, Washington Department of Fish and Wildlife • Shoreline Substantial Development Permit, City of Mount Vernon • Fill and Grade Permit, City of Mount Vernon
Authors and Principal Contributors to DEIS:	Marie Garrett, Principal Author Pacific International Engineering P. O. Box 1599 Edmonds, Washington 98020 Albert Liou, Hydrology and Hydraulics Pacific International Engineering P. O. Box 1599 Edmonds, Washington 98020 Ron Leimkuhler, Parking KPFF Consulting Engineers 1601 5th Avenue, Suite 1600 Seattle, Washington 98101 Andrew K. Bennett, Description of the Alternatives KPFF Consulting Engineers 1601 5th Avenue, Suite 1600 Seattle, Washington 98101
Date of Issuance of DEIS:	January 19, 2007
Date Comments are Due:	5:00 P.M., February 28, 2007
Public Meeting Date, Time, and Place:	February 21, 2007, 7:00 P.M. Mount Vernon Police Court Campus, 1805 Continental Place, Mount Vernon, Washington 98273
Date of Final Action:	Final action involves City Council approval and adoption of the Final Environmental Impact Statement for Mount Vernon Downtown Flood Protection Alternatives. The date of final action is expected to be in May, 2007.
Subsequent Environmental Review:	In addition to completion and adoption of a Final Environmental Impact Statement, environmental review under the National Environmental Policy Act will be required for any federal agency action (including funding and/or permitting) associated with implementation of a flood protection alternative.
Locations of Copies of DEIS and Technical Reports for Public Review:	City of Mount Vernon Website: www.ci.mount-vernon.wa.us Economic and Community Development Department 910 Cleveland Ave. Mount Vernon, Washington 98273 Mount Vernon Library 315 Snoqualmie St. Mount Vernon, Washington 98273
Location of Copies of DEIS for Purchase and Cost of Copy to Public:	Economic and Community Development Department 910 Cleveland Ave. Mount Vernon, Washington 98273 Cost of copies is $38 each.

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Acronyms and Abbreviations

bgs	below ground surface
BMP	Best Management Practice
CFR	Code of Federal Regulations
cfs	cubic feet per second
cy	cubic yard
Corps	U.S. Army Corps of Engineers
CSO	Combined Sewer Overflow
dbh	diameter at breast height
DEIS	Draft Environmental Impact Statement
DS	Determination of Significance
Ecology	Washington Department of Ecology
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
F	Fahrenheit
FC	fecal coliform
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Administration
FIRM	Flood Insurance Rate Map
gpm	gallons per minute
I-5	Interstate 5
LUST	leaking underground storage tank
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
mph	miles per hour
MVMC	Mount Vernon Municipal Code
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PHS	Priority Habitats and Species
PSE	Puget Sound Energy
RCW	Revised Code of Washington
RM	River Mile
SEPA	State Environmental Policy Act
SFHA	Special Flood Hazard Area
SPCC	Spill Prevention, Control and Countermeasures Plan
SRIP	Skagit River Impact Partnership
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resources Inventory Area

Summary

The City of Mount Vernon has started the process of creating a comprehensive redevelopment plan for its historic downtown area. The goal of that planning effort is to guide the investment of public and private resources in the downtown area over the next 20 years. However, flooding on the Skagit River over the last century has caused millions of dollars in damage to land and infrastructure, put human lives at risk, and continues to pose a major barrier to further investment in the downtown area.

In recent decades, the City has successfully mobilized flood-fighting measures to prevent flood damage during major floods on the Skagit River. Experience gained from these efforts indicates that the City could successfully defend the downtown area from damaging floods up to and including the 100-year event. Nevertheless, flood-fighting measures cannot guarantee protection from major floods and the downtown area is considered to be within the 100-year floodplain and special flood hazard area on maps produced for the National Flood Insurance Program administered by the Federal Emergency Management Administration (FEMA). Unless permanent flood protection measures are put in place, the area will continue to be at risk from damaging floods and the local economy will continue to experience depressing effects due to the potential harm and uncertainties associated with future floods.

With permanent, FEMA-certified flood protection measures in place, the City would be in a better position to move forward with redevelopment planning. Therefore, the City is evaluating alternatives for providing flood protection for the historic downtown area. The Washington State Environmental Policy Act (SEPA, RCW 43.21C) directs local and state agency decision-makers to consider the environmental consequences of their actions. For this proposal, the City of Mount Vernon is the lead agency for SEPA compliance and has the primary responsibility for complying with SEPA procedural requirements. This Draft Environmental Impact Statement (DEIS) has been prepared in accordance with the SEPA Rules, Washington Administrative Code (WAC) 197-11 and the Mount Vernon Municipal Code (Chapter 15.06).

The scope of this DEIS was determined through public response to a Determination of Significance and EIS Scoping Notice issued on June 19, 2006, comments gathered at a public scoping meeting on July 11, 2006, and discussions among City staff and planning consultants.

This document provides detailed analysis of the alternative identified by the City as its "Preferred Alternative." The Preferred Alternative involves modifying the existing flood protection system by raising the existing levee and constructing new levee or floodwall segments in some locations along the downtown waterfront, including a ring dike would around the Mount Vernon Wastewater Treatment Plant. These structures would be designed to provide FEMA-certified 100-year flood protection for the downtown area. In addition, a new pedestrian pathway and promenade along the waterfront would be incorporated into the flood protection system. As required by SEPA, this DEIS also analyzes the potential impacts of the "No Action" alternative; that is, effects that would occur if the City does not implement permanent flood protection measures.

Construction of the Preferred Alternative would cause temporary increases in dust and vehicle emissions and increases in truck traffic, as well as short-term and localized increases in turbidity in the Skagit River. These impacts are not expected to be significant. Implementation of the Preferred Alternative would result in permanent topographical changes along the levee alignment and removal of several buildings, including one structure that may be eligible for listing under the National Register of Historic Places. It would also alter the location of some public parking in downtown.

Mitigation measures that would be employed to avoid or minimize potential impacts include, but would not be limited to:

- Earth – implementing Best Management Practices for stormwater runoff and erosion control; conforming with design, operation, and maintenance standards that address the potential for levee damage or failure due to erosion

- Air - watering exposed earth surfaces, including temporary haul roads, as needed during construction; using erosion control matting, mulching, or plastic covering to control windblown dust from exposed soils; establishing grasses on levee sideslopes and other disturbed areas at the completion of construction

- Water – implementing a Stormwater Pollution Prevention Plan and a Spill Prevention, Control, and Countermeasures Plan during construction

- Plants and animals - adhering to the *Priority Habitat and Species Management Recommendations for the Bald Eagle* to minimize impacts on nesting eagles; limiting in-water work to the approved in-water construction season when juvenile salmonids are not abundant in the Skagit River; removing the existing waterfront boardwalk and parking structure and constructing the new pedestrian promenade above the level of ordinary high water

- Environmental health – implementing a Spill Prevention, Control, and Countermeasures plan during construction; conducting environmental site assessments before demolishing any structures to identify potential environmental hazards

- Land use – thoroughly documenting and recording the history of any NRHP-eligible structure scheduled for demolition; salvaging historic building materials for use in an interpretive display; assisting displaced businesses and homeowners with relocation; working with representatives of the Farmers Market to identify options for relocating the market site

- Transportation - identifying a specific route or routes for hauling construction materials to minimize truck traffic in residential areas; construction of a new downtown parking garage; phasing construction work in a way that would maintain adequate parking to meet downtown area needs

- Utilities - timing planned service outages for off-peak hours to minimize impacts on utility customers during construction

The public review period for this DEIS ends on February 28, 2007. Following the public review period, a Final Environmental Impact Statement will be prepared and issued. That document will include responses to comments received on the DEIS and may contain, as appropriate, discussion of other flood protection alternatives, additional impact analyses, or identification of additional measures that could be employed to mitigate environmental impacts.

1. Introduction

1.1 Purpose and Need

Mount Vernon is located in Skagit County, Washington and is about half-way between Seattle and Vancouver, British Columbia (Figure 1). The City was incorporated in 1890 and has served as the center of commerce and government for Skagit County since that time.

The City has started the process of creating a comprehensive redevelopment plan for its historic downtown area (Figure 2). The goal of that planning effort is to guide the investment of public and private resources in the downtown area over the next 20 years. A significant step in the revitalization of the area was realized with the completion of Skagit Station, a multi-modal transportation facility that links local transit with rail and air transportation. However, flooding on the Skagit River over the last century has caused millions of dollars in damage to land and infrastructure, put human lives at risk, and continues to pose a major barrier to further investment in the downtown area.

In recent decades, the City has successfully mobilized flood-fighting measures to prevent flood damage during major floods on the Skagit River. Experience gained from these efforts indicates that the City could successfully defend the downtown area from damaging floods up to and including the 100-year event. However, flood-fighting measures cannot guarantee protection from major floods and the downtown area is considered to be within the 100-year floodplain and special flood hazard area (SFHA) on maps produced for the National Flood Insurance Program (NFIP).

Unless permanent flood protection measures are put in place, the area will continue to be at risk from damaging floods and the local economy will continue to experience depressing effects due to the potential harm and uncertainties associated with future floods. With permanent flood risk-reduction measures in place, the City can move forward with its planning efforts to create a vibrant, attractive, and safe historic downtown district. A primary element of the planning process will be evaluation of transportation issues including enhancement of transit service, traffic circulation, parking, non-motorized transportation, and access to the Skagit River shoreline.

As a first step in the redevelopment planning process, the City is evaluating a range of alternatives for protecting the downtown area from flood damage. In order to achieve the City's purpose and need, an alternative must meet all of the eight major criteria listed below:

- Provide permanent protection for the downtown Mount Vernon area from flood damage up to and including the 100-year event on the Skagit River
- Meet Federal Emergency Management Administration (FEMA) requirements for certification that the downtown area is protected from the base flood (100-year event)
- Be within the City's jurisdiction to undertake, in cooperation with the affected Dike District(s)
- Enhance public access to the shoreline
- Maintain the existing availability of parking in the downtown area

- Avoid increasing flood risks in other areas
- Be cost-effective to construct and maintain
- Be compliant with all applicable federal, state, and local regulations and policies

1.2 Relationship with other Flood Protection Planning Efforts

As described in the previous section, this DEIS focuses on alternatives that are within the City's jurisdiction to undertake in cooperation with the local Dike Districts. However, as part of a parallel effort, the City has joined the Skagit River Impact Partnership (SRIP), a group of local governments working to develop a comprehensive strategy for reducing flood risks to communities throughout the Skagit River basin. A comprehensive strategy is likely to involve large-scale land acquisition and construction funding that will need the approval and participation of all the affected communities. The City is working with the SRIP to ensure that any flood protection measures it may implement for the downtown area are appropriate and workable components of a comprehensive flood-risk reduction strategy.

In addition, the U.S. Army Corps of Engineers (Corps) has been working with Skagit County to conduct a General Investigation Study designed to identify a flood damage reduction project covering the area from Sedro-Woolley to Puget Sound. Corps flood control projects typically require a local sponsor (such as the County) to fund a portion of the study costs, as well as 50 percent of the costs for detailed design and 40 percent of the costs for project construction. The local sponsor is responsible for project maintenance and operation. Corps projects do not necessarily provide flood protection from the 100-year event, although a local sponsor may fund the cost for constructing additional protective measures.

As part of its Skagit River Feasibility Study, the Corps is investigating a number of potential alternatives, including additional flood storage in the Baker River system, construction of flood protection measures to contain flood flows within the existing levee alignment, construction of flood bypass channels, and flood-proofing of vulnerable structures. It is likely that no one measure would provide a complete solution, so a combination of projects would be needed to reduce the risk of flood damage throughout the basin.

The General Investigation is scheduled to be completed in 2009. The Corps is currently completing its investigation of existing conditions in the basin and a preliminary evaluation of potential flood reduction alternatives. When that work is complete, the Corps and Skagit County will assess whether to proceed with next steps in the study.

Once a General Investigation is finalized, a number of steps are required to qualify for funding. These steps include preparation of an EIS and report by the Corps District Chief of Engineers recommending the project to Congress, and receiving authorization and funding appropriations by Congress. Based on the history of flood control projects elsewhere in the state and in the County, it is not certain at this time whether the Corps would receive authorization and appropriations for a comprehensive Skagit River project, and whether such a project would be financially feasible for a local sponsor.

1.3 Requirements for Environmental Review

The Washington State Environmental Policy Act (SEPA) directs agency decision-makers to consider the environmental consequences of their actions. For this proposal, the City of Mount Vernon is the lead agency for SEPA compliance and has the primary responsibility for complying with SEPA procedural requirements. The City issued a Determination of Significance (DS) and EIS Scoping Notice on June 19, 2006. This DEIS has been prepared in accordance with the SEPA Rules, Washington Administrative Code (WAC) 197-11 and the Mount Vernon Municipal Code (MVMC) Chapters 15.06 and 15.60.

The SEPA Rules (WAC 197-11-408) require lead agencies to narrow the scope of every EIS to the probable significant adverse impacts and reasonable alternatives, including mitigation measures. The scope of this DEIS was determined through discussions among City staff and the City's project consultants, public response to the scoping notice, and comments gathered at a public workshop and scoping meeting held on July 11, 2006. The scoping process was used to solicit comments from affected government agencies, tribes, and members of the public on potential flood protection alternatives and the scope of the environmental issues to be addressed in this DEIS. A copy of the scoping notice and a summary of comments received is included in Appendix A.

After the DEIS public review period, a Final Environmental Impact Statement (FEIS) will be prepared and issued. The FEIS will include responses to comments received on the DEIS and may include, as appropriate, new alternatives or modifications to the alternatives considered, additional analyses, or discussion of additional measures that may be employed to mitigate environmental impacts.

In addition to completion and adoption of a SEPA FEIS, further environmental review under the National Environmental Policy Act (NEPA) may be needed before any "Action" alternative can be implemented. Like SEPA, NEPA is intended to help public officials make decisions that are based on an understanding of environmental consequences and to take steps that protect, restore and enhance the environment. NEPA applies to actions by federal agencies. NEPA compliance would be required for any federal agency providing funding and/or approval of permits for construction of flood protection measures.

1.4 Permits and Approvals

Preparation of an EIS and approval of permits for a proposal are related but separate processes. This DEIS and the FEIS to follow are planning-level documents designed to evaluate potential flood protection alternatives. Implementation of any selected "Action" alternative would require a variety of local, state, and federal permits, which would likely include:

- National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activities, Washington Department of Ecology
- Section 404 Permit, U.S. Army Corps of Engineers
- Water Quality Certification, Washington Department of Ecology
- Hydraulic Project Approval, Washington Department of Fish and Wildlife
- Shoreline Substantial Development Permit, City of Mount Vernon

- Fill and Grade Permit, City of Mount Vernon

It is the City's intention that any flood protection system constructed under an Action alternative would be designed to comply with applicable Corps of Engineers engineering specifications and guidelines for levees. This would enable the affected Dike District (Dike District No. 3) to qualify for public support under PL 84-99, which provides federal funds for maintenance and repair of flood protection structures. Although no formal permit or approval would be issued, it is the City's plan that the Corps would be engaged in construction inspection as necessary to accomplish this end.

The City would also need to enter into an agreement with Dike District No. 3 for inspection and maintenance of the flood protection system.

2. Description of the Alternatives

2.1 Alternatives Development

SEPA requires lead agencies preparing an EIS to evaluate a range of alternative courses of action. The alternatives evaluated should be "reasonable," that is, actions that can "feasibly attain or approximate a proposal's objectives, but at a lower environmental cost" (WAC 197-11-786). The term "reasonable" is intended to limit the number and range of alternatives, as well as the amount of detailed analysis for each alternative. SEPA requires that the "No Action" alternative be evaluated and compared to other alternatives.

For this DEIS, potential alternatives were developed from several sources, including previous studies by the U.S. Army Corps of Engineers and Skagit County as well as public input and involvement. Potential alternatives included flood bypasses or overflow channels, setback levees, floodwalls, and modification of existing levees. These alternatives were subjected to an initial screening-level evaluation of their hydrologic and hydraulic effects, environmental impacts, and impacts on the community to ascertain if they should be carried forward for further evaluation. The screening-level evaluation indicated that two potential alternatives could meet the project purpose and need and would be consistent with the defining criteria described in Section 1.1. Those alternatives are: (1) raising the existing levee along the downtown waterfront from Lions Park to the Mount Vernon wastewater treatment plant (WWTP), with some alignment modifications, and (2) construction of a permanent floodwall on top of the existing levee from Lions Park to the WWTP, with some alignment modifications.

City representatives presented these alternatives as well as the "No Action" alternative at the public workshop and EIS scoping meeting. In response, other potential alternatives were proposed by individuals and organizations as part of the public scoping process. Those proposals are discussed below.

2.1.1 Flood Bypass

Commenters responding to the EIS scoping notice proposed two flood bypass options. Each of these options would involve construction of a new side channel that would divert a portion of the flow from the Skagit River main channel during flood events.

One proposed flood bypass plan would involve construction of a bypass on the right bank of the Skagit River in the vicinity of west Mount Vernon. As proposed, this bypass would be a straight, trapezoidal-shaped channel formed by the construction of dikes on the existing grade. The bypass would be approximately 1.2 miles long with an inlet located at the lower end of the Riverbend reach and an outlet located at the upper end of the next meander at approximately RM 11.7.

As part of the screening-level evaluation of potential alternatives, hydraulic modeling and analysis were conducted to investigate the effectiveness of a flood bypass in the Mount Vernon reach. The analysis indicated that flood water surface elevations in this river reach are largely controlled by downstream channel conditions that create a "backwater" effect. Because of the limited channel hydraulic capacity downstream, a flood bypass in the Mount Vernon reach would provide only a slight reduction in water surface elevations

during flood events (Pacific International Engineering 2003). For this reason, the local flood bypass option was not carried forward for detailed evaluation in this DEIS.

The Skagit Fisheries Enhancement Group proposed consideration of a new Skagit River distributary channel draining from the Sterling area and emptying into Padilla Bay. It was recommended that the new channel be designed for year-round flows with the creation of salmon habitat as a priority. The new channel would function as a flow bypass when the Skagit River reached flood stage.

A constructed distributary channel such as that proposed by the Skagit Fisheries Enhancement Group could potentially provide high quality rearing and freshwater-to-saltwater transition habitat for a variety of salmon species. A channel of this type could also potentially create the downstream hydraulic capacity needed to reduce backwater effects and lower flood water surface elevations in the Mount Vernon reach. However, because this potential alternative would involve significant acquisition of land and construction in geographic areas outside the City's jurisdiction, the City would be unable to implement the work on its own. Therefore, although this potential alternative was not carried forward for further evaluation for this DEIS, the proposal's potential benefits merit more detailed evaluation by the SRIP as part of a comprehensive strategy for reducing flood risks throughout the basin.

2.1.2 Portable Floodwalls

One commenter recommended that the use of a portable floodwall be considered as part of the alternatives evaluation as a means to improve public access to the river. Some communities in other flood-prone areas of the country have incorporated portable floodwall sections into permanent levees or floodwalls as a way to improve public access to the shoreline during low-flow periods. Communities that have used this approach include Dayton, Ohio, Hannibal, Missouri, and Evansville, Indiana. The portable floodwall scheme used in Dayton, Ohio is typical: when that municipality constructed RiverScape Plaza, a community events space on the Great Miami River, two portions of an existing levee were removed. The main opening is 160 feet wide and a secondary opening is 30 feet wide. During high water events, public works and parks crews use a backhoe to install aluminum stop logs into the openings. The work takes several hours to complete.

In an effort to find an effective flood-fighting alternative to sandbags, the City Mount Vernon investigated two types of temporary flood barriers and plans to obtain a portable floodwall that consists of 4-foot tall plywood plates treated with a moisture barrier. The floodwall is intended for deployment along the west side of Main Street during flood events.

Because of the time required to retrieve portable floodwall sections from storage, transport the sections to the riverfront, and deploy them, this approach is not considered a permanent solution. The portable floodwall would not be high enough to provide protection at the 100-year flood level and could not meet FEMA certification requirements. However, the use of portable floodwalls in short sections of a permanent floodwall or earthen levee could enhance public access to the Skagit River and this option was included in all of the action alternatives that were carried forward for further analysis.

2.1.3 Setback Levees

The Washington Department of Fish and Wildlife (WDFW) recommended setback of the existing levee to reduce confinement of the river channel, improve management of sediment and debris loads through natural river processes, and enrich fish and wildlife habitat. No specific setback widths were proposed.

Realignment of the levee to provide greater channel capacity would involve removal of the existing levee along the downtown waterfront, acquisition of land, and removal of existing businesses, homes, and infrastructure along the new levee alignment. This potential alternative would provide additional fish and wildlife habitat, but at a high cost to the community. Numerous structures, including some of historical significance, would need to be demolished, and existing businesses would be forced to close or relocate. Vital infrastructure such as the City's WWTP would either need to be relocated or protected from flooding by other means. Setback levee alternatives that have been previously investigated by the Corps and others have generally received a low level of support by those who work, live, or do business in the area. Written and oral comments received during public scoping for this DEIS stressed that members of the community support the alternative that is least disruptive. The City supports restoration of fish and wildlife habitat in locations that would provide significant habitat benefits while minimizing impacts on the community. The shoreline along west Mount Vernon is one such location, and the City recently completed a habitat restoration project at Edgewater Park, in cooperation with the Skagit Fisheries Enhancement Group and Skagit Watershed Council.

Notwithstanding the potential for community disruption, hydraulic modeling and analysis was conducted to evaluate the effectiveness of a setback levee in reducing flood water surface elevations in the Mount Vernon reach. As with the local bypass option, a setback levee would provide only a moderate decrease in flood water surface elevations because of backwater effects created by downstream channel conditions (Pacific International Engineering 2003).

Because of the potentially significant impacts on the community and limitations on the effectiveness of a setback levee to reduce flood threats, this potential alternative was not carried forward for further analysis.

2.1.4 Alternative Floodwall Alignment

As presented to the public during scoping, the alignment of the raised levee would be on the landward side of the Commercial Cold Storage facility, leaving that facility vulnerable to damage during major floods. In addition, the toe of the levee slope between Broadway and West Section Street would be less than 20 feet from the face of the Commercial Cold Storage buildings on First Street, severely restricting truck access and emergency vehicle access to the facility.

Scoping comments received from the business owner and other community members indicated a strong interest in the development of an alternative that would avoid these impacts. In response to these concerns, an optional floodwall alignment was developed. Under this option, the area west of Main Street from just north of Kincaid Street to the Commercial Cold Storage facility would be filled to an elevation of +28.5 feet (see Figure 6). A floodwall would tie into the filled area and continue on the west side of the Commercial Cold Storage buildings. South of the Commercial Cold Storage facility, the

floodwall would be tied into the existing levee alignment and continue past the Mount Vernon WWTP to Riverview Lane. This would allow continued truck access to the loading docks on the west side of the facility as well as emergency vehicle access. This option was carried forward for detailed analysis.

2.2 Alternatives Considered in Detail

2.2.1 Alternative 1 – Earth-Fill Levee Modification

The levee modification alternative would involve raising the existing levee and constructing some new earthen levee segments from Lions Park south to Riverview Lane to a height that could be certified by FEMA to provide protection from the 100-year flood. (See figures 3a-3c.) In order to raise the existing levee, the structure would also need to be widened, and all of the existing buildings located west of Main Street between Division and Kincaid Streets and the Moose Lodge would need to be removed to accommodate the wider levee. The widened levee would also occupy a portion of all parcels abutting First Street between Broadway and West Section Street and approximately six residences would need to be removed. Existing buildings at Lions Park would need to be removed and replaced.

The modified levee would follow the existing levee alignment from Lions Park to Division Street. In this area the riverward levee slope would be 2:1 (horizontal:vertical) and the landward slope would be 3:1. At the north end of Lions Park, Freeway Drive would be raised four feet to block floodwaters coming from the north. The raised levee would tie into a new floodwall that would be constructed under the Division Street Bridge in front of the existing bridge abutment, eliminating vehicle access under the bridge.

Between Division Street and Kincaid Street, a new levee segment would be constructed, following the alignment along which sandbag barriers have been placed during past flood fights. This alignment is closer to the river than the existing levee. The riverward slope would be 2:1 and the landward slope would be 3:1. The top of the levee in this area would be six to eight feet above the existing grade. New development that may occur in the future would be permitted up to the toe of the levee.

Between Kincaid Street and West Broadway, the new levee would angle southeast to rejoin the existing levee alignment at South First Street. Before starting construction of the modified levee, fill would be placed in this section to raise the base grade to the same elevation as adjacent areas.

The existing levee would be raised along South First Street between Broadway and Hazel Street, continuing past the Mount Vernon WWTP to Riverview Lane. As with the other levee segments, the riverward slope would be 2:1 and the landward slope would be 3:1. A ring dike would be constructed around the WWTP.

Ramps would be constructed on both sides of the levee at Virginia Street to provide truck access to the commercial Cold Storage loading docks on the west side of the facility. Similar ramps would also be required to provide access to the Darigold plant and the currently-vacant warehouse near the end of Hazel Street. Britt Road and the entrances to the WWTP would be re-graded to allow truck access over the modified levee.

The riverward slope of the new levee segments and modified levee would be stabilized as needed with rock riprap. The landward slope would be seeded with a mixture of grasses.

A pathway dedicated to non-motorized use would be constructed along the top of the modified levee from Lions Park to Division Street and from Kincaid Street to Riverview Drive. The pathway would be 12 feet wide and flanked by 2-foot wide gravel shoulders on both sides. The pathway would extend in front of the new floodwall under the Division Street Bridge and return to the top of the levee south of the bridge. The City would need to work with the underlying property owners to obtain easements for the pathway.

The existing boardwalk and cantilevered parking structure that run from just south of the Division Street Bridge to Kincaid Street would be removed and replaced with a pedestrian promenade that would provide a connection between the pedestrian pathway to the north and south. This would involve removal of the existing boardwalk, the flat concrete panels that form the parking structure, and the existing concrete support pilings. The pilings would either be pulled completely or severed at the mudline; the City would consult with WDFW on the preferred method of removal to minimize potential impacts to fish and aquatic habitat. New support pilings would be installed landward of the existing pilings, at an elevation above the ordinary high water (OHW) mark on the Skagit River. In contrast to the existing structure, the riverward edge of the promenade would not extend over the OHW mark.

The elevated portion of the new promenade would be 24 feet wide and approximately 1,300 feet long. The surface of the promenade would consist of pre-cast concrete panels supported along the riverward edge by cast-in-place concrete piling caps and approximately 60 new concrete pilings. The landward edge of the promenade would be flush with the top surface of the modified levee and supported by a cast-in-place footing incorporated into the levee structure. The promenade would be designed to support public gatherings and would be off-limits to vehicle traffic, except for occasional use by maintenance and emergency response vehicles.

As a safety measure, the area underneath the promenade would be blocked from public access. The promenade would be equipped with a handrail along the riverward edge, lighting, seating, waste receptacles, and other amenities. Access to the pathway and pedestrian promenade would be provided via stairs and ramps at designated intervals.

Construction of the levee modifications would affect approximately 350 existing parking spaces west of Main Street between Division and Kincaid, as well as some parking behind businesses between Lions Park and Division Street. Once levee construction was complete, two new parking lots would be constructed, one between Division and Myrtle Streets with approximately 140 spaces and one at the foot of Kincaid Street with approximately 25 spaces. An additional 185 parking spaces would need to be created in other locations downtown to fully replace lost parking capacity.

2.2.2 Alternative 2 – Floodwall

This alternative would involve installation of a new floodwall, constructed either of concrete or sheetpile, from Lions Park south to Riverview Lane (see Figures 4a – 4c). All of the existing buildings west of Main Street, the Moose Lodge, and one building on the

Commercial Cold Storage property would be demolished to allow construction of the floodwall.

At the north end of Lions Park, a short earthen levee segment would be constructed to connect the floodwall to Freeway Drive and Freeway Drive would be raised by four feet to block floodwaters coming from the north.

To maintain access to Lions Park and the Skagit River shoreline, two 25-foot openings would be provided in the floodwall. During floods, these opening would be sealed with stop logs backed by sandbags. The openings would be wide enough to allow recreational vehicles (RVs) to access the existing dump station located in the park. At Lions Park, the new floodwall would be one to six feet higher than the existing floodwall and earthen levee.

From Lions Park to Division Street, the floodwall would follow the alignment of the existing levee. Along this section, the floodwall would extend two to six feet above the existing levee. The floodwall would extend under the Division Street Bridge in front of the existing bridge abutment, eliminating vehicle access under the bridge.

Between Division and Kincaid Streets, the floodwall alignment would be approximately 15 feet east of the existing parking structure gutter, following the alignment along which sandbags have been placed during past flood fights. This alignment is closer to the river than the existing levee. The top of the floodwall in this area would be six to eight feet above the existing grade. New development that may occur in the future would be permitted no closer than about 20 feet landward of the east face of the floodwall.

The area west of Main Street from just south of Kincaid Street to the Commercial Cold Storage facility would be filled to an elevation of +28.5 feet and the floodwall would run along the west side of the filled area and continue on the west side of the Commercial Cold Storage buildings. South of the Commercial Cold Storage facility, the floodwall would return to the existing levee alignment and continue past the Mount Vernon WWTP to Riverview Lane. A ring dike would be constructed around the WWTP.

An opening in the floodwall would be provided near the end of Park Street to maintain access to the Darigold facility and a currently-vacant building located near the end of Hazel Street. Openings would also be provided along Britt Road for access to the WWTP. During floods, each of these openings would be sealed using stop logs and a removable H-beam pile brace.

As with the levee modification alternative, the floodwall alternative would include removal of the existing boardwalk and cantilevered parking structure and installation of a pedestrian promenade. Demolition of the existing boardwalk and parking structure and construction of the new promenade would proceed as described under the levee modification alternative. The landward edge of the promenade would be flush with the top surface of the floodwall and supported by a cast-in-place concrete footing incorporated into the floodwall. The new pilings supporting the riverward edge of the promenade would be installed above the OHW mark.

Construction of the floodwall would affect approximately 350 existing parking spaces west of Main Street between Division and Kincaid. Once construction was complete, approximately 380 parking spaces would be created between the floodwall and Main

Street north of Kincaid Street and 100 spaces created between the floodwall and First Street south of Kincaid Street. An additional 110 spaces would need to be created in other locations downtown to fully replace lost parking capacity.

2.2.3 Alternative 3 - No Action

Under this alternative, the City would not construct new floodwalls, raise the existing earthen levee, or undertake other actions to provide FEMA-certified 100-year flood protection for the historic downtown area. Current plans that are in place to respond to flood emergencies would remain in force. In situations when the downtown area is threatened by flooding on the Skagit River, the City would continue to cooperate with Skagit County, the local dike districts, other governmental agencies, and volunteers in flood-fighting efforts. These efforts historically have involved placement of sandbags to increase the levee height in vulnerable locations along the riverfront between Lions Park and the City's WWTP. Photographs of typical sandbag placements are shown on Figures 8a and 8b. Flood-fighting efforts would also include deployment of the portable floodwalls the City plans to obtain. Under the No Action alternative, the City could move forward its efforts to plan for redevelopment of the downtown area, but uncertainties associated with future floods would continue to impose severe and potentially insurmountable constraints on redevelopment efforts.

2.3 Preferred Alternative

The three alternatives described above were considered in detail, and a comparison was made of the alternatives' potential benefits and impacts. As a result, a fourth alternative was developed in an effort to identify a potential course of action that would achieve the City's purpose and needs, be consistent with the eight "must meet" criteria identified in Section 1.1, and avoid or minimize community disruption and impacts on the natural environment. This alternative, which combines elements of the floodwall and earthen levee modification alternatives and incorporates the Commercial Cold Storage floodwall option, was identified as the City's Preferred Alternative. This alternative is illustrated on Figures 7a through 7e.

The floodwall/modified earthen levee system would be constructed to a height that could be certified by FEMA to protect downtown Mount Vernon from the 100-year event. FEMA relies on flood-flow estimates provided by the Corps of Engineers to determine what areas lie within a 100-year floodplain. Section 3.4.1.1 describes work conducted for Skagit County indicating that the Corps' peak flow estimate for the 100-year flood on the Skagit River is too high (Pacific International Engineering 2004). The peak flow calculations are critical to the design of the flood protection system because of FEMA requirements for freeboard (that is, the portion of the floodwall or levee that stands above the peak flood stage). If the design flow is too low, the floodwall or levee may not be able to withstand peak flows during a flood event. Conversely, an overly conservative estimate for the design flow would result in the construction of a flood protection system that is higher than necessary and which is more expensive to construct.

The Preferred Alternative described here and the analyses in this DEIS are based on the assumption that the flood protection system would be designed and constructed using the Corps' current peak flow estimate. Should further review of Skagit County's flood flow analysis result in a reduction in the design flow, the height and width of the new flood protection system would be reduced, and result in a smaller project footprint.

Construction of the Preferred Alternative would involve removal of all of the existing buildings located west of Main Street between Division and Kincaid Streets as well as the Moose Lodge and the northernmost building on the Commercial Cold Storage property. Impacts on properties abutting First Street between Broadway and West Section Street would be avoided.

Within Lions Park, the existing floodwall would be raised. To maintain access to Lions Park and the Skagit River shoreline, two 25-foot openings would be provided in the floodwall. During floods, these opening would be sealed with stop logs backed by sandbags. The openings would be wide enough to allow recreational vehicles (RVs) to access the existing dump station located in the park. At the north end of Lions Park, Freeway Drive would be raised four feet to block floodwaters coming from the north.

From Lions Park to the Division Street Bridge, the existing earthen levee would be raised and widened. The raised levee section would tie into a new floodwall that would be constructed under the Division Street Bridge in front of the existing abutment, eliminating vehicle access under the bridge. Depending on the results of more detailed geotechnical investigations, portions of the existing levee from Lions Park to the Division Street Bridge may need to be rebuilt to ensure that the structure conforms to Corps requirements for structural stability. This would involve temporarily removing the existing fill material and rebuilding the levee to the new height and width. It is expected that the majority of the existing levee fill material could be re-used in the reconstructed levee.

Between Division Street and Kincaid Street, a new levee would be constructed, following the alignment along which sandbag barriers have been placed during past flood fights. This alignment is closer to the river than the existing levee. The riverward levee slope would be 2:1 and the landward slope would be 3:1. The top of the levee in this area would be six to eight feet above the existing grade. As illustrated on Figure 7a, it is possible that portions of the new flood protection system between Division and Kincaid Streets would consist of a concrete or sheetpile floodwall instead of an earthen levee. The determination as to whether a floodwall or earthen levee would be used in a particular location would be made at final design.

The area west of Main Street from just south of Kincaid Street to the Commercial Cold Storage facility would be filled to an elevation of +28.5 feet. A floodwall would tie into the southern end of the fill and continue along the west side of the Commercial Cold Storage buildings.

Beginning at the southern end of the Commercial Cold Storage facility, a new levee segment would angle southeast to rejoin the existing levee alignment at the end of Park Street. From Park Street to Riverview Lane, the existing levee would be raised and widened. Depending on the results of detailed geotechnical investigations, portions of the existing levee from Park Street to Riverview Lane may need to be rebuilt. A ring dike would be constructed around the WWTP.

The riverward slope of the new levee segments and modified levee would be stabilized as needed with rock riprap. The landward slope would be seeded with a mixture of grasses.

A pathway dedicated to non-motorized use would be constructed along the top of the modified levee from Lions Park to Division Street. The pathway would be 12 feet wide

with 2-foot wide gravel shoulders on both sides. The pathway would extend in front of the new floodwall under the Division Street Bridge and return to the top of the levee south of the bridge. South of Kincaid Street, the pathway would run along the top of the existing levee on the east side of the Commercial Cold Storage Plant and then be routed along the top of the modified levee from Park Street to Riverview Lane. The City would need to work with the underlying property owners to obtain easements for the pathway.

The existing boardwalk and cantilevered parking structure that run from just south of the Division Street Bridge to Kincaid Street would be removed and replaced with a pedestrian promenade. This would involve removal of the existing boardwalk, the flat concrete panels that form the parking structure, and concrete support pilings. The pilings would either be pulled completely or severed at the mudline; the City would consult with WDFW on the preferred method of removal to minimize potential impacts to fish and aquatic habitat. New support pilings would be installed landward of the existing pilings, at an elevation above the OHW mark on the Skagit River. The specific method used to install the new pilings would be determined once detailed geotechnical investigation of the site was completed.

The elevated portion of the new promenade would be 24 feet wide and approximately 1,300 feet long. The surface of the promenade would consist of pre-cast concrete panels supported along the riverward edge by cast-in-place concrete piling caps and approximately 60 new concrete pilings. In contrast to the existing structure, the riverward edge of the promenade would not extend over the OHW mark on the Skagit River. The landward edge of the promenade would be flush with the top surface of the modified levee and supported by a cast-in-place footing incorporated into the levee structure. The promenade would be designed to support public gatherings and would be off-limits to vehicle traffic, except for occasional use by maintenance and emergency response vehicles.

As a safety measure, the area underneath the promenade would be blocked from public access. The promenade would be equipped with a handrail along the riverward edge, lighting, seating, waste receptacles, and other amenities. Access to the pathway and pedestrian promenade would be provided via stairs and ramps at designated intervals.

Construction of the Preferred Alternative would take an estimated two years to complete.

3. Affected Environment, Impacts of the Alternatives, and Mitigation Measures

3.1 Introduction

This chapter describes the existing environmental conditions in downtown Mount Vernon and vicinity, analyzes the potential impacts of the Preferred Alternative and No Action alternative, and discusses appropriate management and mitigation measures that could be employed to avoid or reduce potential adverse environmental impacts. Permits that may ultimately be issued for implementation of an action alternative could contain additional requirements for mitigation.

This chapter is organized by environmental component such as air, water, and biological resources, and includes discussion of the built environment, including land use and transportation. This section focuses on the potential significant adverse impacts identified during the public scoping process as issues of concern. It also discusses some impacts that would not be significant, as well as potential benefits of the alternatives.

The description of existing environmental conditions and the discussion of potential effects focus on the area or areas that could be directly or indirectly affected by implementation of the Preferred Alternative. In general, the area of potential effects includes the downtown core between the Skagit River and I-5, south to Dike Road/Vera Street. Elements of the environment that could potentially experience farther-reaching effects (e.g., water, plants and animals) are discussed in broader geographic terms.

As discussed in the previous chapter, it is possible that the structural footprint of the Preferred Alternative would be reduced if a lower design flow based on Skagit County's peak flow analyses for the 100-year flood is used for final design of the flood protection system. In that case, impacts on earth, existing structures, parking, and utilities would likely be less than those described in the following sections.

3.2 Earth

3.2.1 Existing Conditions

3.2.1.1 Geology and Topography

Mount Vernon is located within the Puget Lowland physiographic province, the low-lying region situated between the Cascade Range to the east and the San Juan Islands to the west. The present-day geomorphic features of the Puget Lowland were formed approximately 18,000 years ago during the last period of continental glaciation in the region (Lasmanis 1991). During that period, the Puget Lobe of the Cordilleran ice sheet advanced from British Columbia and covered the entire lowland to just south of Olympia. Rivers draining the west side of the Cascades were dammed by the ice sheet and diverted south along the flanks of the Cascade Range and around the terminus of the ice sheet.

Glacial deposits in the Skagit River valley were formed as the Puget Lobe receded and left behind thick glaciomarine deposits composed of poorly sorted rock fragments and finer material (Dragovich and Grisamer 1998). In the vicinity of Mount Vernon west of Interstate 5 (I-5), the glacial deposits are overlain by surficial deposits of Skagit River

alluvium consisting of well to moderately-sorted silt, clay, and fine sand with minor coarse sand and gravel. To the east of I-5, surficial deposits consist primarily of till outwash, landslide debris and colluvium with interbedded sand, silt, and clay and minor lenses of coarse-grained sand and gravel (Whetten et al. 1988).

The Skagit River valley downstream of Sedro-Woolley widens to a flat outwash plain that joins the Samish valley and extends west through Mount Vernon to La Conner and south to the Stillaguamish River. The floodplain below Sedro-Woolley has an east-west width of approximately 11 miles and a north-south width of about 19 miles (Pacific International Engineering 2005).

More than 1,000 earthquakes occur in the state annually, with most of these earthquakes occurring in western Washington (Washington DGER 2006).

Shallow, crustal earthquakes are the most commonly occurring earthquakes in the region. The nearest recognized fault is the Devils Mountain fault, located approximately 4 miles south of the downtown area (Golder Associates 2006). This fault forms a prominent, 20-mile long lineament in the western foothills of the Cascades, and subsurface and geophysical data suggest that the fault extends across the Skagit River delta. The recurrence interval and magnitude of earthquakes occurring along the Devils Mountain fault are not known.

According to the *International Building Code*, which was adopted by the Washington State Legislature as the official state building code as of July 1, 2004, downtown Mount Vernon lies within the D-E and E seismic design categories. Seismic design categories, which range from A through F, indicate the potential for amplified ground shaking and are based on the type of bedrock characteristics of a given area. Design categories D-E and E indicate a high level of susceptibility to ground liquefaction from seismic activity.

Mount Vernon lies within a region that has been affected by eruptions from Mount Baker and Glacier Peak, two of the state's major volcanoes. Debris avalanches and lahars (volcanic debris flows) from Mount Baker have flowed down the Baker and Skagit rivers and lahars and pyroclastic flows from Glacier Peak have extended more than 60 miles down the Skagit River (Washington DGER 2006). Geologic hazard mapping of Skagit County places Mount Vernon within the hazard zone for eruption-related lahars from both Mount Baker and Glacier Peak (USGS 2000a, 2000b).

The volcano most likely to represent a hazard to the Mount Vernon area is Glacier Peak. A large lahar could reach the area several hours after a volcanic eruption. However, the potential for a lahar of this size is low, estimated at an annual probability of 0.0001 to 0.0002 (Golder Associates 2006). This means that in any given 10,000-year period, there would likely be one to two lahars originating at Glacier Peak that would be large enough to reach Puget Sound.

3.2.1.2 Soils

The Soil Survey of Skagit County Area, Washington (Klungland and McArthur 1989) identifies four soil map units in the downtown area between the Skagit River and I-5. These soil types are identified on Figure 9 and described in Table 1.

Table 1. Soil Types in Downtown Mount Vernon

Map Unit Symbol	Map Unit Name
20	Bow-Urban land complex, 0 to 8% slopes
96	Mt. Vernon very fine sandy loam
105	Pilchuck variant fine sandy loam
152	Urban land-Mt. Vernon-Field complex

Bow-Urban Land Complex. Soils of this map unit occur in an area west of I-5 roughly between West Fir Street and the First Street-Freeway Drive intersection. These soils occur on glaciated terraces and hills with broad, smooth slopes. The unit consists of approximately 60 percent Bow gravelly loam and 35 percent urban land.

The Bow soil is very deep and somewhat poorly drained. It formed in material derived from glacial till and lake sediment mantled with volcanic ash. Permeability is slow and the available water capacity is high. Runoff is moderate and the hazard of water erosion is slight. The main limitations for building are wetness and shrink-swell potential.

Urban land consists of areas covered by streets, buildings, parking lots, and other structures that obscure the soils so that identification is generally not feasible.

Mt. Vernon Very Fine Sandy Loam. In the downtown area this map unit occurs between the Skagit River and West Hazel Street. The soil occurs on floodplains with 0 to 3 percent slope and is very deep and moderately well drained. It formed in recent alluvium with an admixture of volcanic ash. Included in the map unit are small areas that have slopes greater than 3 percent and poorly drained soils that occur in swales.

Permeability of this soil is moderate and available water capacity is high. Runoff is slow and the hazard of water erosion is slight. The seasonal high water table occurs at a depth of 24 to 48 inches from November to April. The main limitations for building are flood hazard and the seasonal high water table.

Pilchuck Variant Fine Sandy Loam. In the downtown area this map unit is generally bounded by the Skagit River on the west, Riverbend Drive on the north, and Freeway Drive on the east. The soil occurs on terraces and levees with a slope of 0 to 3 percent and is very deep and moderately well drained. It formed in alluvium.

Permeability of this soil is moderately rapid and available water capacity is moderate to moderately high. Runoff is slow and the hazard of water erosion is slight. The seasonal high water table occurs at a depth of 48 to 60 inches from November to April. The main limitation for building is flood hazard.

Urban Land-Mt. Vernon-Field Complex. This is the major map unit in the downtown area. It occurs on floodplains and natural levees with slopes of 0 to 3 percent. This unit is approximately 40 percent urban land, 30 percent Mt. Vernon very fine sandy loam, and 20 percent Field silt loam. Included in this map unit are small areas that have slopes greater than 3 percent and soils that are poorly drained.

As described above, the urban land consists of structures that obscure the soils so that identification is generally not feasible.

The Mt. Vernon soil is very deep and moderately well drained. It formed in recent alluvium with an admixture of volcanic ash. Permeability of this soil is moderate and available water capacity is high. Runoff is slow and the hazard of water erosion is slight. The seasonal high water table occurs at a depth of 24 to 48 inches from November to April. The main limitations for building are flood hazard and the seasonal high water table.

The Field soil is very deep and moderately well drained. It formed in recent alluvium with an admixture of volcanic ash. This soil can be distinguished from Mt. Vernon soil by its somewhat finer texture in the upper layers. Permeability is moderate and available water capacity is high. Runoff is slow and the hazard of water erosion is slight. The seasonal high water table occurs at a depth of 24 to 60 inches. The main limitations for building are flood hazard and the seasonal high water table.

3.2.1.3 Mineral Resources

The *Skagit County Comprehensive Plan Natural Resource Conservation Element* (Skagit County 2003b) addresses mineral resources such as sand and gravel and designates mineral lands of long-term commercial significance. There are approximately 47 mines larger than 3 acres in the County that are permitted by the Washington Department of Natural Resources (DNR). Mines smaller than 3 acres do not require a DNR permit.

Approximately 600 to 800 acres in the County are available for mining sand, gravel, and quarry rock and DNR has issued permits for numerous sand and gravel pits in the area. Currently-permitted sand and gravel mines are listed in Table 2. The City of Mount Vernon owns and operates one of these sites.

Table 2. DNR-Permitted Sand and Gravel Pits in Skagit County

Owner Name	Pit Name	Group
3D-H Aggregates	3dH Aggregates	Private
Anacortes Skagit Co. Sand and Gravel	ASC Sand & Gravel	Private
Associate Sand & Gravel Co.	Butler	Private
BA Van De Grift	N/A	Private
Belfast Gravel Co.	Belfast Gravel	Private
CL McNallie	Fox Pit	Private
Carri Martin Larson	CM Trucking	Private
City of Mount Vernon	None	City
Concrete Nor'West	Samish River	Private
Concrete Nor'West	Butler Pit	Private
Concrete Nor'West	Belleville	Private
Concrete Nor'West	Butler DNR Mine	Private
Concrete Nor'West	Butler North	Private
Day Creek Sand & Gravel	Day Creek S&G	Private
Day Creek Sand & Gravel	Tennyson Pit	Private
Dept. of Transportation	PS-M-105	State
DNR – NW 714	Suiattle	State
Doug or Dixie Proctor	Proctor	Private

Ericksen & Svendsen Mill Co.	N/A	Private
Herman C. Hobbick	Tennyson Pit	Private
Meridian Aggregates Co.	Pacific Quarry	Private
Mount Vernon Associates Inc.	Big Rock	Private
Randy Martin	Barta Pit	Private
Robert L. Hornbeck	Casey's Pit	Private
Robert L. Tyree	N/A	Private
Shamrock Lands Inc.	Birdsview Mine	Private
Skagit County Public Works	Butler Pit	County
Skagit County Public Works	Upper Samish	County
Stanton Peterson	Peterson	Private
Tom K. Studebaker	Skagit	Private
Whatcom Skagit Quarries	N/A	Private
Whatcom Skagit Quarries	N/A	Private
Wilder Construction Co.	Conway Pit	Private
William W. Wooding	Anacortes Pit	Private
William W. Wooding	Lake Erie Pit	Private

Source: Golder Associates 2006

Permitted rock quarries in the area are listed in Table 3. There are no currently-active permits for metallic mineral or coal mines in the County.

Table 3. DNR-Permitted Rock Quarries in Skagit County

Owner	Pit Name	Group
Janicki Brothers	Cultus Mountain Quarry	Private
Lakeside Industries	Anacortes	Private
Lone Star Industries	Concrete	Private
Marvin Donovan	Donovan Pit	Private
Meridian Aggregates	Beaver Lake	Private
Meridian Aggregates	Pacific Quarry	Private
Skagit County Public Works	Rock Cut	County
Skagit County Public Works	Dukes Hill	County

Source: Golder Associates 2006

3.2.1.4 Levees

Construction of the levees along the Skagit River at Mount Vernon began in 1894, motivated by large floods in that year and two years earlier in 1892. The existing revetment along the downtown waterfront was built in the 1950s to stabilize the river bank along Front Street (City of Mount Vernon 2005).

In the vicinity of downtown, the levee is generally in good condition. There is typically rip-rap protection on the riverward face, although in some areas the riverward slope is moderately to heavily vegetated with small deciduous trees, grass, and shrubs. In a few areas the rip-rap has been displaced down slope. The top of the levee is covered either with gravel and grass, concrete, or asphalt.

The existing levee was constructed over alluvial deposits composed primarily of sand and gravel and which are well over 100 feet thick (Golder Associates 2006). Organic materials, including woody debris, logs, and peat layers up to 6 inches thick are scattered throughout. Soil density for cohesionless soils in the upper 40 to 60 feet

ranges from loose to compact, generally increasing with depth to dense to very dense. Cohesive soils show similar characteristics, ranging from firm to stiff in the upper 40 to 60 feet and increasing to very stiff below 40 to 60 feet.

Although the native soil conditions are fairly consistent, the materials making up the existing levee are more difficult to assess (Golder Associates 2006). Only two borings, one drilled by the Corps in 1978 and one drilled by Geotech Consultants in 2002, penetrated and described the levee fill. The Corps' boring encountered approximately 23 feet of fill, made up of a mixture of high plasticity silt, gravel, cobbles, and boulders. The more recent boring encountered approximately 13 feet of fill described as "black silt, with brick debris, concrete rubble, and black organics."

3.2.2 Impacts of the Alternatives and Mitigation Measures

3.2.2.1 Preferred Alternative

Short-term and Long-term Effects. Construction of the flood protection system would involve site preparation, excavation for floodwall footings and possibly levee cut-off trenches, placement of structural fill, and other ground-disturbing activities that could result in soil erosion. The erosion potential of soils is related to the soil type and slope steepness. Although the native soils in the area generally occur on flat to gentle slopes and have only slight hazard for water erosion, much of the construction work would occur on the existing levee sideslopes using a variety of imported soil materials. In the absence of proper management measures, erosion could lead to sediment-laden runoff being transported off-site or to the Skagit River.

Over the long term, levee erosion during floods can occur because high water increases the pressure against the levee, accelerates erosion, hastens saturation of levee soils, and may cause damage due to seepage. Levee failure is frequently a result of these forces, poor construction, flawed design, deterioration with age, or an extreme flood with flows greater than the design flow. Additional geotechnical investigation would be needed for detailed design of the flood protection system to confirm that foundation conditions are suitable and to evaluate weak zones in the existing earthen levee that may need to be remediated. If portions of the existing levee need to be rebuilt, some of the existing levee fill may not be suitable for re-use in the reconstructed levee. The unsuitable material would be disposed of at an approved upland disposal site.

Because the ground in downtown area has a high rating for susceptibility to liquefaction, and because the existing levee alignment is underlain by relatively loose, saturated, granular soils, liquefaction would be expected in the area in the event of a large earthquake. Liquefaction could result in loss of strength in the soil underneath the levees, causing them to settle unevenly, and possibly compromising their structural integrity. A lateral spreading failure could cause the levees to fail into the Skagit River or to spread over nearby structures. However, it is considered extremely unlikely that a large seismic event would occur at the same time as a flood (Golder Associates 2006).

Construction would cause changes in topography. An estimated 120,000 cubic yards (cy) of fill material would be needed to construct the floodwall segments, raise the existing earthen levee, and construct a new ring dike around the WWTP. The fill would be imported material with properties suitable for levee construction. The riverward slope of the modified levee would be armored with a two foot thick layer of rock rip-rap.

There are extensive sand and gravel deposits in the vicinity of Mount Vernon that could provide fill material for construction. One such deposit, located near Hamilton approximately 15 miles from the downtown area, consists of glacial outwash that is similar to the existing levee foundation material. As discussed above, there are also numerous sand and gravel pits in the vicinity that are already permitted by DNR and which could potentially provide material for levee construction. It is expected that rock rip-rap would be obtained from an existing permitted quarry or quarries in the area.

If improper construction techniques were used, it is possible that pile driving would cause vibration or soil settling that could affect the stability of nearby existing structures. As described below, management measures would be implemented to fully address this concern.

Mitigation Measures. Potential erosion impacts during construction would be mitigated using Best Management Practices (BMPs) for stormwater runoff and erosion control. The City would require its construction contractor(s) to follow the procedures for stormwater management and erosion control set out in the *Stormwater Management Manual for Western Washington* (Ecology 2001). Such BMPs could include, but would not be limited to:

- Minimizing the area of soil disturbance to the extent practicable
- Retaining existing vegetation where possible
- Routing surface water through temporary drainage channels or piping drainage around and away from exposed soil
- Intercepting and draining water from any surface seeps that may be encountered
- Using silt fences, silt dikes, check dams, or similar devices to retain sediment on site
- Using erosion control matting, mulching, or plastic covering on exposed soils
- Conducting construction during the summer months to the extent feasible
- Seeding or planting vegetation on exposed soils as soon as work is completed

Project construction would require coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction Activities. This would entail preparation of a Construction Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would identify how the stormwater pollution would be controlled during construction, and would include procedures for:

- Marking clearing limits
- Establishing construction access
- Controlling flow rates
- Installing sediment controls
- Stabilizing soils
- Protecting slopes
- Protecting drain inlets
- Stabilizing channels and outlets

- Controlling pollutants
- Controlling de-watering
- Maintaining BMPs

A Fill and Grade permit would be needed for construction. Permit requirements include a grading plan prepared by a licensed engineer in conformance with provisions of the *International Building Code*, a soils engineering report, and a detailed geotechnical investigation that evaluates the potential for soils liquefaction.

To meet FEMA certification requirements, the new flood protection system would need to conform to minimum design, operation, and maintenance standards that address the potential for damage or failure due to erosion.

Standards established in the Code of Federal Regulations (44 CFR Section 65.10) include requirements for design, freeboard, closure devices, embankment protection, levee and foundation stability, settlement, and interior drainage within a levee system. Engineering analyses would be required to demonstrate that no appreciable erosion of the levee would be expected during the base flood. Factors evaluated would include flow velocities, expected wind and wave action, ice loads, impact of debris, duration of flooding, and side slopes. Embankment and foundation stability would be assessed based on guidance provided in the Corps of Engineers manual *Design and Construction of Levees* (EM 1110-2-1913) and would take into consideration factors such as depth and duration of flooding, seepage paths, and construction materials and methods. The potential for levee settlement would be evaluated using the approach provided in the Corps of Engineers manual *Settlement Analysis* (EM 1100-2-1904).

A registered professional engineer would be required to certify the data submitted to FEMA used to demonstrate compliance with the structural requirements specified in 44 CFR Section 65.10.

It is expected that maintenance of the new flood protection system would be a local responsibility with federal oversight and assistance provided by the Corps' inspection program. A formal maintenance and monitoring plan would need to be officially adopted and would document procedures to ensure that the stability, height, and overall integrity of the system are maintained. Monitoring procedures would include inspections following any seismic event affecting the Mount Vernon area to make certain the floodwalls and levees were not structurally compromised by liquefaction.

The method used for installing pilings would be based on a detailed geotechnical investigation of the site. The installation method would be selected to minimize the potential for vibration and soil settlement. Existing conditions of nearby structures would be documented and photographed before the start of construction to establish a thorough baseline of structural conditions. Contractor operations would be restricted to ensure that no adverse effects on the stability of nearby buildings were allowed to occur.

3.2.2.2 No Action

Short-Term and Long-Term Effects. The No Action alternative would not involve construction of a new, permanent flood protection system and therefore no construction-related earth impacts would occur.

The existing levee along the downtown waterfront would continue to be maintained by Dike District No. 3, which owns, operates, and monitors the levee along the east bank of the river at Mount Vernon. This work would involve periodic repair of the levee and rip-rap armoring.

3.3 Air

3.3.1 Existing Conditions

3.3.1.1 Climate

The Mount Vernon area has a predominantly maritime climate characterized by mild temperatures year-round. Extreme temperatures are unusual because prevailing westerly winds bring maritime air over the region and provide a moderating influence throughout the year.

High-pressure centers predominate during spring and summer, and precipitation during those seasons is generally limited to light showers. The average summer temperature at Mount Vernon is 61° Fahrenheit (F) and the average daily maximum is about 73° F (Klungland and McArthur 1989).

In winter, the average temperature at Mount Vernon is 40° F; the lowest temperature on record, -4° F, occurred on January 26, 1957. During winter, the jet stream occasionally dips into the tropics and then carries a large volume of warm, tropical air into the Pacific Northwest. During those periods, temperatures at Mount Vernon can rise to the upper 50s or warmer. The average snowfall in the area is 7 inches; on average, there are 4 days per year when there is at least 1 inch of snow on the ground at Mount Vernon. The number of such days varies widely from year to year.

The total annual precipitation at Mount Vernon is 32 inches. Of this, approximately 70 percent falls during the 6-month period of October through March. Thunderstorms occur on about 7 days each year, and most occur during summer (Klungland and McArthur 1989).

Prevailing winds in the lower part of the Skagit River basin are generally from the southerly quadrant from September through May, and from the northerly quadrant from June through August (Pacific International Engineering 2005). During winter, storm winds generally vary from 20 to 30 miles per hour (mph), but can exceed 60 mph for short periods.

3.3.1.2 Air Quality

Air Quality Regulations. The Federal Clean Air Act established the National Ambient Air Quality Standards (NAAQS). The standards, which were developed to protect public health, define the maximum allowable concentrations of specific pollutants. A state may adopt standards that are more stringent than the NAAQS. Washington State has adopted standards for Total Suspended Particulates (TSP), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) that are more stringent than the national requirements.

The Washington Department of Ecology (Ecology) is responsible for regulating large new sources that emit air pollutants. Smaller air pollutant sources are generally

regulated by local air quality agencies. The Northwest Clean Air Agency (NWCAA) is responsible for administering air quality regulations in Skagit, Whatcom, and Island counties. NWCAA operates air monitoring stations at several locations, including Mount Vernon, where the agency monitors ambient concentrations of small size particulates (PM_{10} and $PM_{2.5}$) and ground-level ozone (O_3).

Existing Air Quality Conditions. Air quality in the area is generally good; in 2005, regional air quality met all clean air standards established to protect human health (NWCAA 2006). The commercial, industrial, and residential land uses in the downtown area produce air pollutants from motor vehicles, woodstoves, lawn and garden equipment, and other sources. Regionally, industrial facilities, commercial businesses, construction and logging, and transportation produce a variety of air emissions. The highest levels of monitored pollutants in the area are generally from wood smoke and diesel engines.

3.3.2 Impacts of the Alternatives and Mitigation Measures

3.3.2.1 Preferred Alternative

Short-Term and Long-Term Effects. During construction, particulates and engine exhaust would be generated as a result of earth-moving activities and use of heavy motorized equipment. Filling and grading associated with site preparation, embankment construction and use of temporary haul roads would release dust particles from exposed areas. Most of the dust particles would settle out immediately adjacent to the areas where construction was occurring, but a small fraction would temporarily contribute to the area's overall ambient particulate levels. Effects on ambient air quality would not be significant.

Exhaust from vehicles and other motorized equipment used during construction would temporarily increase concentrations of carbon monoxide, nitrogen oxides, volatile organic compounds, and particulates in the area, but these increases would not be significant.

After construction, there would be some windblown dust from exposed levee sideslopes. Although Corps of Engineers design guidelines do not allow the establishment of trees or other woody vegetation on levee sideslopes, exposed areas would be seeded with grass to stabilize the soil and reduce the potential for wind erosion.

Mitigation Measures. Measures that would be implemented to control particulate emissions during construction would include, but not be limited to:

- Watering exposed earth surfaces, including temporary haul roads, as needed.
- Using erosion control matting, mulching, or plastic covering as needed to control windblown dust from exposed soils.
- Installing tire washes at the construction site to minimize tracking of soil onto public roadways.

To control windblown dust following construction, vegetation would be established on the levee sideslopes and other areas that are not covered by buildings or pavement. Grass seeding and landscaping would occur as soon as practicable after construction.

3.3.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, air emissions in the downtown area would be expected to remain at existing levels, at least in the near term. Over the long term, air emissions in the downtown area would be expected to increase, primarily as a result of increases in vehicle traffic along the I-5 corridor associated with population growth in the City and region.

3.4 Water

3.4.1 Existing Conditions

3.4.1.1 Surface Water

Watershed Characteristics. The headwaters of the Skagit River are in Manning Provincial Park in British Columbia. From its headwaters, the river flows southerly to the Canada-United States border, and then south for 20 miles in Washington, where it breaks through the crest of the Cascade Mountains and flows westward. Downstream of Sedro-Woolley, the river flows in a southerly direction to Puget Sound. The basin has a total drainage area of 3,115 square miles.

The Skagit River falls rapidly from its source at elevation 8,000 feet to an elevation of 1,600 feet at the international border. Within the first 40 miles south of the border, the river falls 1,100 feet, and the remaining 500-foot fall is distributed along the 95 miles of the lower river.

In the vicinity of Mount Vernon, the channel gradient is approximately 1.5 feet per mile. This reach is comparatively placid with a wide, gravel-lined channel, soil embankments, and numerous side channels, oxbows, and overbank erosion scars created during large floods of the past (Pacific International Engineering 2005).

Immediately downstream of Mount Vernon, the river divides into two principal distributaries, the North Fork and the South Fork. These two distributaries carry approximately 60 percent and 40 percent, respectively, of the normal flows of the Skagit River into Puget Sound.

The Skagit River is considered a “high sediment” system, with predicted rates of bed accumulation for 100 years varying in depth from 4 feet at the mouths of the two distributaries to 2 feet at Mount Vernon. The river annually transports about 10,000,000 tons of sediment of mostly glacial origin.

The basin receives rain and snowmelt runoff during the fall, winter, and spring. Spring snowmelt runoff is caused mainly by melting of the winter snowpack, and is characterized by a relatively slow rise and long duration (Pacific International Engineering 2005). Some minor contribution to the rate and peak of the snowmelt is occasionally provided by warm spring rains, but the spring rain-on-snow impact is usually not significant. The highest mean monthly snowmelt discharges usually occur in June, although the maximum recorded spring snowmelt discharge at Mount Vernon occurred in April, 1959 and was 92,300 cubic feet per second (cfs).

The Skagit River and all of its major tributaries usually experience annual low flows during August and September. Flows increase significantly in fall and winter with the

advent of seasonal heavy precipitation. Flood events and the highest daily and instantaneous peak discharge of the year usually occur during this period. The heavy rains and warm winds that are typical of winter storms can cause streamflows to rise to flood levels in a matter of hours. Flows generally recede rapidly after a storm has moved through the region, although groundwater inflows and soil moisture usually remain high for several days.

The average annual runoff at the Mount Vernon stream gage is 73.2 inches. The maximum and minimum extremes at Mount Vernon during the 1941 – 1999 period are 101.6 and 46.1 inches, respectively.

Three dams on the upper Skagit River and two on the Baker River regulate flows and strongly affect flows in the lower Skagit. These include Ross, Diablo, and Gorge dams on the Skagit River and the Upper and Lower Baker dams on the Baker River. Construction of the Skagit River dams began in 1919 and all five reservoirs have been in operation since 1960. Ross Lake currently provides 120,000 acre-feet of flood storage and Baker Lake currently provides 74,000 acre-feet of storage. The Corps takes over control of flows at Ross and Upper Baker dams 8 hours before the unregulated (natural) flow of the Skagit River is predicted to exceed 90,000 cfs.

For Washington State watershed planning purposes, the Skagit River basin is divided into two Water Resource Inventory Areas (WRIAs). WRIA 3 encompasses the lower Skagit and Samish river basins, and WRIA 4 encompasses the upper Skagit basin.

A total of 58.5 miles of the mainstem Skagit River is designated for recreational use under the Wild and Scenic Rivers Act of 1968. The Skagit River Wild and Scenic River System is managed by the Mt. Baker-Snoqualmie National Forest.

Floods. The 100-year flood is defined as the maximum level of flood water expected to occur, on average, once every 100 years. To avoid confusion, hydrologists use the term “1 percent chance exceedance flood” since there is a 1 percent change that a flood equal to or exceeding the maximum level will occur in any year. Downtown Mount Vernon is located in the 100-year floodplain as identified in the NFIP administered by FEMA (see Figure 10).

Minor floods up to about the 10-year event usually last about three days, rising to major damage proportions in a day or less, reaching a flood crest within the next several hours, and receding rapidly in 24 hours or less. Major floods on the Skagit River result from winter storms moving eastward across the basin with heavy precipitation and warm, snow-melting temperatures. Several storms may occur in rapid succession, raising antecedent runoff conditions and filling stream storage areas.

The majority of flood damages in the Skagit River floodplain occur below Concrete, primarily from Sedro-Woolley to the mouths of the North and South Forks.

Topography and the existing system of levees provide flood protection for downtown Mount Vernon for floods with a peak discharge up to approximately 110,000 cfs (about a 10-year event). When a flood is forecast to be higher than the 10-year flood discharge, the City mobilizes a flood-fight response for the 1.5-mile reach between Lions Park and the WWTP. The flood fight involves deployment of available City resources and

community volunteers to build a sandbag barrier to keep downtown from being inundated with floodwater.

The elevation of the sandbag barrier depends on the predicted magnitude of flood discharge. During the recent major floods of November 1990, November 1995, and October 2003, sandbag placement in several areas exceeded the 100-yr flood elevation currently identified on the NFIP map. These three floods, which are described in more detail below, had magnitudes ranging between the 25- to 40-year frequency.

The City's current flood-fighting response using temporary placement of sandbags appears to be capable of providing downtown with protection from flooding for the 100-year event. However, since the City has not experienced a 100-year flood in recent times, it cannot be guaranteed that flood-fighting efforts using sandbags (and/or the portable floodwalls the City plans to obtain) would successfully protect downtown from flooding during an event of this magnitude. It is this uncertainty that results in the inclusion of the downtown area in the FEMA 100-year floodplain.

Six major floods have occurred on the Skagit River since 1949. The flood of November, 1949 had a peak discharge of 154,000 cfs at Concrete and 114,000 cfs at Mount Vernon. The peak of this flood was typical in that flood peaks usually attenuate between Concrete and Mount Vernon. This is attributed to channel storage and, for the 1949 flood, the relatively low volume of precipitation that fell in the lower basin.

The February, 1951 flood had a peak discharge of 139,000 cfs at Concrete, 150,000 cfs at Sedro-Woolley, and 144,000 cfs at Mount Vernon. Reservoir storage reduced the peak discharge at Concrete by approximately 13,000 cfs. However, because of the duration of the peak discharge between Concrete and Mount Vernon, the effect of channel storage on reducing the peak stage was minimized in the lower river reaches.

The flood of December, 1980 occurred as a result of steady, moderate rainfall accompanied by unseasonably warm temperatures (City of Anacortes 2006). The high temperature recorded on December 25 was 61° and the low was 50°. The peak discharge recorded at Mount Vernon was 114,000 cfs (USGS 2006).

Two significant floods occurred in November, 1990; the first occurred November 9-11 and the second on November 24-25. Both events required extensive flood fighting in and around Mount Vernon. The first flood had a slightly larger volume, although peak discharges of the two floods were similar. The peak discharge recorded at Mount Vernon was 152,000 cfs. During these floods, a major levee failure occurred downstream of Mount Vernon at Fir Island, causing a lower crest stage at the Mount Vernon gage. The hydraulic relief provided by the Fir Island levee failure was probably instrumental in preventing the failure of other major levees in the vicinity (USACE 2005).

Flows on the Skagit River reached 160,000 cfs at Concrete and 141,000 cfs at Mount Vernon during the flood of November, 1995. Mount Vernon was above "zero damage" stage for about four days and above "major damage" stage for three days. As a result of reservoir regulation and flood-fighting efforts, levees at Mount Vernon and Fir Island were able to withstand the flood without failing.

The flood that occurred on October 17-18, 2003 was followed by a larger event a few days later. The first flood peaked at 94,700 cfs at Concrete and 73,500 cfs at Mount

Vernon. The second flood was significantly larger and spread more completely across the upper Skagit River basin. It peaked at 166,000 cfs at Concrete and 129,000 cfs at Mount Vernon. Mount Vernon was above zero damage stage for 64 hours and above major damage stage for 47 hours. Like the November, 1995 floods, reservoir regulation and flood-fighting prevented failure of levees at Mount Vernon and Fir Island. The Corps estimated that regulation of flows from Ross and Upper Baker lakes reduced the flood peak by up to 8 feet (USACE 2003).

Flood Flow Estimates. The Corps of Engineers bases its Skagit River flood flow estimates on U.S. Geological Survey (USGS) documentation (Stewart and Bodhaine 1961). Based on this documentation, the Corps estimates that the peak flow for the 100-year flood on the Skagit River at Concrete is 226,400 cfs with the existing dams in place (USACE 2005). This is termed the "regulated flow." The Corps' estimate for regulated 100-year peak flow at Mount Vernon is 221,510 cfs.

Work conducted for Skagit County indicates that these figures overestimate the peak flow for the 100-year flood (Pacific International Engineering 2004). This conclusion is based on uncertainties associated with flow estimates for four historical floods that occurred in 1897, 1909, 1917, and 1921, before installation of the USGS gage at Concrete.

A steady-flow HEC-RAS model was developed in an effort to more accurately estimate peak flows for the four unrecorded floods. The model was calibrated to the October, 2003 flood high water marks surveyed by the USGS and verified using USGS observations at the Concrete gage for other recent floods on the Skagit River. Using the modeled results for the four unrecorded historical floods and 80 years of gage data, the County's consultants calculated the regulated 100-year flood peak flow to be 192,300 cfs at Concrete and 174,200 cfs at Mount Vernon (Pacific International Engineering 2005).

As discussed in Chapter 2, the peak flow calculations are a critical element in the design of any floodwall or levee because the peak flow determines how high the flood protection system needs to be to safely withstand flows during the design flood.

Existing Plans for Flood Emergency Response. Local, state, and federal agencies have responsibilities during flood emergencies and several plans are in place to respond to flood emergencies in the Skagit River basin.

The Department of Homeland Security last updated the *National Response Plan* in May, 2006. This plan establishes a comprehensive, all-hazards approach for responding to domestic emergencies. Within the Department, FEMA manages the NFIP and implements a variety of programs authorized by Congress to reduce losses that may result from flooding. The agency provides training for emergency managers and personnel directly involved with responding to flood emergencies. Through its Continuity of Operations program, FEMA is authorized to assist local government in maintaining essential services during flood emergencies. FEMA can also assist with funding a portion of disaster recovery and hazard mitigation activities after a flood.

At the state level, the *Washington State Enhanced Hazard Mitigation Plan* identifies hazard mitigation goals, objectives, actions and initiatives for state government that will reduce injury and damage from natural hazards. The Governor has the legal responsibility for directing and controlling all state efforts to protect lives and property

during flood emergencies. The Governor may initiate coordination of emergency preparedness measures and is responsible for coordinating support and resources from other states and the federal government. The Emergency Management Division of the Washington Military Department coordinates resources to minimize the impacts of disasters and emergencies on people, property, the environment and the economy.

The *Skagit County Comprehensive Emergency Management Plan* establishes local government emergency response and recovery activities. Under the direction of the Skagit Emergency Management Council, the Skagit County Department of Emergency Management has the responsibility for coordinating disaster preparedness, response, recovery, and mitigation efforts for the county and municipalities. The *Skagit County Natural Hazards Mitigation Plan* was developed to assist communities in identifying hazards that could impact them, determining the vulnerability of the communities to these hazards, and identifying mitigation strategies to prevent or reduce impacts through a coordinated, multi-jurisdictional approach.

Dike District #3 follows standard operating procedures that include an agency meeting 24 hours prior to anticipated flooding, limited dike patrolling and reporting when the Mount Vernon gage reads 28 feet or above, and 24-hour patrolling and reporting when the gage reads 32 feet or above.

Water Quality. Surface water quality in the Skagit River basin is governed by the Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A). Those regulations establish narrative and numeric criteria for specific fresh water use designations. Ecology recently revised the regulations to address deficiencies in the earlier standards identified by EPA. The revised standards cannot be used as federal water quality standards until they are approved by EPA, but Ecology intends to implement the new rule under state authority after December 21, 2006. The new standards designate the Skagit River from the mouth to RM 25.6 for the following uses:

- Core Summer Habitat
- Primary Contact
- Domestic Water
- Industrial Water
- Agricultural Water
- Stock Water
- Wildlife Habitat
- Harvesting
- Commerce/Navigation
- Boating
- Aesthetics

In addition to numeric standards, all surface waters of the state are subject to the antidegradation policy, which was promulgated to restore and maintain the highest possible water quality of Washington's surface waters.

Water quality monitoring indicates that levels of fecal coliform (FC) bacteria in the lower Skagit River exceed the level allowed under the water quality standards (Pickett 1997). There are four NPDES-permitted dischargers to the lower Skagit River that have the potential to affect FC levels. These are: City of Sedro-Woolley municipal WWTP, City of

Burlington WWTP, City of Mount Vernon WWTP, and the Big Lake (Skagit County Sewer District #2) WWTP. Mount Vernon also discharges through several combined sewer overflows (CSOs).

Other potential pollutant sources in the lower Skagit basin include urban stormwater, direct stormwater discharges, dairy farms and other agricultural operations, and failing or inadequate septic systems. A proportion of FC bacterial contamination may also originate from wildlife inhabiting the watershed (Butkus et al. 2000).

Under Section 303(d) of the Clean Water Act, water bodies that do not meet the water quality standards despite the presence of technology-based pollutant controls are required to be placed on a list of water-quality limited water bodies. A portion of the Skagit River in the vicinity of Mount Vernon, but upstream of the historic downtown area, is listed by WDOE on its 2004 Integrated Water Quality Assessment (303(d) list) for exceedance of the FC standard. A Total Maximum Daily Load (TMDL) was approved in 2000 to limit discharges of FC bacteria to the river. TMDLs are based on the total amount of a pollutant a water body can receive from all sources and still meet the state standard. The allowable pollutant quantity is then divided among the existing dischargers. As part of an agreement with Ecology, Mount Vernon is working on major upgrades to its WWTP. The primary purpose of the work is to prevent CSOs into the Skagit River. The work will also increase the capacity of the WWTP to meet the needs of the City's growth over the next 20 years and to convert from the use of gaseous chlorine to a more environmentally benign process for disinfection and odor control (City of Mount Vernon 2006).

The same river reach is listed for exceedances of the National Toxics Rule human health criteria (40 CFR Part 131) for total polychlorinated biphenyls (PCBs), based on sampling of fish tissues (Ecology 2004). Although the sampling result exceeded the human health criterion, the level detected was low compared to other statewide values for PCBs (Era-Miller and Kinney 2005). A TMDL for total PCBs has not been established for the Skagit River.

Community drinking water systems in the state are regulated by the Washington Department of Health (DOH). DOH records show that samples from community water systems in the general vicinity of Mount Vernon have at times shown exceedances of drinking water standards for FC bacteria, manganese, and color (DOH 2006).

3.4.1.2 Ground Water

Ground water is water beneath the earth's surface, occurring in unconsolidated materials such as sand, gravel, clay, or silt, or in consolidated materials such as sandstone, fractured limestone, weathered or fractured shale, basalt, and other rocks. The Puget-Willamette trough aquifer system extends from the Canada-United Stated border south to central Oregon (Miller 1999). In the vicinity of Mount Vernon, ground water occurs in unconsolidated materials consisting chiefly of glacial deposits. The Skagit Delta Surficial Aquifer underlies the valley formed by flood and meander channels cut by the Skagit River since the end of the most recent glacial episode (Larson 1996). The aquifer is bounded on the west by Puget Sound and on the east by the uplands east of Mount Vernon. Recharge occurs primarily through infiltration of direct precipitation and snowmelt (Adelsman et al. 2006) although recharge from the river probably also occurs during floods, especially in early fall (Larson 1996).

Groundwater yields from this type of deposit vary; generalized mapping of groundwater availability in the Skagit River basin indicates that wells yields from unconsolidated aquifers in the area range from 26 to 250 gallons per minute (gpm) (Drost and Lombard 1978). Wells withdraw only a small percentage of the total discharge from area aquifers. Most ground water discharges from springs and seeps into streams that drain the lowland. The Skagit Delta Surficial Aquifer discharges to the Skagit River during the summer low flow period (Larson 1996).

A review of the logs for 44 boreholes drilled in the area as part of previous geotechnical investigations showed that ground water was encountered in all borings Golder Associates 2006). Ground water was usually encountered between 10 and 20 feet below ground surface, depending on the season and elevation of the boring. In general, groundwater levels were roughly equivalent to the level of the Skagit River. The boreholes reviewed are described below:

- Twenty-two borings drilled by the Corps in 1978. Seven of these borings were drilled along the current alignment to depths between 20 and 50 feet below ground surface (bgs). The remaining 15 borings were advanced in the bed of the Skagit River or on the right bank of the river.

- Two borings drilled in 2002 at 117 N. First St. These borings were drilled to 59 and 64 feet bgs.

- Seven borings drilled in 2003 between Penn and Kamb Roads. These borings were advanced to between 46.5 and 61.5 feet bgs.

- Ten borings drilled in 1997-1999 for the Riverside Bridge replacement project. Eight of the borings were drilled to depths between 79 and 171.5 feet bgs and two were drilled to depths between 11.5 and 21.5 feet bgs.

- Three borings drilled in 1972 for the I-5 Bridge over the Skagit River. These borings were advanced to depths between 96 and 98 feet bgs.

The borehole logs indicate that the sediments underlying the downtown riverfront are composed primarily of sand that can be expected to have a relatively high permeability (Golder Associates 2006).

A review of the Department of Ecology's Well Log Image System identified three additional borings in downtown Mount Vernon, all of which encountered ground water at shallow depths ranging from 7.9 feet to 12 feet bgs. The logs describe those boreholes as:

- A boring drilled in 2004 at 820 S. Second Street. This boring was drilled to a depth of 14 feet bgs and medium sand was encountered through the entire depth of the borehole.

- A boring drilled in 1991 at Third and Myrtle. The boring was drilled to a depth of 17.5 feet bgs and encountered clayey silt with some sand layers.

- A boring drilled in 1996 at the Skagit County Courthouse at 700 S. Second. The boring was drilled to a depth of 85 feet bgs and encountered interbedded sand, clay, and silty clay.

Groundwater quality can be affected by natural processes and human causes. Naturally-occurring chemicals that can affect groundwater quality include metals as well as inorganic substances such as chloride and sulfate. Ground water in the Skagit River basin is typically more mineralized and with greater variability in chemical composition than surface water, but is generally suitable for most uses (Drost and Lombard 1978). Ground water in unconsolidated deposits is prone to high concentrations of dissolved iron (greater than 0.30 milligrams per liter [mg/L]) and is moderately hard (60-120 mg/L of $CaCO_3$ or harder). Because of the shallowness and permeability of the aquifers in the area, they are vulnerable to human-caused contamination.

There are few data on groundwater quality in the immediate downtown area, although groundwater wells in the farmlands near Mount Vernon have been sampled as part of the Washington State Pesticide Monitoring Program. Of a total of 27 wells sampled, pesticides were detected in 11 wells, with more than one pesticide found in three of the wells (Larson 1996). Although nine pesticides were detected in the initial samples, only three of the pesticides (atrazine, prometon, and bromacil) were confirmed by verification sampling. The concentrations of all pesticides detected were below the Maximum Contaminant Level (MCL) or Lifetime Health Advisory Level set by EPA for public drinking water.

Two of the wells sampled also showed elevated levels of nitrate and exceeded the 10.0 mg/L drinking water standard. Eight of the wells had specific conductance values greater than the 700 micromhos per centimeter (µmhos/cm) MCL for drinking water.

3.4.2 Impacts of the Alternatives and Mitigation Measures

3.4.2.1 Preferred Alternative

Short-Term and Long-Term Effects. Removal of vegetation along the existing levee sideslopes, soil disturbance, and construction of temporary haul roads could temporarily increase stormwater runoff from construction areas. Stormwater runoff from construction areas would be routed to catch basins or other appropriate detention structures. With proper runoff controls in place, no substantial increase in stormwater flow to local drainages would be expected.

Once construction is complete, stormwater runoff from the promenade and pedestrian path would be collected and routed to the City's stormwater discharge system. Except for occasional access by emergency or maintenance vehicles, the promenade and path would not be subject to vehicle traffic or other sources of pollutants. Therefore, it is not expected that the collected runoff would need to be treated before being discharged.

The alignment of the flood protection system under the Preferred Alternative would generally follow the alignment along which sandbags have been placed during flood fights. This alignment is closer to the river than the alignment of the existing levee in some locations. The alignment of the flood protection system would follow the alignment of the existing levee except as described below:

- In the three-block area between Division and Myrtle Streets, the alignment would follow the alignment used for placement of temporary sandbags (see Figure 7b). This alignment is closer to the river than the existing levee alignment. The purpose of this modification is to provide protection for potential future redevelopment sites.

- At the Commercial Cold Storage plant, the flood protection system would be located on the river side of the property. The new alignment would diverge from the existing levee alignment starting at Pine Street and continue generally along the top of the river bank and reconnect with the existing levee alignment near the Darigold plant on South First Street (see Figures 7b and 7c).

- The new alignment would then follow the existing levee alignment to a point north of the WWTP. A new ring dike around the WWTP would provide protection for the existing plant and designated expansion area (see Figure 7c).

Hydraulic modeling shows that these alignment modifications would not cause any significant changes in flood stage or velocity in the downtown reach, nor upstream or downstream on the Skagit River. Tables 4 and 5 compare flood stage and velocity for the 10-year and 100-year events under existing conditions and with implementation of the Preferred Alternative. The values for the existing conditions assume that the City would implement a flood-fight response as it has in the past. The flood stage and velocity values were determined using the HEC-RAS model developed for Skagit County and the Corps' flood flow estimate for the 100-year event.

Table 4. Comparison of Skagit River Stage and Velocity for 10-Year Flood

River Mile (RM)	Existing Conditions		With Preferred Alternative		Difference	
	Max. Stage (ft, NGVD-29)	Velocity (ft/sec)	Max. Stage (ft, NGVD-29)	Velocity (ft/sec)	Stage (ft)	Velocity (ft/sec)
13.83	28.83	7.65	28.83	7.65	0.00	0.00
13.15	27.57	7.08	27.57	7.08	0.00	0.00
12.95	26.79	7.79	26.79	7.79	0.00	0.00
12.85	26.71	7.30	26.71	7.30	0.00	0.00
12.84	26.55	7.34	26.55	7.34	0.00	0.00
12.83	26.54	7.35	26.54	7.35	0.00	0.00
12.40	26.19	6.20	26.19	6.20	0.00	0.00
12.30	26.14	6.22	26.14	6.22	0.00	0.00
11.72	25.46	5.52	25.46	5.52	0.00	0.00

Table 5. Comparison of Skagit River Stage and Velocity for 100-Year Flood

River Mile (RM)	Existing Conditions		With Preferred Alternative		Difference	
	Max. Stage (ft, NGVD-29)	Velocity (ft/sec)	Max. Stage (ft, NGVD-29)	Velocity (ft/sec)	Stage (ft)	Velocity (ft/sec)
13.83	34.62	9.61	34.62	9.62	0.00	0.00
13.15	33.08	8.99	33.08	8.99	0.00	0.00
12.95	31.80	10.26	31.80	10.26	0.00	0.00
12.85	31.64	9.87	31.64	9.87	0.00	0.00
12.84	31.33	9.97	31.33	9.97	0.00	0.00
12.83	31.31	9.96	31.31	9.97	-0.01	0.01
12.40	31.07	7.75	31.06	7.79	-0.01	0.04
12.30	30.99	7.81	31.00	7.81	0.01	0.00
11.72	30.21	6.85	30.21	6.85	0.00	0.00

Figure 11 shows the potential 100-year flood inundation in downtown and surrounding area with implementation of the Preferred Alternative. This figure was prepared using FEMA flood mapping guidelines (FEMA 2003). The area protected by a successful flood fight would be similar, but FEMA guidelines do not allow consideration of flood-fighting efforts in preparing flood inundation maps.

Once construction of the Preferred Alternative was underway, the City would make a request to FEMA for certification of the flood protection system and removal of the land protected by the system from the SFHA and the 100-year floodplain on the Flood Insurance Rate Map (FIRM).

During construction, water quality could be impaired if construction debris, sediment, sediment-laden stormwater, petroleum products, or other chemicals were to enter the Skagit River.

Removal of the concrete pilings that support the existing boardwalk would cause a short-term increase in turbidity and suspended sediments in the Skagit River. Turbidity generated by pile removal is generally low and remains localized because the work proceeds sequentially and the rate at which pilings are removed is relatively slow.

The area that would be protected from flooding by the Preferred Alternative does not represent a significant source of groundwater recharge to the Skagit Delta aquifer. Downtown Mount Vernon has been fully developed for many decades and most of the area is covered by impervious surfaces such as roadways, parking lots, and roofs that limit groundwater recharge. Implementation of the Preferred Alternative would have little effect on the percentage of impervious cover in the area or on regional groundwater recharge.

Mitigation Measures. To minimize potential water quality impacts during construction, the City would require its construction contractor(s) to employ BMPs and to follow the procedures for stormwater management set out in the *Stormwater Management Manual for Western Washington* (see Section 3.2.2.1). The contractor(s) would also be required to develop and follow a SWPPP to control stormwater pollution.

Care would be taken to prevent the entry of any petroleum products, chemicals, or other toxic or deleterious materials into the water during construction. If a spill were to occur, work would be stopped immediately, steps would be taken to contain the material, and the appropriate agency notifications would be made. The City's construction contractor(s) would be required to prepare a Spill Prevention, Control, and Countermeasures (SPCC) plan to be followed throughout construction. The plan would outline the measures to be taken by the contractor(s) to prevent the release or spread of hazardous materials found on site and encountered during construction, or any hazardous materials that the contractor(s) store, use, or generate on site during construction activities. These items include but are not limited to gasoline, oils, and chemical products.

Turbidity generated by removal of the existing pilings would be controlled by using piling removal protocols recommended by WDFW and by adhering to the requirements of the Water Quality Certification that would need to be obtained before the work started.

3.4.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, levee modifications and other features of the Preferred Alternative would not be constructed. Minor and major flooding would continue to threaten the downtown area. The City would continue to respond to flood threats by mobilizing flood fights including placement of sandbags to increase the levee height in vulnerable locations (and/or deployment of the portable floodwalls the City plans to obtain). The downtown area would remain in the SFHA and FIRM 100-year floodplain.

Temporary impacts on water quality that result from sandbags breaking and spilling their contents into the river would continue to be a recurring problem.

Other agencies or jurisdictions could undertake flood hazard reduction measures in the future. Such measures could include flood-proofing or relocation of structures, modification of dams, levees, and floodwalls, or construction of bypass channels. No major projects with significant effects on Skagit River hydrology and hydraulics have been approved or funded at this time.

3.5 Plants and Animals

3.5.1 Existing Conditions

3.5.1.1 Habitat Types and Species Present

Mount Vernon is located in the *Tsuga heterophylla*, or Western hemlock, vegetation zone (Franklin and Dyrness 1988). At present, Western hemlock is less common in the zone than the sub-climax species of Douglas fir and Western red cedar. Understory species commonly found in forested areas of this zone include vine maple, Pacific rhododendron, oceanspray, Western yew, dogwood, red huckleberry, Oregon grape, and creeping snowberry. Riparian zones along the Skagit River in the vicinity of Mount Vernon are typically dominated by stands or black cottonwood and Western red cedar.

Long-term development in the downtown area has removed virtually all of the native plant community that once characterized the area. Landscaped areas in downtown typically feature a variety of introduced grasses and ornamental shrubs and trees. The existing levees generally have spotty cover consisting of grasses, Himalayan blackberry, and small willows. Within Lions Park, the levee is landscaped with lawn grasses.

Construction of the existing levee removed much of the native riparian vegetation from the shoreline along the downtown waterfront. A few deciduous trees are present along the shoreline at Lions Park and on the north side of the Division Street Bridge; a narrow but denser riparian fringe lines the river southward from the Commercial Cold Storage property. Extensive riparian areas are located upstream and downstream of Edgewater Park across the river from downtown. A habitat restoration project to provide continuity along this riparian corridor was recently completed at Edgewater Park.

The National Wetlands Inventory (NWI) map for the area identifies the Skagit River in the vicinity of Mount Vernon as seasonally flooded riverine habitat. This habitat type generally includes wetlands and deepwater habitat contained in natural or artificial channels with continuously or periodically flowing water. The WDFW Priority Habitats and Species (PHS) map for the area identifies Britt Slough as wetland habitat. The Mount Vernon WWTP is located at the mouth of Britt Slough.

The Skagit Delta supports Puget Sound's largest populations of migratory birds. Regular large concentrations of trumpeter swans occur in the area between Britt Slough and the Skagit River and north of downtown along the Riverbend reach (WDFW 2006).

Bald eagles, which are listed as threatened under the Endangered Species Act (ESA), nest along the river downstream of the WWTP. The PHS map for the area identifies a bald eagle buffer management zone encompassing the existing levee near the WWTP as well a portion of the WWTP site. The U.S. Fish and Wildlife Service is working on the process of removing the bald eagle from the list of threatened and endangered species because populations have significantly rebounded. Once delisted from the ESA, bald eagles will continue to be protected by the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act.

Active merlin nest sites have been found in several locations to the east of I-5 and an osprey nest site has been identified at the northern end of the Riverbend reach (WDFW 2006).

Although the Skagit River has been significantly affected by navigation improvements, dam construction, development of the levee system, and other effects of population growth, it retains significant ecological and biological function. The Skagit River and its tributaries support numerous fish species, including fall- and spring-run chinook, fall-run chum, coho, pink, and sockeye salmon (Washington Department of Ecology 2006). Dolly Varden/bull trout and summer- and winter-run steelhead trout are also present. Several resident species of recreational importance, including rainbow trout, brook trout, and whitefish, are common in the Skagit River system.

Skagit River chinook salmon are part of the Puget Sound Evolutionarily Significant Unit (ESU) that was listed as threatened under the ESA in 1999. The Skagit River supports what was historically the largest natural chinook run in Puget Sound (Washington Department of Fish and Wildlife 2004) and has been designated as critical habitat for the Puget Sound ESU.

The Coastal-Puget Sound Distinct Population Segment (DPS) of bull trout was listed as a threatened species under the ESA in 1999. A total of 3,828 miles of streams in Washington, Oregon, Idaho, and Montana have been designated as critical habitat for bull trout. The Skagit River is included within this critical habitat designation. The river supports the largest population of native char in the Puget Sound area and likely contains the largest population of bull trout in the state (Washington Department of Fish and Wildlife 2004).

The Skagit River run of wild chum salmon is the largest in the continental U.S. Skagit River pink salmon constitute the largest stock in the state, and the Skagit River run of wild coho is the second-largest in the Puget Sound area (Washington Department of Fish and Wildlife 2004). However, the only known sustained population of sockeye salmon in the basin is found in the Baker River system upstream of upper Baker Dam.

The Mount Vernon reach of the Skagit River provides mainly rearing and migration habitat for Pacific salmon and bull trout; spawning primarily occurs in the mainstem upstream of Sedro-Woolley and in tributary streams.

A number of initiatives are underway to improve habitat conditions for threatened fish stocks in the basin. The USFWS has issued a recovery plan for bull trout that identifies actions, including habitat restoration projects, which are designed to restore bull trout populations. NOAA Fisheries has issued a draft recovery plan for Puget Sound chinook salmon that addresses habitat needs for that species. In addition, several habitat restoration projects being undertaken by local jurisdictions and watershed groups are currently in the planning or implementation stages. These include projects along tributary streams, sloughs, and floodplain in the delta and upstream.

3.5.2 Impacts of the Alternatives and Mitigation Measures

3.5.2.1 Preferred Alternative

Short-Term and Long-Term Effects. Modifying the levee would remove some existing grasses and shrubs on the levee sideslopes. Riparian vegetation that occurs riverward of the existing levee would be protected and maintained to the extent possible to avoid any significant impacts to this remnant riparian fringe. Once construction was complete, the modified levee slopes would be seeded with a mix of grasses. Corps of Engineers guidelines do not allow the establishment of woody vegetation on levee sideslopes, so volunteer trees or shrubs that may establish after construction would be removed as part of levee maintenance.

Modification of the levee in the vicinity of the WWTP and construction of a new ring dike around the plant would occur within approximately 0.3 mile of a known bald eagle nest site and near the perimeter of the associated buffer management zone. To avoid potential impacts on nesting bald eagles, construction in this location would adhere to the *Priority Habitat and Species Management Recommendations for the Bald Eagle* (WDFW 2001). These recommendations are discussed in detail in the Mitigation Measures section below.

Removal of the pilings that support the existing boardwalk would cause a localized and a short-term increase in turbidity and suspended sediments in the Skagit River. This temporary change in water quality would not be expected to have an adverse effect on juvenile salmon or trout because removal of the pilings would occur during the approved in-water construction season (June 15 through August 31) when juvenile salmonids are not abundant in the Skagit River. Adult or sub-adult salmon and trout could be present in the river during this time, but these fish are highly mobile and are easily able to avoid areas where piling removal would occur.

Removal of the existing concrete pilings from below the OHW mark would result in a modest but permanent improvement in local aquatic habitat conditions. Improvement in habitat conditions would also result from removal of the existing boardwalk and cantilevered parking structure, which extend over the shoreline riverward of the OHW mark. The new promenade would be constructed upland of the existing boardwalk and parking structure and would not extend over the line of OHW. Installation of the new concrete support pilings at an elevation above the OHW mark would not be expected to have any water quality-related impacts on fish if appropriate BMPs are employed during installation.

During construction, aquatic species could be affected by diminished water quality if construction debris, sediment, sediment-laden stormwater, petroleum products, or other chemicals were allowed to enter the Skagit River.

Mitigation Measures. Because construction in the vicinity of the WWTP would occur within 250 feet of the shoreline and within 0.5 mile of a bald eagle nest, the work would be conducted in accordance with the basic conditions of the Standard Bald Eagle Management Plan to avoid impacts to nesting eagles. The conditions that may apply to this site include:

- Retaining all known perch trees and all conifers greater than or equal to 24 inches diameter at breast height (dbh)

- Retaining all cottonwoods greater than or equal to 20 inches dbh

In-water work would be limited to removal of the existing boardwalk support pilings, and, as described above, this work would be scheduled to avoid the period when juvenile salmonids are abundant in the Skagit River mainstem. The City would consult with WDFW on the preferred method for removing pilings to minimize temporary impacts to fish and aquatic habitat.

As described in Section 3.2.2.1, BMPs would be employed during construction to ensure that construction debris, sediments, and sediment-laden stormwater are prevented from entering the river and affecting water quality. Construction contractor(s) would be required to follow an SPCC plan (see Section 3.4.2.1) to prevent and control spills of petroleum and chemical products.

3.5.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, existing conditions and trends regarding plants and animals would continue. Habitat improvement efforts and recovery plans for depressed salmon and trout stocks would continue to be implemented.

3.6 Environmental Health

3.6.1 Existing Conditions

Potential existing environmental health hazards in the downtown area include leaks or spills of petroleum products and improper disposal of hazardous wastes by businesses and households. Older buildings in the area could contain asbestos in pipe and furnace insulation, shingles, millboard, floor tiles, and other construction materials. Disturbance or improper removal of materials containing asbestos can lead to elevated concentrations of asbestos fibers in the air. Improper storage, use, or disposal of agricultural chemicals or other agricultural practices could potentially create environmental health hazards in the vicinity of the Mount Vernon WWTP.

Washington State hazardous waste regulations are contained in the Dangerous Waste Regulations (WAC 173-303) and Model Toxics Control Act (WAC 173-340). The Dangerous Waste Regulations establish response authority for releases of hazardous substances, including spills, and hazardous waste disposal site that pose a threat to public health or the environment. The Model Toxics Control Act sets standards and requirements for cleanup of hazardous waste sites.

Ecology's list of Confirmed and Suspected Contaminated Sites was reviewed to identify sites of potential concern in the downtown area. Identified sites are shown in Table 6:

Table 6. Confirmed and Suspected Contaminated Sites

Site Name	Location	Affected Media	Status
Former Skagit Laundry & Dye Works	South 2nd and Washington	Soil	Initial investigation completed in March, 2006. Scheduled for site hazard assessment as of November, 2006.
Mount Vernon City Hall Alley	320 Broadway St.	Soil	Leaking underground storage tank (LUST) being remediated with Ecology oversight
Schenk Packing Plant	1321 S. 6th	Groundwater	LUST being remediated with Ecology oversight

Source: Washington Department of Ecology

3.6.2 Impacts of the Alternatives and Mitigation Measures

3.6.2.1 Preferred Alternative

Short-Term and Long-Term Effects. During construction, there would be the potential for accidental releases of petroleum products from construction equipment and temporary storage tanks. There would also be a small risk of fire or explosion during construction.

Because of the age of many of the buildings in downtown, some of the structures slated for removal may contain hazardous materials such as asbestos. Failure to identify and properly handle such materials could result in a release of hazardous substances during demolition.

Construction would not affect any of the confirmed or suspected contaminated sites listed by Ecology.

Mitigation Measures. Construction contractor(s) would be required to follow the SPCC plan prepared for construction (see Section 3.4.2.1). The SPCC plan would describe measures would be taken to prevent and control spills of petroleum products to ensure that construction crews and the public are not exposed to spilled petroleum products. Contractor(s) would also be required to adhere to all applicable state and local fire prevention regulations.

Before beginning demolition of any structures, environmental site assessments would be made to identify and investigate any “recognized environmental conditions” on the properties. The term “recognized environmental conditions” refers to the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or material threat of a release of those substances into a structure, the ground, ground water, or surface water. If any recognized environmental condition were identified, steps would be taken to remediate the condition in compliance with applicable federal and state laws. If materials containing asbestos were identified in any of the structures to be demolished, the Washington Department of Labor and Industries would be notified and the materials would be removed and disposed of by a certified asbestos abatement contractor.

3.6.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, there would be little change in existing conditions regarding environmental health, assuming no significant change in the types of businesses operating in the downtown area. Existing but previously-unidentified hazardous sites in the area could be identified.

3.7 Land and Shoreline Use

3.7.1 Existing Conditions

3.7.1.1 Relevant Land Use Laws, Plans, and Policies

Growth Management Act. The Growth Management Act (GMA; RCW36.70A) sets forth land use planning requirements that apply to the majority of counties and cities within the state. The GMA requires an inventory of sensitive areas, an update of comprehensive plans that includes a number of specific elements, adoption of regulations to implement comprehensive plans, development of countywide planning policies to address issues of a regional nature, and establishment of planning deadlines.

Both Skagit County and the City of Mount Vernon are required to plan under the GMA. The County's *Comprehensive Plan* (Skagit County 2003) contains countywide planning goals that apply to both unincorporated and incorporated areas throughout the county. Comprehensive plans developed by cities and towns in the county must be consistent with the statutory goals of the GMA, countywide goals, and plans of adjacent jurisdictions.

City of Mount Vernon Comprehensive Plan and Zoning Code. The City's *Comprehensive Plan* (City of Mount Vernon 2005) establishes a framework for decisions on growth and land use, housing, transportation, utilities, public facilities and services, and parks and open space within the City's urban growth boundaries. The *Comprehensive Plan* contains a number of goals, objectives, and policies that relate directly to downtown flood protection.

> Policy LU-1.1.1: Concentrate direct Skagit River access, enhancement efforts and river-oriented activities in the downtown area of Mount Vernon and the West Side. The Skagit River will be one of the major natural features affecting development, and it also provides opportunities for increased public access and activity.
>
> Objective LU-4.1: Implement strategies to prevent property damage from flooding.
>
> Policy LU-4.1.2: Continue to implement FEMA flood hazard regulations.
>
> Policy LU-4.1.6: Perform the necessary analysis and recommend solutions for existing flooding problems.
>
> Goal LU-5: Find long term, environmentally responsible, and cost effective methods to reduce the risk from flood damage.

Policy LU-16.1.1: The Skagit River will be one of the major natural features affecting development, and it also provides opportunities for increased public access and activity. The dikes, notwithstanding potential legal problems, provide an important community resource for public trails extending beyond Mount Vernon into Skagit County.

Policy LU-16.1.2: Downtown and the West Side of Mount Vernon are the most logical areas to concentrate direct river access, enhancement efforts and river-oriented activities.

Goal LU-20: Protect public health, safety, and property from the effects of natural hazards. Provide for an increased level of safety to the citizens of Mount Vernon, and provide for an increased level of protection for public infrastructure.

Policy LU-20.1: Protect life and property. Implement mitigation activities that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to natural hazards.

Goal LU-24: Support existing businesses and provide a dynamic business environment for new commercial and industrial activities that enhance the City's employment and tax base while providing well planned and attractive facilities.

Policy ED-1.4.7: Provide necessary flood control improvements to protect the downtown and promote redevelopment activities.

Land use designations and the associated zoning districts for the downtown area along the Skagit River shoreline are shown in Table 7.

Table 7. Comprehensive Plan and Zoning Designations

Comprehensive Plan Designation	Zoning Associated with Designation
Government Center (G)	Public (P)
Downtown Retail/Support Commercial (DT)	Central Business District (C-1)
Commercial/Industrial (CI)	General Commercial District (C-2), Light Manufacturing District (M-1), Industrial District (M-2)
Community Park	Public (P)

Shoreline Management Act. Washington's Shoreline Management Act (SMA; RCW 90.58) was adopted by public referendum in 1972 "to prevent the inherent harm in uncoordinated and piecemeal development of the state's shorelines." The SMA's policies focus on encouraging water-dependent uses, protecting shoreline natural resources, and promoting public access to shorelines of the state. Cities and counties develop shoreline master programs that regulate development along streams, lakes, and marine waters. Ecology reviews and has approval authority over local shoreline management programs and permit

decisions. WAC 173-18-330 defines the Skagit River as a "shoreline of statewide significance."

Skagit County Shoreline Master Program. The *Skagit County Shoreline Master Program* (SMP) was originally adopted in 1976. The City of Mount Vernon adopted the SMP as its shoreline management master program in 1979. The SMP is designed to provide long range, comprehensive policies and effective, reasonable regulations for development and use of Skagit County shorelines. Section 7.16 of the SMP sets out policies and regulations for shoreline stabilization and flood protection. The following policies are relevant to downtown flood protection:

> Policy A (1): Streamway modification and marine diking programs should be coordinated and monitored to provide for more comprehensive planning of Skagit County's shorelines.
>
> Policy A (2): Recognizing that streamway modifications may cause interference with normal river geohydraulic processes that may lead to erosion of other up and down river shorelines, then such modifications and stabilization measures should incorporate based geohydraulic principles and be located, designed, coordinated, and maintained for homogeneous river reaches. Such modifications and measures should be sited and designed by qualified professional personnel.
>
> Policy B (1): All bank stabilization and flood protection measures should be constructed to comply with the design and location standards and guidelines of applicable agencies.
>
> Policy B (2): Riprapping and other bank stabilization measures should be located, designed, and constructed primarily to prevent damage to agricultural land, public roads and bridges, existing homes and residential areas, or other structures or natural features whose preservation is in the public interest. Such measures should not restrict the flow of the river or stream.
>
> Policy C (1): Shoreline stabilization and revetment material should consist of substantial rock and should meet the standards and guidelines of the Soil Conservation Service.
>
> Policy C (2): Junk and solid waste should no be permitted for shoreline stabilization and revetment material. Concrete and concrete waste should not be used as stabilization and revetment material.
>
> Policy G (1): Recognizing that shorelines or recreation, wildlife, and aesthetic value are limited and irreplaceable resources, then shoreline stabilization and flood protection projects should consider their potential effects and impacts upon such resources.
>
> Policy G (2): Recognizing that the related shoreline stabilization and flood protection activities of filling, grading, lagooning, and dredging may have a substantial impact upon the existing aquatic and biological systems, navigation, and river hydraulics by subsequent erosion and

sedimentation, then these activities and their possible impacts should be recognized.

The shoreline in the vicinity of downtown Mount Vernon is designated "Urban." The Urban shoreline area is intended for intensive development, including but not limited to residential, commercial, and industrial uses.

3.7.1.2 Existing Land Uses in the Downtown Area

The primary uses in downtown Mount Vernon are specialty retail, government, professional and business offices, and banks and financial offices. Lions Park, a public park and open space, is located at the northern end of downtown. Businesses typical of the downtown area (retail, banking, and professional offices) are located along the west side of North First Street. Front Street includes a variety of commercial and retail businesses and a substantial amount of public parking. Main Street is most closely identified with the river, both because of the river's proximity and because other streets in the downtown core do not have visual access to the river due to the existing levee. The buildings along Main Street are a mix of older structures and post-war office buildings that are occupied by a variety of professional offices, retail businesses, and restaurants. Along South First Street the primary uses are the Moose Lodge and food storage and distribution facilities. Residences predominate along the southerly end of South First Street and the City's WWTP is located on Britt Road south of downtown.

3.7.1.3 Archaeological and Historical Resources

Archaeological Resources. The Skagit Delta, including present-day Mount Vernon, encompasses territory once occupied by the Skagit, Swinomish, and Samish peoples (Blukis Onat et al. 1979). Upper Skagit villages are known to have been located near Mount Vernon along Nookachamps Creek and near present-day Sedro-Woolley; a third site, a small winter village, was located a few miles upstream of present-day Lyman (Historical Research Associates 2005). Lower Skagit sites have been documented at the mouth of the North Fork downstream of Mount Vernon (Blukis Onat et al. 1979).

Several field surveys have been conducted to identify archaeological resources along the Skagit River for previous levee construction projects (e.g., Blukis Onat et al. 1979; Blukis Onat et al. 1980; Sheridan 2002; Kent 2004) and a survey was recently conducted at the WWTP for the proposed treatment plant expansion (Historical Research Associates 2005). Most major prehistoric and early historic sites are located along the mainstem Skagit River and slough channels, although some appear to be directly associated with natural levees that would have offered refuge from flooding. Many sites have been altered by erosion and flooding, levee construction, agricultural activities, and building construction (Blukis Onat et al. 1979; Blukis Onat et al. 1980).

One recorded archaeological site occurs near the downtown waterfront. This site was an Upper Skagit fishing station reported to have been located on the west bank approximately 0.25 mile upstream of the Division Street Bridge. This location has been disturbed by flooding and levee construction and a survey conducted in the 1970s revealed no prehistoric artifacts at the site (Blukis Onat et al. 1979).

Historical Resources. Downtown Mount Vernon includes many historic structures. Table 8 lists downtown historic buildings and landmarks.

Table 8. Historic Buildings and Landmarks in Downtown Mount Vernon

Location	Original Use	Year Built
First and Pine Streets	County Courthouse	1890s
Third and Montgomery Streets	Post Office	1935
404 Third Street	Brewery	1909
S. Second and Milwaukee Sts.	Armory	1932
First St. and Pine Court	Commercial/professional offices	1906
First and Myrtle Streets	Hotel	1909
Main and Myrtle Streets	Bakery	1897
First and Gates Streets	Bank	1907
First and Montgomery Streets	Fraternal hall	1885
First and Division Streets	Fraternal hall	1925
First and Division Streets	Condensery	1906
Cleveland Ave. and Snoqualmie St.	Professional offices	1901
1919 Cleveland Ave.	Professional offices	1890s
116 E. Section St.	House	Early 1890s
First and Kincaid Sts.	Theatre	1926
Montgomery St. and RR tracks	Warehouse	Not known

Source: City of Mount Vernon Comprehensive Plan

One historic site within the City is listed on the National Register of Historic Places (NRHP) (Historical Research Associates 2005). This site is the Lincoln Theatre and Commercial Block, located at 712 South First Street. The theatre, which was built in 1926 in the Beaux Arts-American Renaissance style, is operated by the Lincoln Theatre Centre Foundation and used as a year-round performing arts center.

3.7.1.4 Recreation and Shoreline Access

Public parks in the vicinity of downtown Mount Vernon include Lions Park and Sherman Anderson Ballpark. Lions Park is located at 501 Freeway Drive at the north end of downtown. This 1.6-acre park provides access to the Skagit River, sheltered and unsheltered picnic areas, playground equipment, public restrooms, and an RV dump station.

Sherman Anderson Ballpark is located at 1501 Cleveland Street, approximately one-half mile south of downtown. This 3.4-acre park is used for baseball competitions and community events.

The boardwalk along the downtown waterfront extends from just south of Division Street to Kincaid Street and provides public seating as well as views of the Skagit River and west Mount Vernon. The Mount Vernon Farmers Market is held adjacent to the boardwalk in the parking lot west of Main Street between West Gates Street on the

south and existing buildings on the north. The Farmers Market, which is held every Saturday from June through early October, features local produce and home and garden-related crafts.

3.7.2 Impacts of the Alternatives and Mitigation Measures

3.7.2.1 Preferred Alternative

Short-Term and Long-Term Effects. The Preferred Alternative is consistent with the goals, objectives, and policies of the *Comprehensive Plan* that are geared toward identifying and implementing long-term solutions to flooding problems. Construction of the Preferred Alternative and certification of the flood protection system by FEMA would allow the downtown area to be removed from the SFHA and the FIRM100-year floodplain. This action would help to further *Comprehensive Plan* goals for supporting existing businesses, encouraging new business activity, and promoting redevelopment of downtown.

The Preferred Alternative is consistent with *Comprehensive Plan* policies for providing public access to the Skagit River and increasing public activity along the shoreline. The use of portable floodwall sections at Lions Park would maintain public access to the river and construction of the new promenade and pedestrian path would enhance river-oriented activity in the downtown area.

The Preferred Alternative has been designed in accordance with policies of the *Shoreline Master Program* regarding use of geohydraulic principles and professional engineering expertise in the design of flood protection measures and with policies regarding materials to be used for construction. Policies directing project proponents to consider and recognize the potential impacts associated with flood protection measures are met through the analyses presented in this DEIS.

Implementation of the Preferred Alternative would not involve any changes in zoning and would not be expected to result in any significant shift in the existing types and mix of land uses in the downtown area, either in the short-term or over the long-term. Uses in downtown would continue to be primarily retail, professional offices, banking and financial offices, and government.

Assuming that the City would enter into an agreement with Dike District No. 3 for regular inspection and maintenance of the flood protection system, the land protected by the Commercial Cold Storage floodwall would need to be annexed into the Dike District's benefit area.

There are 11 existing buildings located within the footprint of the new flood protection system. These include buildings at 319 South Main Street and 419 Milwaukee Street that are currently owned by the City. Before beginning construction, the City would need to acquire properties and rights-of-way and remove the existing structures.

In November, 2006, a professional archaeological historian conducted a survey of buildings that would be directly affected by construction of the Preferred Alternative to evaluate their historical significance and to determine if any of the properties may be eligible for listing on the NRHP under the criteria contained in 36 CFR 60.4, or for listing on local or state historic registers. NRHP-eligible properties are those that possess "integrity of location, design, setting, materials, workmanship, feeling and association" and

(a) are associated with events that have made a significant contribution to the broad patterns of our history, or
(b) are associated with the lives of persons significant in our past, or
(c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possesses high artistic values or that represent a significant and distinguishable entity whose components may lack individual distinction, or
(d) have yielded or may be likely to yield information important in prehistory or history.

The buildings surveyed are shown on Table 9, below.

Table 9. Buildings Evaluated for NRHP Eligibility

Parcel ID	Name	Address	Date Built	NRHP Eligible?
P51999	Main Street Salon & Easton's Books	305-307 S. Main St.	1947	No
P51998	Main Street Plaza	315 S. Main St.	1975	No
P51997	Laughlin/Eddy's Furniture	319 S. Main St.	1908	Yes
P51996	Classic Upholstery	401-405 S. Main St.	1966 remodel	No
P51995	Wisner Building	4009-411 S. Main St.	1945	No
P52152	Courtyard Cafe	509 S. Main St.	1947	No
P26530	Loyal Order of Moose No. 1640	801 S. Main St.	1920	No
P54226	Cascade Law Center	414 Snoqualmie St.	1900	No
P54228	Harold A. Page, Architect	416 Snoqualmie St.	1900	No
P54210	Mt. Vernon Parks Dept.	419 Milwaukee St.	1968?	No
P54314	Residence	1204 Virginia St.	1920	No

As a result of the survey, the Laughlin/Eddy building was recommended as eligible for the NRHP under criteria (a) and (c) (Northwest Archaeological Associates 2006). Under criterion (a), the building represents the turn-of-century downtown retail area along Main and Front Streets. Under criterion (c), the building features distinctive metal siding and columns manufactured by the George L. Mesker Company of Evansville, Indiana and demonstrates the mass-produced building parts trade at the turn of the century. There are a few other buildings of this type in the state, and this is the only building of its type recorded in Mount Vernon. None of the other buildings surveyed were determined to be eligible for listing on the NRHP.

A copy of the historic structures assessment is included in Appendix B.

Lions Park would be closed for a period during construction. This would be a temporary impact, and public access to the park would be restored as soon as possible after construction was completed in the area. The Preferred Alternative would provide access to the park and the Skagit River shoreline through two 25-foot wide openings in the

floodwall. The openings would be wide enough to allow RVs to access the dump station at the park.

The Farmers Market would be displaced by construction and would need to relocate to an interim location until a permanent site was identified through the downtown redevelopment planning process.

Staging areas that may be needed for construction would likely be located on currently-vacant properties south of the Commercial Cold Storage property. Specific staging areas would be identified during final design.

Mitigation Measures. Prior to removing the building located at 319 South Main Street, the City would thoroughly document the building's history. This would include developing a complete photographic record of the interior and exterior of the building, researching and recording available information about the structure's architecture, its original builder, and its owners and uses over time. This record could be used for creating an interpretive display in the downtown area, at the Skagit County Historical Museum, or other locations. In addition to documenting the history of the building, the City would salvage architectural features such as portions of the stamped metal siding and decorative columns. These items could also be used to create an interpretive display or they could be incorporated into another building constructed in the future as part of downtown redevelopment.

The City would assist displaced businesses and homeowners with relocation in accordance with state law (RCW 8.26 and WAC 468-100) and federal regulations (42 USC 4601 et seq.). Relocation assistance typically includes advisory services and payment for moving costs. For residents, assistance also generally includes payment to obtain a qualified replacement dwelling; for businesses, payment is made for expense related to re-establishing a business operation.

According to the Farmers Market Board of Directors, a viable permanent site must have the following attributes:

- Availability for use every Saturday from 7 am to 3 pm, May through October, with the potential to accommodate an extended season in the future.
- A total of 2,000 to 2,500 square feet of available space, with a minimum width of 30 feet at the narrowest point.
- Domestic water and electrical power available for vendors, with electric outlets at more than one place within the market site.
- Close proximity to public restrooms.
- Vehicle access for vendor load-in and load-out.
- High visibility, waterfront location.
- Proximity to downtown businesses that are open on market day.
- Proximity to an Automatic Teller Machine.
- A gateway/entry sign.
- Proximity to public picnic tables and public park area.
- Covered area for vendors and customers.

Possible permanent locations for the Farmers Market include a parking lot located at the southwest corner of Kincaid and Second Streets that is currently used by Skagit County,

and Edgewater Park. Edgewater Park may not be suitable because it is used for a variety of public activities on some summer weekends. Options for relocating the Farmers Market close to its current location include the area directly north of the existing Market site. The buildings that currently occupy this area would be demolished, and an interim parking area that would be developed between the levee and Main Street would provide a site for the Farmers Market. Another option is the area south of Kincaid Street between the modified levee and Main Street. An interim parking lot would also be developed in this area, which is large enough to meet both the Market's current space requirements and potential future space needs.

3.7.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, there would likely be little change in existing land uses and trends. The No Action alternative would not serve to further the goals, objectives, and policies of the *Comprehensive Plan* regarding implementation of long-term solutions to flooding problems. This alternative would not be consistent with policies aimed at encouraging new business activity and promoting redevelopment of downtown, nor would it be consistent with policies that seek to increase public activity along the Skagit River shoreline.

Because of the poor structural condition of the Laughlin/Eddy building, the City would likely demolish the building to address safety concerns. The property could then either be declared surplus to the City's needs and offered for public sale or used for other City needs.

3.8 Transportation

3.8.1 Existing Conditions

3.8.1.1 Transportation Corridors

I-5, which is part of the federal interstate highway system, extends from the Canada-United States border at Blaine, Washington, south to the Mexico-United States border. I-5 is the major north-south route in western Washington for travel between cities. It crosses through Mount Vernon and forms the eastern boundary of the historic downtown area. I-5 mainline speed through Mount Vernon is 60 miles per hour (mph). Within the state, I-5 is under the jurisdiction of the Washington State Department of Transportation (WSDOT).

The streets of Mount Vernon are classified based on the function they provide. Roadway function is used for evaluating the need for roadway improvements and to ensure that appropriate design standards are used.

The City's *Comprehensive Plan Transportation Element* (City of Mount Vernon 2005) establishes the following classification system for arterials:

- Principal arterials: The primary function of principal arterials is to move traffic to and from major traffic generators within the community. Through traffic is given higher priority and local access is limited.

- Minor arterials: Minor arterials serve as connections between neighborhoods and community centers, serve some through trips, and provide more local access than principal arterials. Minor arterials also provide access to major community-wide traffic generators, such as hospitals and high schools.
- Collector streets: Collector streets primarily move neighborhood traffic and serve as connectors to principal and minor arterials.
- Neighborhood streets: Neighborhood streets provide direct access to adjacent properties with limited provision for through traffic.

The arterial system within the downtown area includes all four roadway classifications, as shown in Table 10.

Table 10. Roadway Classifications within the Downtown Area

Roadway Name	Functional Classification	Travel Direction	Bounds
SR 536 (Division Street)	Principal arterial	east-west	between the Skagit River and I-5
Kincaid Street	Principal arterial	east-west	between South 2nd St. and I-5
South 2nd Street	Principal arterial	north-south	between Kincaid St. and I-5
South 3rd Street	Principal arterial	north-south	between Kincaid St. and SR 536
North 3rd Street	Minor arterial	north-south	between SR 536 and north end of downtown
Kincaid Street	Collector street	east-west	between South 1st St. and South 2nd St.
Main Street	Collector street	north-south	between Kincaid St. and SR 536
South 1st Street	Neighborhood street	north-south	between Kincaid St. and SR 536
Railroad Avenue	Neighborhood street	north-south	between Kincaid St. and Montgomery St.
East Washington Street	Neighborhood street	east-west	between South 1st St. and South 3rd St.
Montgomery Street	Neighborhood street	east-west	between Main St. and Railroad Ave.
Gates Street	Neighborhood street	east-west	between Main St. and Railroad Ave.
Myrtle Street	Neighborhood street	east-west	between Main St. and South 3rd St.
Pine Street	Neighborhood street	east-west	between Main St. and South 2nd St.
Freeway Drive	Principal arterial	north-south	between College St. and Division St.

Source: City of Mount Vernon Comprehensive Plan

The primary transportation routes in downtown are Freeway Drive, Division Street, South Second Street, South Third Street, and Kincaid Street east of South Second (see Figure 2). Main Street serves primarily as access to the parking areas along the top of the existing revetment.

Truck traffic to the Commercial Cold Storage facility generally exits I-5 at Anderson Road and follows Old State Route 99 north to Taylor Street, then turns north on Virginia Street, which is the final approach to the facility. Trucks arriving at the facility travel around its south end to access the loading docks on the west side of the buildings. Trucks

departing the facility go around the north end of the main buildings, turn right on South First Street, and head south on Virginia Street, following the same route back to I-5.

Roadway Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream along a roadway. Roadway LOS is based on measures such as capacity, speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. LOS ranges from A (nearly free-flow conditions) to F (flow at extremely low speeds with traffic volumes exceeding roadway capacity). The 2005 *Comprehensive Plan Transportation Element* identifies Division Street from Freeway Drive to Ball Street (on the west side of the Skagit River) as deficient, operating at LOS E. Planned improvements to the arterial could include a project to replace the Division Street Bridge with a new bridge that would be an extension of Kincaid Street. The proposed project would be expected to improve mobility in the downtown area by providing a more direct route between I-5 and west Mount Vernon. This is one option for improving mobility. A complete feasibility analysis of this alignment would be required to determine if the location is appropriate.

3.8.1.2 Public Transit

Skagit Transit (SKAT) serves the City of Mount Vernon by providing bus, Dial-a-Ride, and vanpool services. The 2005 *Comprehensive Plan Transportation Element* and the Washington State Growth Management Act (RCW 36.70A) include policies and goals that support public transit, carpooling, and other means of reducing commuter traffic impacts. Implementation of these policies and goals, coupled with the increases in population the area is projected to experience, make it likely that use of public transit will grow over the next 20 years.

Skagit Station is a multi-modal transportation facility located on East Kincaid Street that provides a connection between SKAT, Greyhound, Amtrak, and local taxi service. Skagit Station also serves as the hub for the County Connector, which provides bus service between Skagit, Whatcom, and Snohomish counties.

SKAT operates eleven fixed bus routes, most of which access the downtown area via Kincaid Street, South Second Street, and Freeway Drive. SKAT bus routes providing access to the downtown area and operating hours are summarized in Table 11.

There is one park-and-ride lot in the City, located south of Kincaid Street adjacent to I-5. The lot is operated by WSDOT. The 2005 *Comprehensive Plan Transportation Element* contains recommendations for additional park-and-ride facilities, including a multi-level structure located in the downtown area.

3.8.1.3 Non-Motorized Transportation

Streets in downtown Mount Vernon generally contain sidewalks for pedestrians. Main Street, which is primarily used for on-street parking, is the only street in the area without sidewalks. The existing revetment along the downtown waterfront features a boardwalk from just south of the Division Street Bridge to Kincaid Street.

The City and Skagit County are cooperating to achieve an integrated system of bicycle routes, pedestrian pathways, and trails. Proposed improvements to the trail system include extending the downtown waterfront pedestrian pathway both northward and

southward. To the north, the pathway would be extended through Lions Park and connect with the existing Kulshan Trail; to the south the pathway would be extended along the riverfront past the Commercial Cold Storage facility and Mount Vernon WWTP.

Table 11. SKAT Fixed Routes

Route Number	Description	Weekday Hours of Service	Saturday Hours of Service
204	Skagit Station/Skagit Valley College/Skagit Valley Hospital	7:00 AM - 8:30 PM	None
205	Skagit Station/Skagit Valley College/Skagit Valley Hospital	7:00 AM - 9:00 PM	8:30 AM – 6:00 PM
207	Skagit Station/Hoag Road/LaVenture Road	7:00 AM – 7:00 PM	8:00 AM – 5:30 PM
207 Conn.	Burling Edison HS/Skagit Valley College/Skagit Valley Hospital/Skagit Station	6:45 AM – 6:45 PM	None
208 North	Skagit Station/Jefferson School/Wal-Mart/Cascade Mall	7:15 AM – 9:00 PM	8:15 AM – 5:45 PM
208 South	Skagit Mall/Skagit Station	6:45 AM – 8:45 PM	8:15 AM – 5:45 PM
513	Skagit Station/Cascade Mall/ Anacortes	7:00 AM – 6:00 PM	None
615	Mount Vernon/La Conner	6:30 AM – 6:00 PM	None
Bellingham Connector	Mount Vernon/Bellingham	5:45 AM – 8:00 PM	8:10 AM – 6:15 PM
Island Connector	Mount Vernon/Whidbey Mount Vernon/Camano	5:00 AM – 8:00 PM	8:00 AM – 6:15 PM
Everett Connector	Mount Vernon/Everett	5:00 AM – 7:35 PM	None

Source: Skagit Transit

3.8.1.4 Parking

Downtown Mount Vernon has an existing inventory of approximately 974 on- and off-street public parking spaces (E. D. Hovee et al. 2005). Of this total, there are 350 parking stalls west of Main Street between Division and Kincaid Streets. Public lots represent the single largest source of parking with approximately 55 percent of the total inventory; on-street parking provides approximately 45 percent. Typically, on-street parking is limited to two hours and the public lots have no time limits.

A 2005 survey of parking utilization indicated that weekday utilization rates averaged 78 percent on public lots, followed by on-street parking occupancy of 66 percent (E.D. Hovee et al. 2005). Utilization on private business lots averaged 64 percent, followed by restricted County lots at 60 percent. Overall, downtown Mount Vernon's on- and off-street parking inventory is well utilized, but there is room to accommodate added demand. However, there are parking shortages in two specific locations: the two-block area in the southern downtown core between Main/First/Pine/Gates and the two-block area between First/Second/Division/Montgomery.

General industry standards for parking utilization identify “trigger points” for more aggressive parking management, development of additional parking supply, or other measures. For short-term parking, 85 percent is a typical standard, as the availability of parking appears more constrained to a shopper or visitor when the 85 percent level is exceeded. Although parking utilization in the overall downtown area does not exceed this trigger point, both County public lots and portions of First Street exceed the threshold during peak-use periods (E.D. Hovee et al. 2005). In a survey of downtown businesses, a majority of respondents expressed some level of dissatisfaction with the current parking system. To address current issues and future parking needs, the City and Skagit County have initiated a study for construction of a new parking structure in downtown. It is envisioned that a new parking structure would provide 350 to 600 spaces, with a portion designated for short-term and long-term public parking and a portion designated for County use. A specific location for a new structure has not been identified.

3.8.2 Impacts of the Alternatives and Mitigation Measures

3.8.2.1 Preferred Alternative

Short-Term and Long-Term Effects. During the estimated two years of construction, there would be additional traffic in downtown from vehicles transporting materials and workers to the construction site. It is estimated that hauling of construction materials to the site would require 75 to 100 truck trips per day into the downtown area during periods when the earthen levees were being constructed. This construction would typically occur during the drier portion of the year between the months of May through October

Construction of the Preferred Alternative would involve raising a portion of Freeway Drive by four feet. Freeway Drive could be subject to temporary closure while this work is completed.

At the end of Park Street, modification of the existing levee would include construction of ramps or a gate to provide access to the Darigold facility and a currently-vacant building on the west side of the levee. Britt Road and the entrances to the WWTP would be re-graded to permit truck access to the plant.

The Preferred Alternative would protect essential transportation corridors from flood-related closures and damage up to the 100-year event. The protected transportation routes would include all downtown roadways between Lions Park and Kincaid Street, the I-5 on-ramp and off-ramp at Kincaid Street, the portion of SR 536 between I-5 and the Skagit River, and the Burlington Northern Santa Fe rail line that runs through the downtown area.

Non-motorized transportation would be enhanced by the construction of the pedestrian pathway from Lions Park to the WWTP and the new waterfront promenade. Stairs and ramps would be constructed at each street end to provide pedestrian access to the path at the top of the modified levee and to the promenade. Both the pathway and promenade would be designed to meet the accessibility standards of the Americans with Disabilities Act (ADA; 42 USC §12101). The City would coordinate with the underlying property owners along the pedestrian pathway to obtain easements for pathway construction and maintenance.

Construction of the Preferred Alternative with an earthen levee between Division and Kincaid Streets would result in the reconfiguration of parking west of Main Street, with a net reduction of up to 100 parking stalls in this area.

Mitigation Measures. To minimize the impacts of truck traffic on residential areas during construction, the City would identify a specific route or routes to be used for hauling construction materials to the site. These routes would be designed avoid residential areas as much as possible.

The loss of parking capacity in the area west of Main Street could be mitigated by the construction of a new downtown parking garage. Planning for a new garage is underway and the City hopes to have the new structure open before construction of flood protection measures would begin. In the event the garage is not open by the time construction of the flood protection system is completed, the City would develop temporary surface parking within the downtown area.

During construction, the work would be phased to maintain adequate parking to meet downtown area needs. Using the parking availability figures from the parking utilization study, there potentially would be 60 stalls in existing public parking lots. The City also intends to develop temporary parking on existing undeveloped lots. The lot north of Division Street and adjacent to the river could accommodate an additional 100 parking stalls. If the new parking garage were not complete before construction begins, the contractor(s) would be required to phase the work in a way that would maintain at all times at least 190 stalls in the area west of Main Street between Division Street and the Moose Lodge. This number assumes that all of the currently unused public parking lot stalls and the temporary stalls will be available to make up for parking lost during construction, and that half of the on-street parking that is not being utilized at present can be converted to unrestricted parking.

3.8.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, the City would proceed with plans to construct a new parking garage in downtown but otherwise there would be little change in existing transportation conditions and trends. The City would continue to implement the goals, objectives, and policies of the *Comprehensive Plan Transportation Element* and undertake the transportation improvement projects set out in its *Capital Facilities Plan*.

3.9 Public Services and Utilities

3.9.1 Existing Conditions

3.9.1.1 Fire and Emergency Services

The Mount Vernon Fire Department provides fire suppression, rescue, and emergency medical response with a staff of 33 career firefighters and approximately 20 on-call volunteer firefighters. The Department operates three stations, including one located in downtown on South Second Street. It operates five fire engines, a ladder/engine combination, an aid vehicle, and a rescue truck. In 2005, the Fire Department responded

to an average of about 9 alarms per day, over 60 percent of which were for emergency medical response.

3.9.1.2 Police

Police protection for the City is provided by the Mount Vernon Police Department. The Police Department is staffed by 45 commissioned Police Officers, two Community Service Officers, one Animal Control Officer, and approximately 50 volunteers. The Department's divisions include Administrative Services, Records and Property, Patrol, Criminal Investigations, and Crime Prevention.

3.9.1.3 Schools

The Mount Vernon School District is the largest school district in Skagit County, serving over 5,700 students. The District operates six neighborhood elementary schools and two middle schools, in addition to Mount Vernon High School.

3.9.1.4 Solid Waste Management

Management of solid waste in the City is the responsibility of the Solid Waste Division of the Mount Vernon Public Works Department. The Solid Waste Division manages collection and disposal of all municipal solid waste and operation of a yard waste facility. Garbage and recyclables pick-up services are provided by Waste Management, a private, franchised hauler regulated by the Washington Utilities and Transportation Commission. Solid waste collected in the City is transported to the Skagit County Recycling and Transfer Station, located on Ovenell Road in Mount Vernon. From the transfer station, waste is shipped to the Roosevelt Regional Landfill in Klickitat County for final disposal.

3.9.1.5 Wastewater

The Wastewater Division of the Mount Vernon Public Works Department is responsible for wastewater collection, treatment, and disposal, with a service district that encompasses the City's Urban Growth Area. The Division operates 12 sanitary pumps stations and maintains approximately 108 miles of sanitary sewer line. The City's WWTP processes an average of 4 million gallons of wastewater a day. Treatment plant effluent is discharged through an outfall pipe to the Skagit River. Solids from the treatment process that meet regulatory limits for metals and toxics are certified as Class B biosolids and then transported to eastern Washington for application on dryland grain crops.

As described in Section 3.4.1.1, the City is working on upgrading and expansion of the WWTP. The work will provide capacity to treat wet weather flows for control of CSOs and to meet demand from population growth that is expected over the next 20 years (City of Mount Vernon 2006).

3.9.1.6 Stormwater Management

The City's Stormwater Management Division manages the Surface Water Utility, which installs and maintains a network of surface water facilities including storm drains, culverts, catch basins and detention ponds. In most of Mount Vernon, storm drains discharge directly to the Skagit River or tributary streams.

3.9.1.7 Municipal Water

Public Utility District #1 of Skagit County supplies water to residents, businesses, and industries throughout most areas of the City. The District's water filtration plant draws water from Judy Reservoir, which is supplied by streams in the Cultus Mountains east of Mount Vernon.

3.9.1.8 Electricity and Natural Gas

Electrical energy is provided to Mount Vernon and surrounding areas by Puget Sound Energy (PSE), which has authority to provide electric and natural gas service within its 6,000 square mile service area.

PSE operates its own power plants and also purchases power from other utilities, independent power producers, and energy marketers in the U.S. and Canada (Puget Sound Energy 2006). The utility operates three hydropower projects, including the Baker River Project in the upper Skagit River basin. The powerhouse at Lower Baker Dam is capable of producing 70 megawatts (MW) of electricity and the two generating units at Upper Baker Dam have a combined generation capacity of 105 MW of electricity.

Mount Vernon is located within the service areas of both Cascade Natural Gas and PSE. Natural gas is transported into the providers' service areas through interstate pipelines owned and operated by Williams Northwest Pipeline (Puget Sound Energy 2006; Cascade Natural Gas 2006). Once the utility takes possession of the product, it is distributed to customers through utility-owned lines.

3.9.2 Impacts of the Alternatives and Mitigation Measures

3.9.2.1 Preferred Alternative

Short-Term and Long-Term Effects. During construction, some existing water, sewer, and electrical lines and equipment would need to be relocated, removed and replaced, or protected to avoid damage. This work would likely involve temporary, planned outages affecting customers in portions of the downtown area. A detailed inventory of utilities that would be affected by construction is presented in Appendix C.
Over the long term, construction of the flood protection system would provide FEMA-certified flood protection for utility corridors and equipment in downtown Mount Vernon up to and including the 100-year event and reduce damage and outages associated with floods. The infrastructure protected would include both publicly- and privately-owned facilities.

Mitigation Measures. To minimize impacts on utility customers during construction, planned service outages would, as practicable, be timed for off-peak hours (typically between midnight and 5 a.m.)

3.9.2.2 No Action

Short-Term and Long-Term Effects. Under the No Action alternative, existing trends regarding public services and utilities would likely continue. As the area's population grows, the City would concurrently extend and upgrade public services and utilities within its UGA. It is expected that there would be an increase in calls for police and fire services, and the Police and Fire departments would need additional staff and equipment to maintain and improve service. Similarly, local schools would experience an increase in student enrollment and the School District would need to implement plans to address facility modernization and expansion and staffing needs. Capital improvements would be made to the City's surface water management facilities to address runoff volume and water quality issues associated with population growth. The planned expansion and upgrade of the WWTP is an independent action that would occur regardless of any downtown flood protection project.

3.10 Indirect and Cumulative Effects of the Preferred Alternative

Indirect effects are effects caused by an action and occurring later in time or farther removed in distance, but still reasonably foreseeable. Indirect effects may include effects related to induced changes in land use, population density, or growth rate. Cumulative effects result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over time.

Mount Vernon and adjacent areas have undergone various forms of development since the first land claims were staked in the 1860s. Development activities have included logging, construction of dikes, draining of marshy areas, road and highway construction, agriculture, navigational improvements, construction of dams, and establishment of residential, commercial, and industrial areas.

Significant alteration of the Skagit River began shortly after the arrival of homesteaders in the Mount Vernon area, when two large log jams stretching 1.5 miles along the river were removed to allow navigation upstream of Mount Vernon (Northwest Archaeological Associates 2006). Complete removal of the log jams took over 10 years to accomplish. Other major changes accompanied the construction of Ross, Diablo, and Gorge dams on the Skagit River and the Upper and Lower Baker dams on the Baker River.

Logging and mining in the upper basin expanded rapidly after the log jams were cleared and Mount Vernon became the supply center for loggers, prospectors, and settlers. As the population of the area grew over time, development pressure on the Skagit River floodplain increased and agricultural, commercial, residential, and industrial development occurred in flood-prone areas. Devastating floods were a frequent occurrence. By 1894, the Skagit River had been substantially diked from its mouth to beyond Sedro-Woolley. Since the 1890s, flood-prevention efforts have focused on the maintenance and improvement of levees along the river.

The changes brought about by navigation improvements, dam construction, development of the levee system, and population growth have had a number of significant impacts, including loss of fish and wildlife habitat, loss of wetland and riparian areas, and changes in vegetation cover. Some of these impacts have been offset by recent habitat restoration projects such as the Edgewater Park Habitat Project in west

Mount Vernon, which was completed through a partnership between the City, the Skagit Watershed Council, and the Skagit Fisheries Enhancement Group. A number of habitat restoration projects have been completed in the basin and others are in the planning stages.

Current conditions in the vicinity of Mount Vernon are largely a result of the historical changes to the Skagit River and its floodplain. The area still plays an important ecological role and it continues to support wetland and riparian habitats as well as important populations of Pacific salmon and trout.

Development pressure is not expected to diminish in coming years; the population in the area continues to grow, and Mount Vernon is the fastest growing city in Skagit County. The City is projected to increase its population by 69 percent over the next 20 years, while the County population is projected to grow by 46 percent (Property Counselors 2005).

Residential, commercial, and industrial development in the area is expected to quicken in response to this population growth. With implementation of the Preferred Alternative and the assurance that downtown Mount Vernon was protected from major floods, it is anticipated that redevelopment of the downtown area would accelerate. These actions could lead to impacts such as soil erosion, changes in air quality and environmental health, and added demand on transportation systems, public services, and utilities. Future redevelopment actions would be subject to environmental review under SEPA and NEPA and to local, state, and federal regulations and permit programs that are designed to control the environmental impacts of such projects.

The historical changes associated with development of the Skagit River basin will continue to dominate the river's hydrology and hydraulics. Hydraulic modeling indicates that the Preferred Alternative would have little effect on flood flows in the Mount Vernon reach or upstream and downstream reaches, but future flood-control projects that may be undertaken by the Corps of Engineers or other entities could alter Skagit River flood stages and the timing of flows.

It is expected that over the long term, implementation of the Preferred Alternative would have an effect on land values in downtown. Land values are a measure of the overall demand for development in an area. As the desirability of an area increases, land values will increase. The value placed on properties by the County Assessor may differ from market value, but assessed value is a consistent measure of land value over time. Table 12 compares current land values in downtown Mount Vernon with those in other commercial districts in Skagit County and in the historic Fairhaven District in Bellingham.

Although there are differences in land and building conditions in the various areas, commercial property values in downtown Mount Vernon are, in general, significantly lower than other areas. This is largely a result of the designation of the downtown area within the FEMA 100-year floodplain. As described previously, the significance of the 100-year flood is that there is a 1 percent change that a flood equal to or exceeding the 100-year level will occur in any year. This means that over the course of a typical 30-year real estate mortgage, there is a 29 percent chance that such a flood will occur. FEMA offers flood insurance to property owners in designated floodplains in order to provide guarantees to lenders. The rates for $200,000 coverage for building and contents for non-residential structures in a SFHA are approximately $4,700 per year

(Property Counselors 2006). The present value of this payment over 30 years at 7 percent interest is $58,300. This amount represents approximately 75 percent of the difference in value between a parcel valued at $10 per square foot and one valued at $20 per square foot. The remaining 25 percent difference can be attributed to a general stigma associated with properties that are threatened by flooding.

Table 12. Comparison of Land Values in Downtown Mount Vernon and other Areas.

Area	Assessed Value per Square Foot (dollars)
Downtown Mount Vernon - north of Kincaid St.	6.50 – 13.00
Downtown Mount Vernon – W. Section to Kincaid St.	1.50 – 13.00
Mount Vernon – College Way area	10.00 – 20.00
La Conner – First St.	10.00 – 22.75
Anacortes – Commercial Street	15.00 – 20.00
Bellingham – Fairhaven District	30.00 – 50.00

Source: Property Counselors

It is expected that implementation of the Preferred Alternative and removal of the downtown area from the FEMA 100-year floodplain would increase the value of downtown property at least by the value attributable to the insurance premium and more likely by the full value enjoyed by comparable commercial districts.

Once the new promenade was completed, the area west of Main Street that is currently used primarily for parking would most likely be redeveloped into retail and commercial sites. The redevelopment value of this area would depend on decisions made as part of the master planning process, but would be significantly greater than the existing value.

Including the Commercial Cold Storage floodwall option as a component of the Preferred Alternative would have indirect but tangible economic benefits for the community. Commercial Cold Storage provides cold storage warehousing and custom seafood processing and has been operating in Mount Vernon since 1980. In 2005 the facility stored and shipped over 37 million pounds of seafood. The business employs an average of 95 full-time workers and currently has an annual payroll of over $2.5 million (G. Thor, pers. com. 2006). The Commercial Cold Storage floodwall option would protect the facility from flood damage up to the 100-year event and maintain good vehicle access to the property. This would ensure that business operations would not be subject to disruption by flood damage, help to protect existing jobs, and allow for future business expansion.

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Figure 1. Vicinity Map

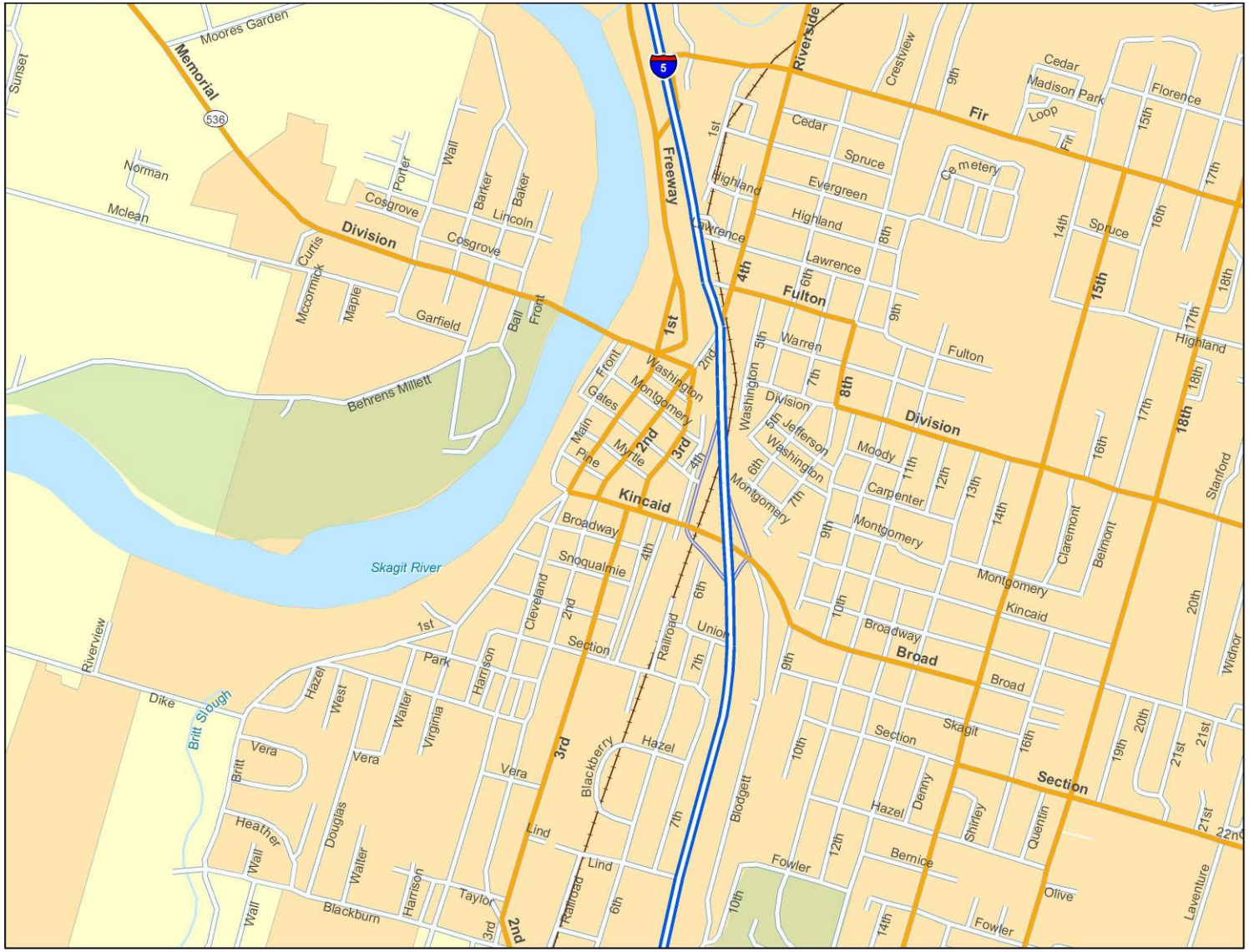
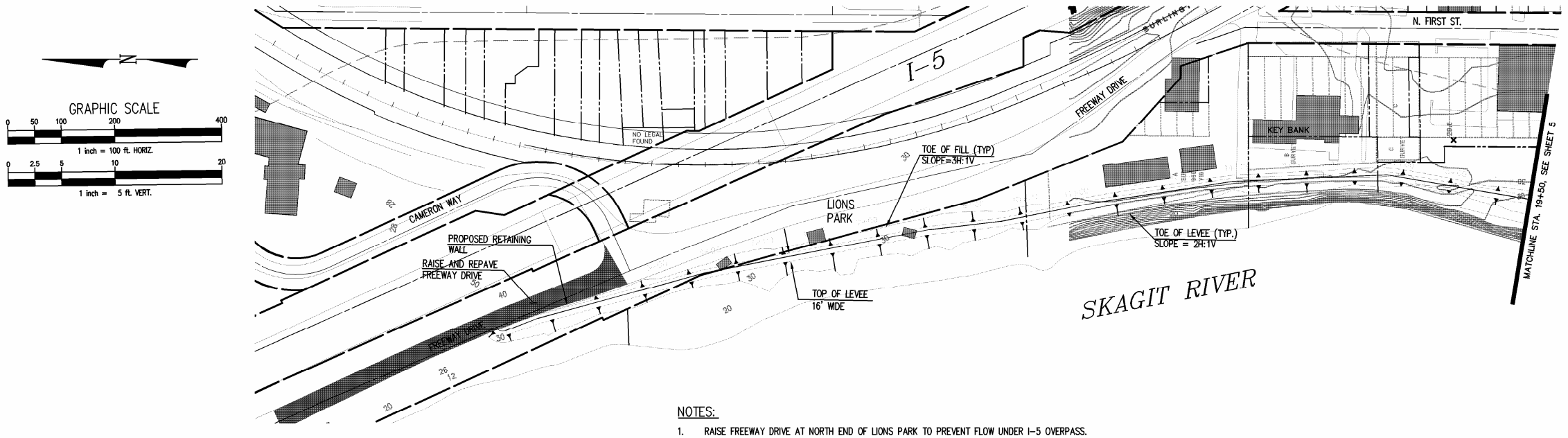


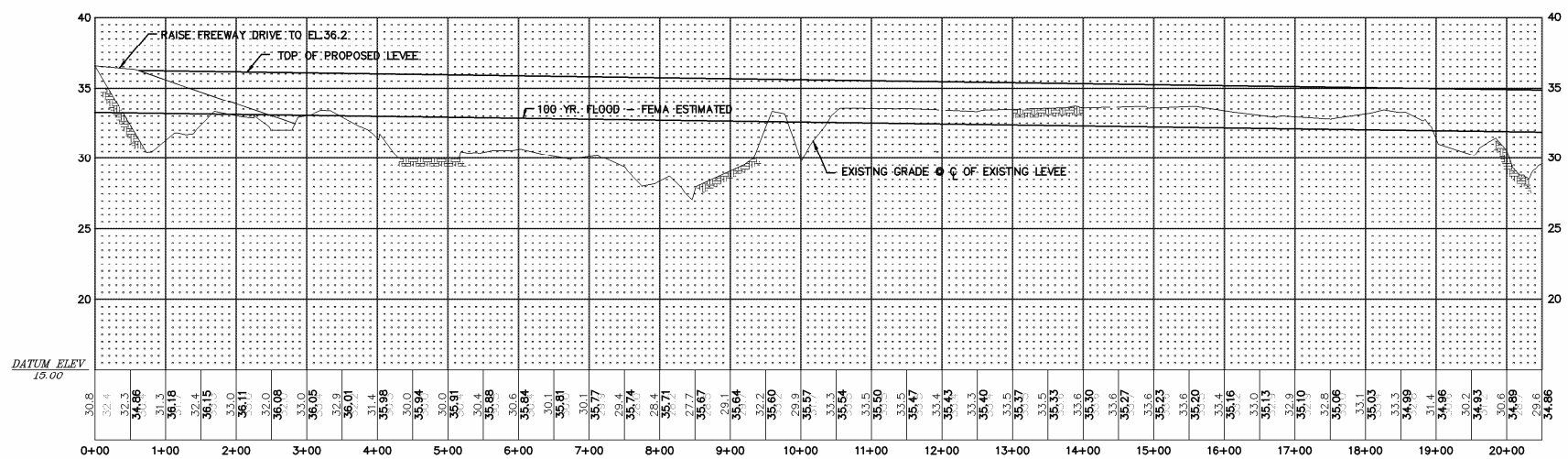
Figure 2. Map of Downtown Mount Vernon

SECTION 19, TWP 34 N, RGE 4 E, WM



NOTES:

1. RAISE FREEWAY DRIVE AT NORTH END OF LIONS PARK TO PREVENT FLOW UNDER I-5 OVERPASS.
2. LEVEE IMPROVEMENTS FROM STA. 11+25 TO 14+00 WILL IMPACT PARKING AREA BEHIND VALLEY RV BUILDINGS. ONE-WAY TRAFFIC BEHIND BUILDINGS CAN BE MAINTAINED.
3. LEVEE IMPROVEMENTS FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.



JOB NUMBER 1601 CONTRACT NO.	PRELIMINARY	PACIFIC INTERNATIONAL ENGINEERING PLLC 501 Columbia Street NW Suite D Olympia, WA 98501 Phone (360) 352-2232 Fax (360) 352-5525	CITY OF MOUNT VERNON DOWNTOWN AND WATERFRONT MASTER PLAN -- FLOOD PROTECTION MEASURES LEVEE ALTERNATIVE - STA 0+00 - STA 19+50	REFERENCE SHEET NUMBER – SHEET 4 OF 13 SHEETS

Figure 3a. Levee Alternative – Station 0+00 – Station 19+50

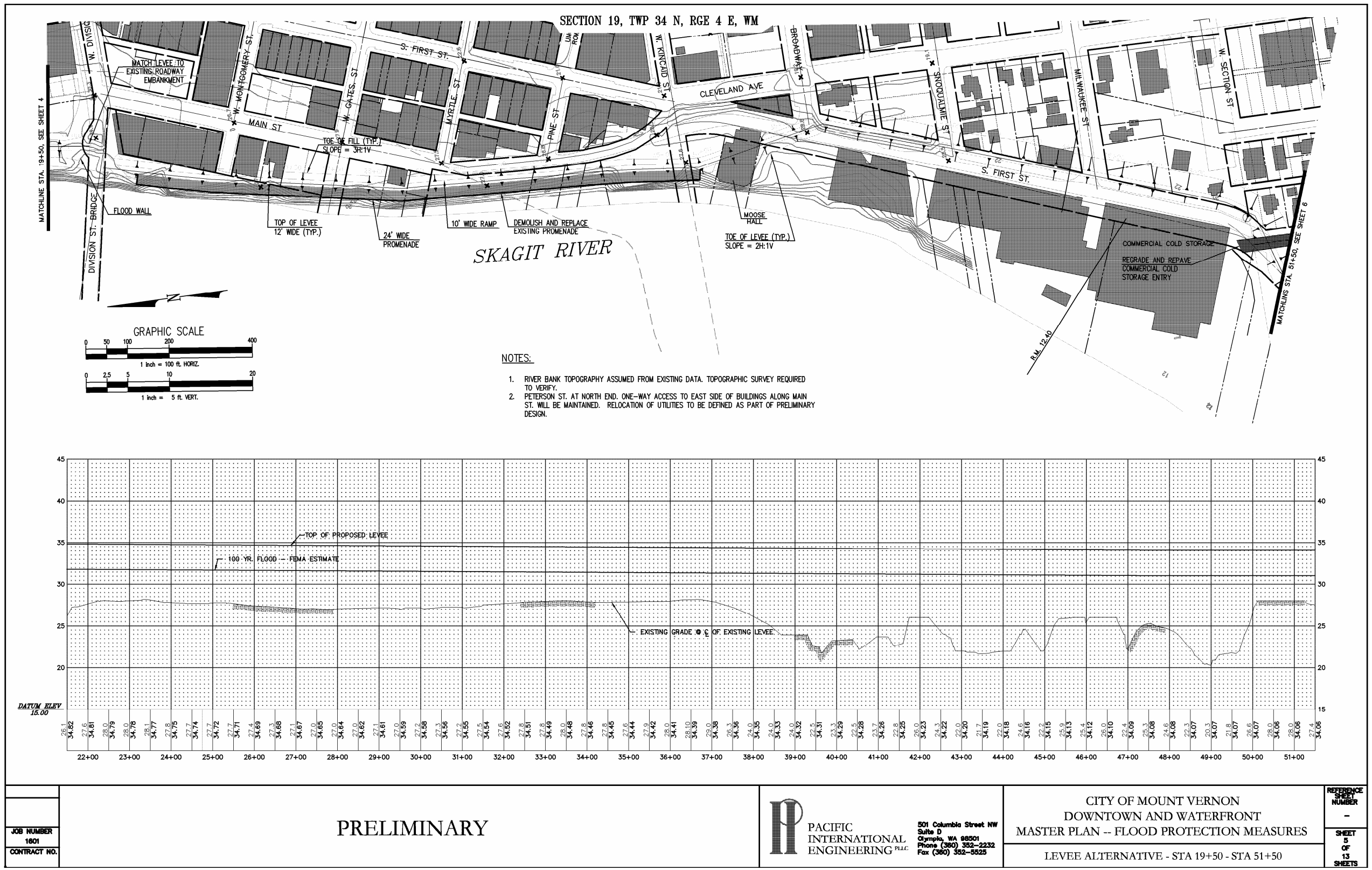


Figure 3b. Levee Alternative – Station 19+50 – Station 51+50

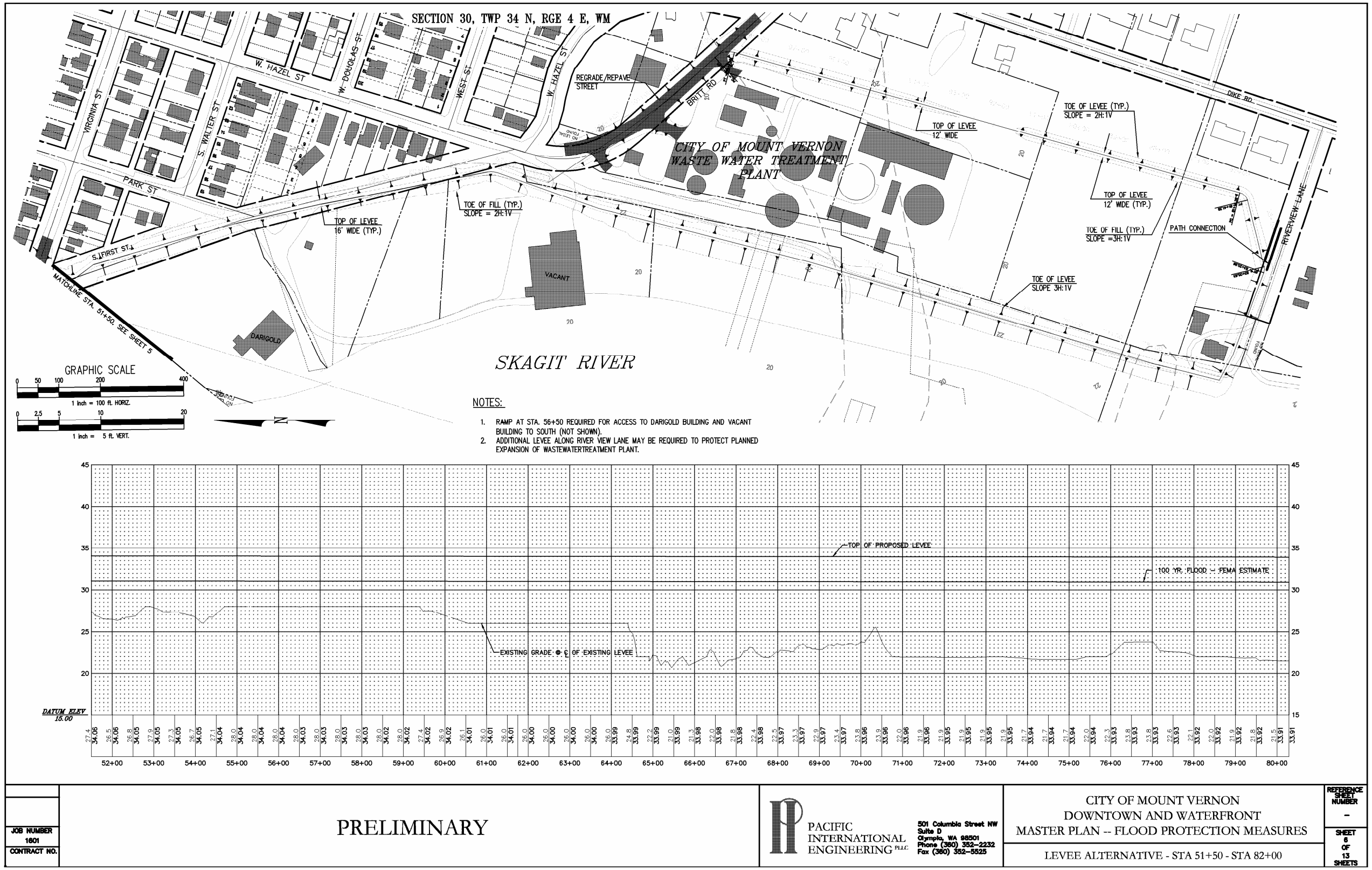
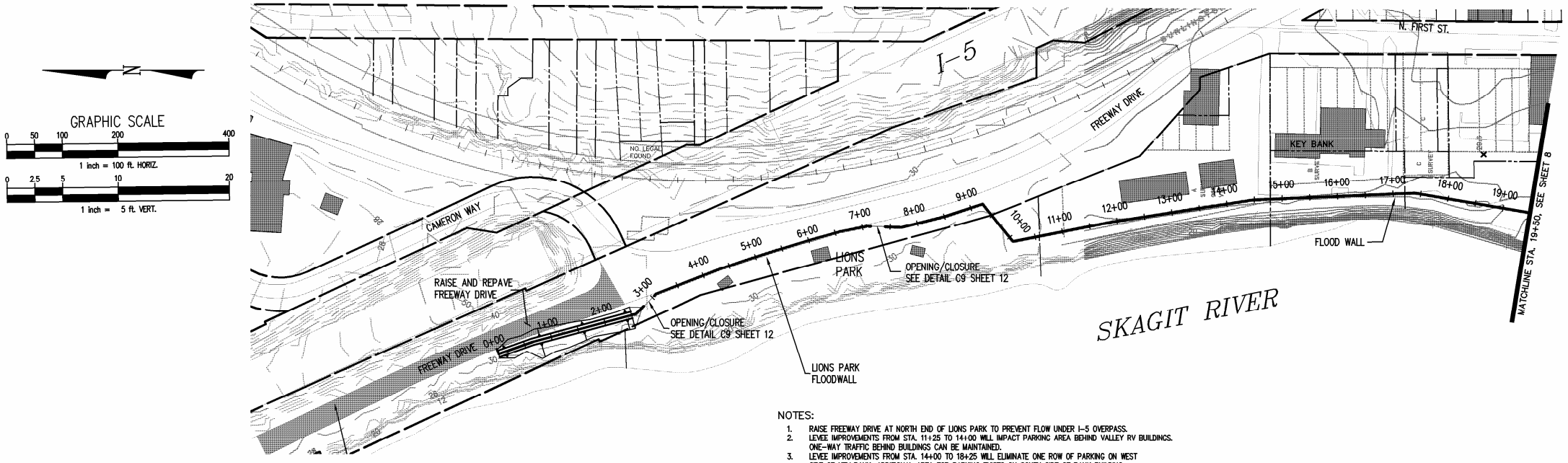
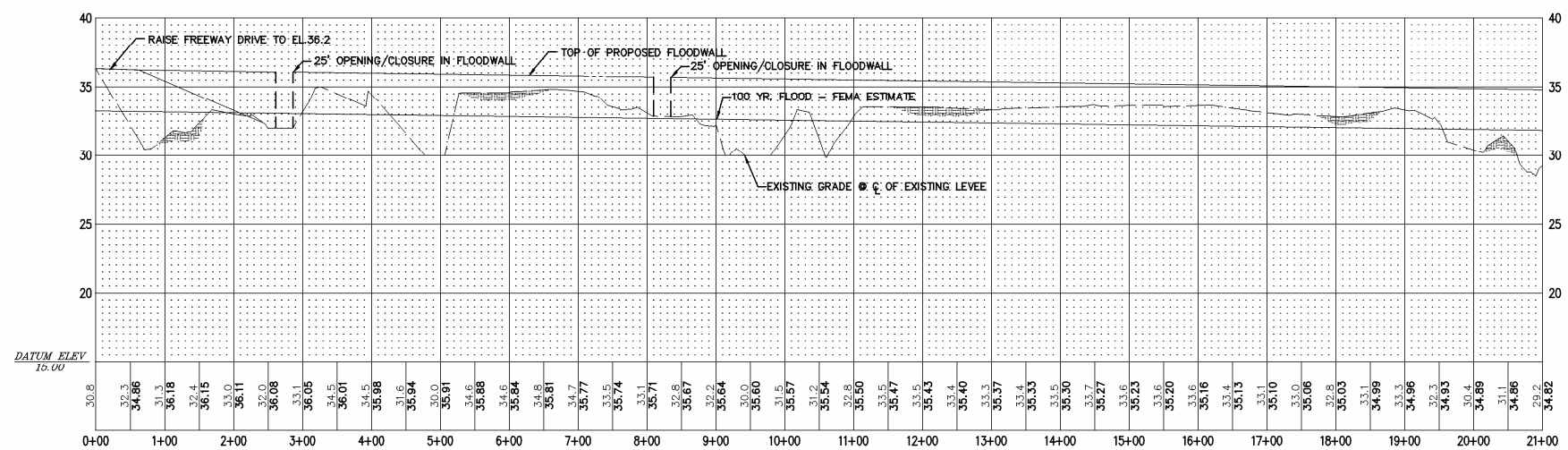


Figure 3c. Levee Alternative – Station 51+50 – Station 82+00

SECTION 19, TWP 34 N, RGE 4 E, WM



NOTES:
1. RAISE FREEWAY DRIVE AT NORTH END OF LIONS PARK TO PREVENT FLOW UNDER I-5 OVERPASS.
2. LEVEE IMPROVEMENTS FROM STA. 11+25 TO 14+00 WILL IMPACT PARKING AREA BEHIND VALLEY RV BUILDINGS. ONE-WAY TRAFFIC BEHIND BUILDINGS CAN BE MAINTAINED.
3. LEVEE IMPROVEMENTS FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.



JOB NUMBER 1601 CONTRACT NO.	PRELIMINARY	PACIFIC INTERNATIONAL ENGINEERING PLLC 501 Columbia Street NW Suite D Olympia, WA 98501 Phone (360) 352-2232 Fax (360) 352-5525	CITY OF MOUNT VERNON DOWNTOWN AND WATERFRONT MASTER PLAN -- FLOOD PROTECTION MEASURES FLOOD WALL ALTERNATIVE - STA 0+00 - STA 19+50	REFERENCE SHEET NUMBER – SHEET 7 OF 13 SHEETS

Figure 4a. Floodwall Alternative – Station 0+00 – Station 19+50

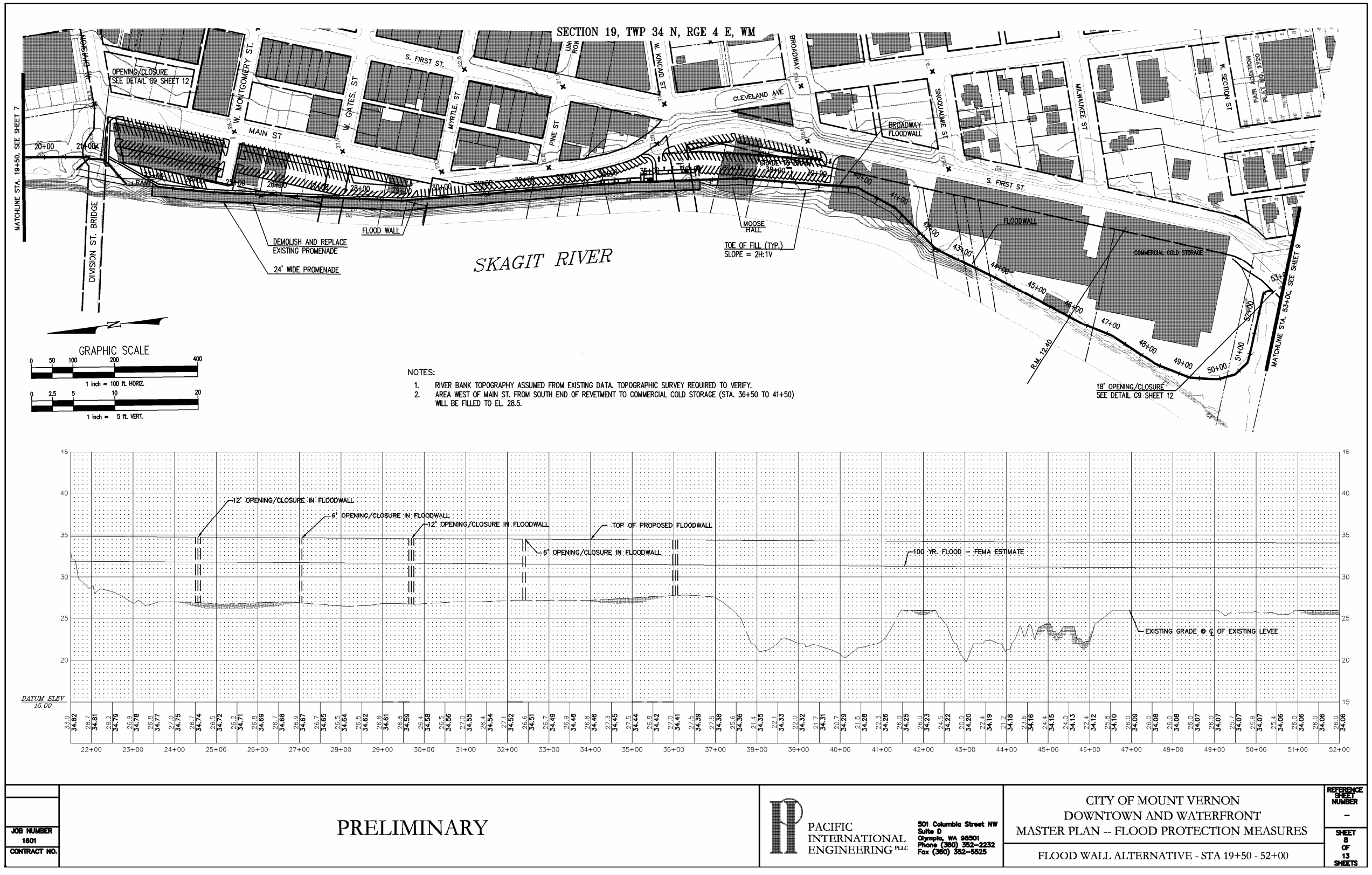


Figure 4b. Floodwall Alternative – Station 19+50 – Station 52+00

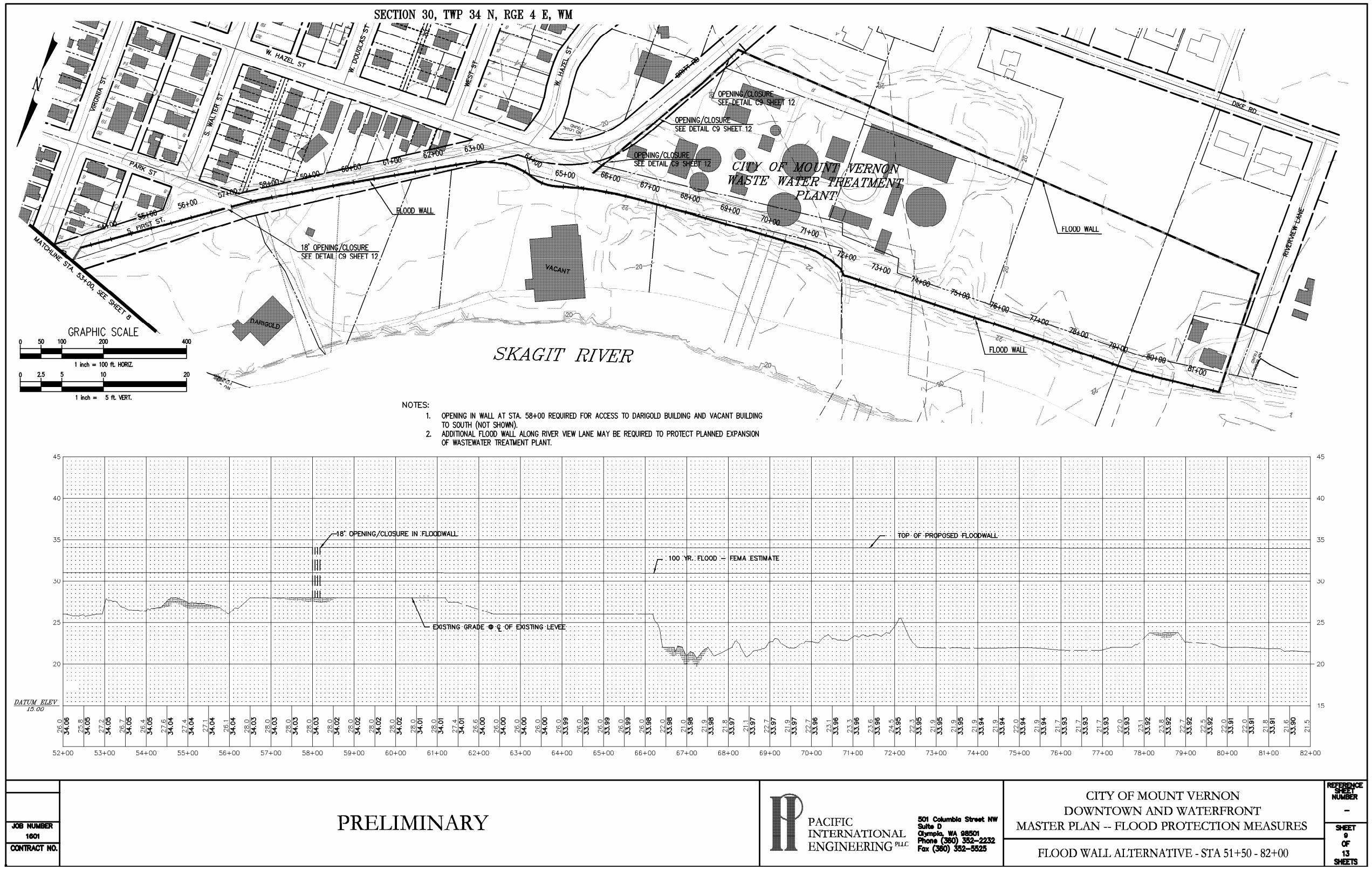
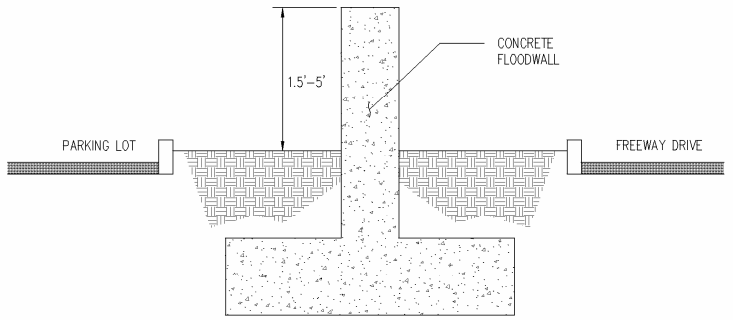
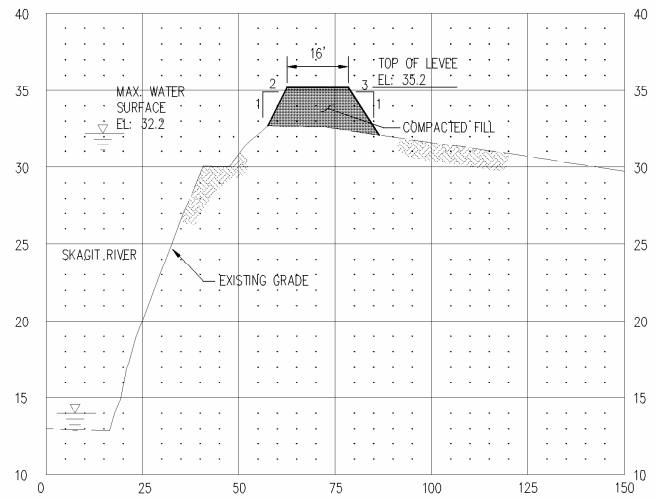


Figure 4c. Floodwall Alternative – Station 51+50 – Station 82+00

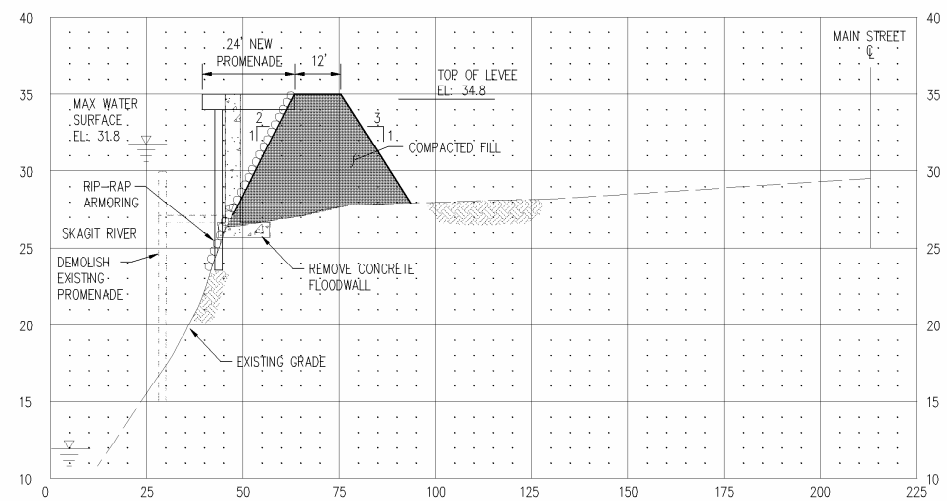


ALTERNATIVE 1

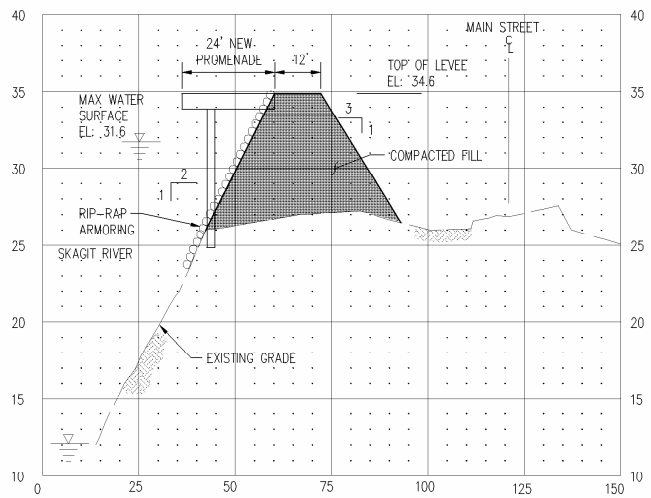
LIONS PARK FLOODWALL C10 (1, 7)
SCALE: 1" = 20' H; 1" = 5' V



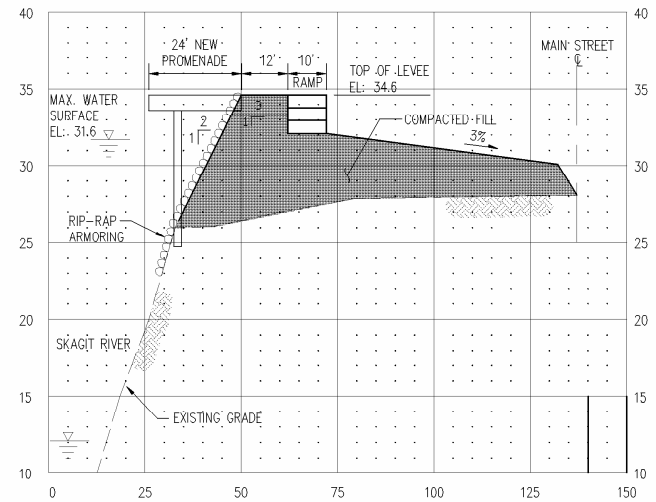
STATION 15+50 KEY BANK C2 (1, 4)
SCALE: 1" = 20' H; 1" = 5' V



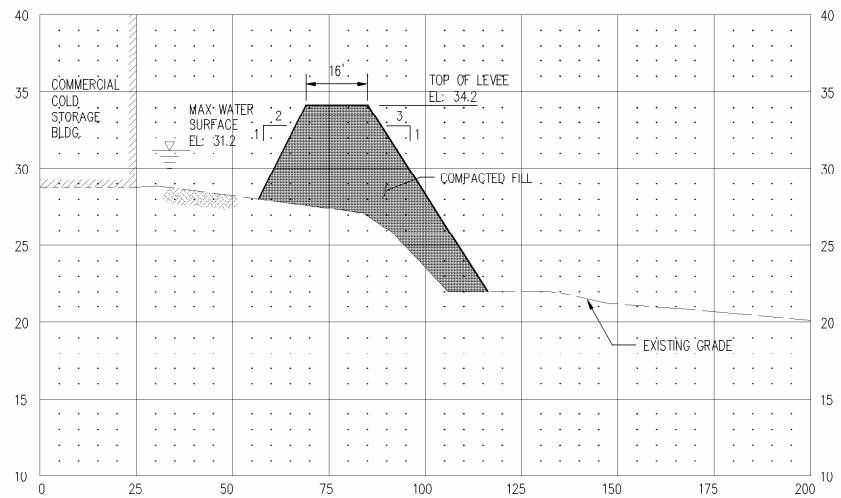
MONTGOMERY ST C3 (2, 5)
SCALE: 1" = 20' H; 1" = 5' V



MYRTLE ST C4 (2, 8)
SCALE: 1" = 20' H; 1" = 5' V



KINCAID ST C5 (2, 8, 10)
SCALE: 1" = 20' H; 1" = 5' V

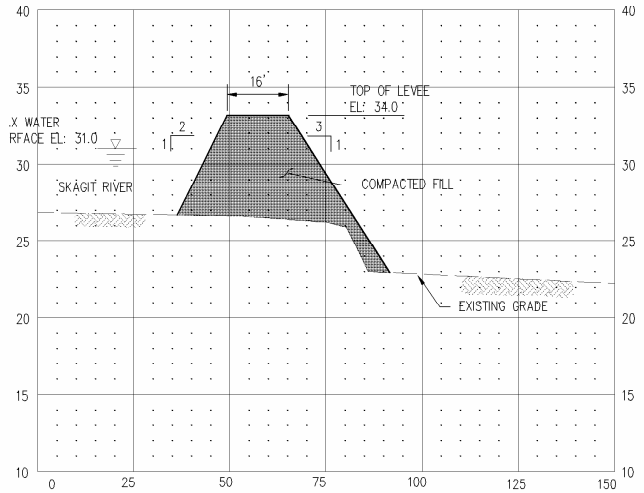


COMMERCIAL COLD STORAGE C6 (5)
SCALE: 1" = 20' H; 1" = 5' V

NOTES:
1. LEVEE SIDE SLOPE INCLINATIONS AND SUBSURFACE FEATURES SUBJECT TO GEOTECHNICAL INVESTIGATION.
2. FLOOD WALL DESIGN SUBJECT TO GEOTECHNICAL INVESTIGATION.

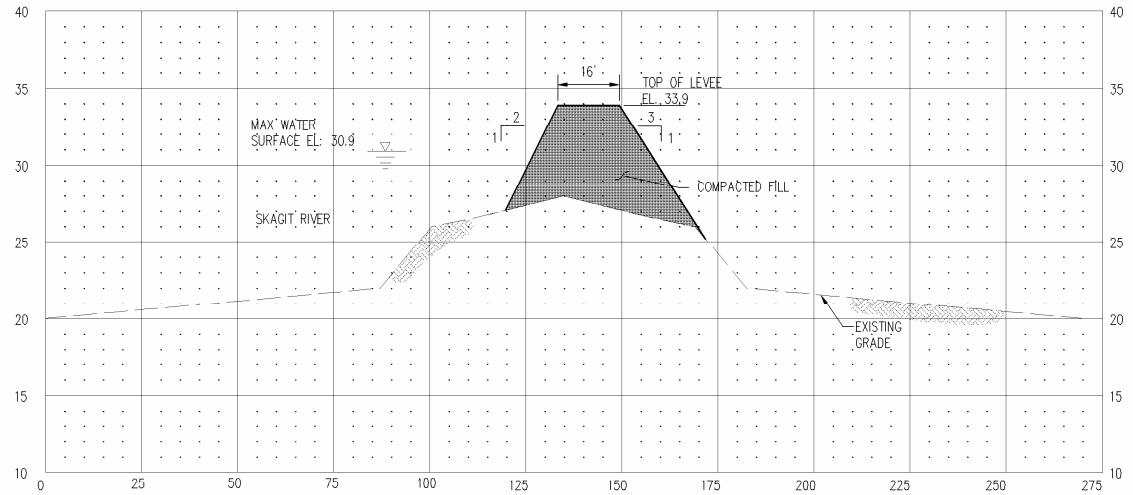
JOB NUMBER 1601 CONTRACT NO.	PRELIMINARY	PACIFIC INTERNATIONAL ENGINEERING PLLC 501 Columbia Street NW Suite D Olympia, WA 98501 Phone (360) 352–2232 Fax (360) 352–5525	CITY OF MOUNT VERNON DOWNTOWN AND WATERFRONT MASTER PLAN FLOOD PROTECTION MEASURES - SECTIONS
			REFERENCE SHEET NUMBER – SHEET 11 OF 13 SHEETS

Figure 5a. Flood Protection Alternatives – Typical Cross Sections



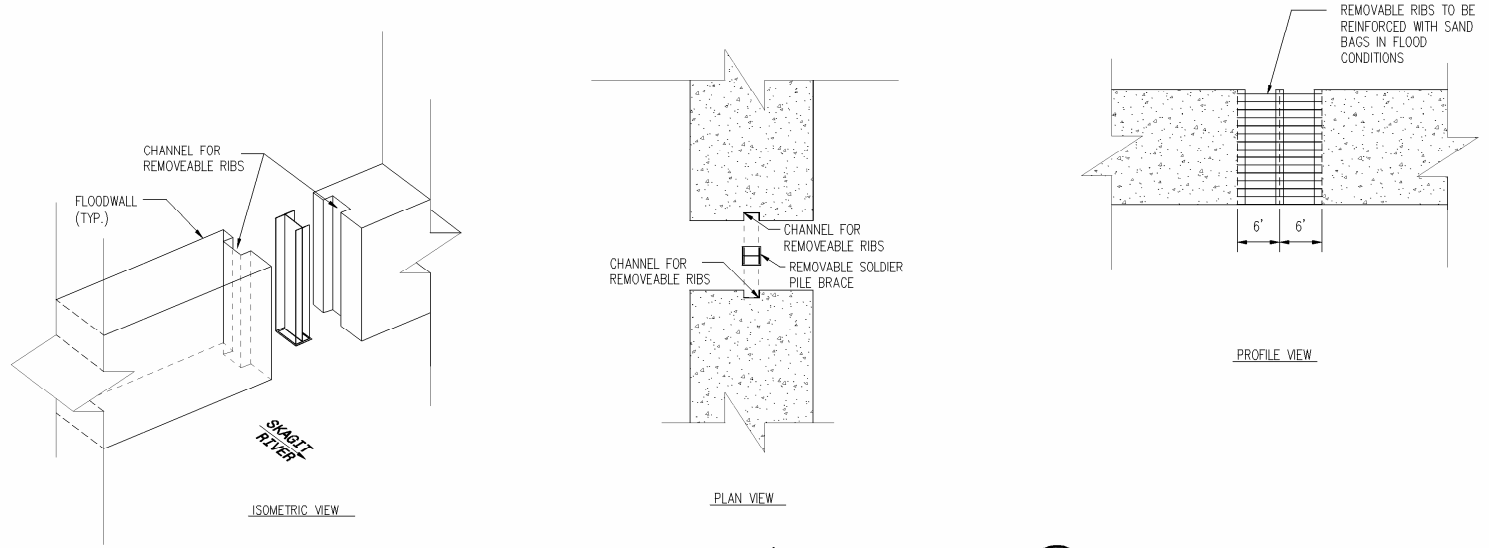
S. FIRST ST AT WEST ST — C7 — 3,6,7

SCALE: 1" = 20' H; 1" = 5' V



WASTEWATER TREATMENT PLANT — C8 — 6

SCALE: 1" = 20' H; 1" = 5' V



OPENING/CLOSURE — C9 — 1,7,9

NTS

NOTES:

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2. FLOOD WALL DESIGN SUBJECT TO GEOTECHNICAL INVESTIGATION.

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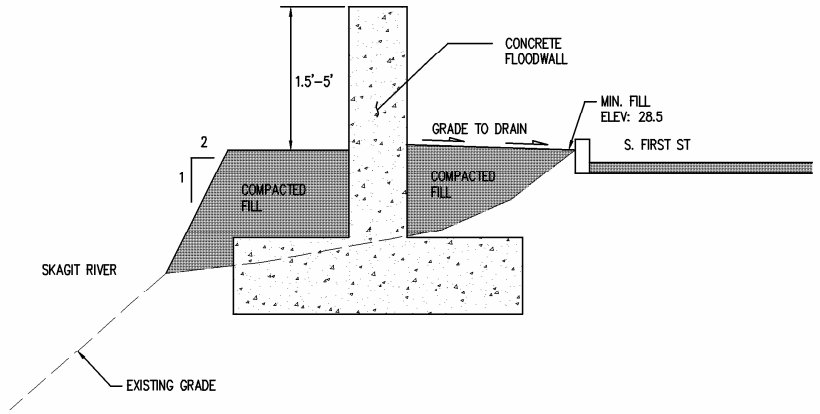
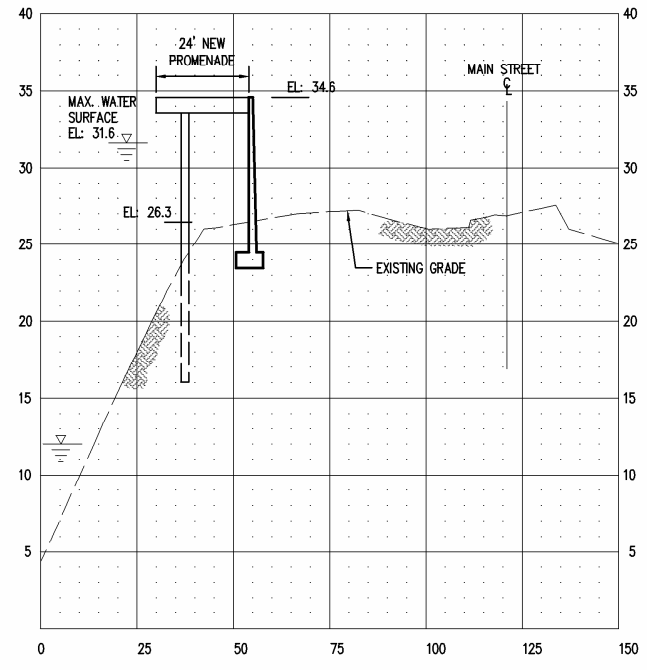
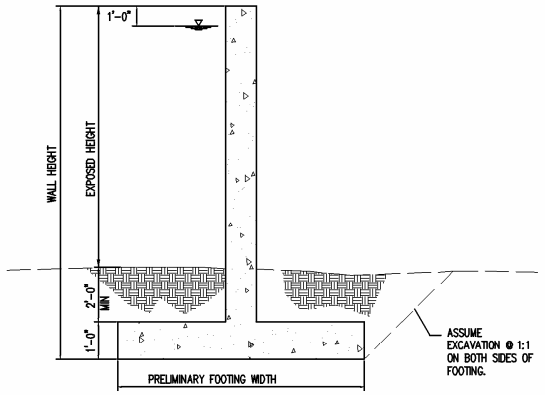
Figure 5b. Flood Protection Alternatives – Typical Cross Sections



BROADWAY FLOODWALL
SCALE: 1" = 20' H; 1" = 5' V
C10
2, 10

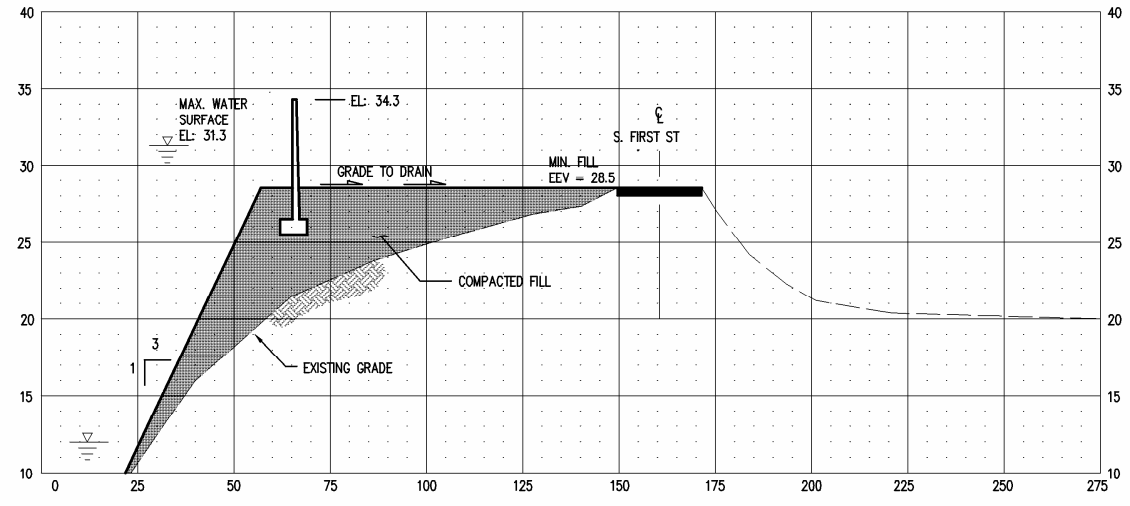


MYRTLE ST
SCALE: 1" = 20' H; 1" = 5' V
C11
8



EXPOSED HEIGHT	WALL HEIGHT	PRELIMINARY FOOTING WIDTH
6 FT	9 FT	6'–6"
8 FT	11 FT	7'–6"
10 FT	13 FT	8'–6"
12 FT	15 FT	9'–6"

TYPICAL FLOODWALL CROSS SECTION
N.T.S



FLOOD WALL – STA. 39+50
SCALE: 1" = 20' H; 1" = 5' V
C12
8

NOTES:

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Figure 5c. Flood Protection Alternatives – Typical Cross Sections

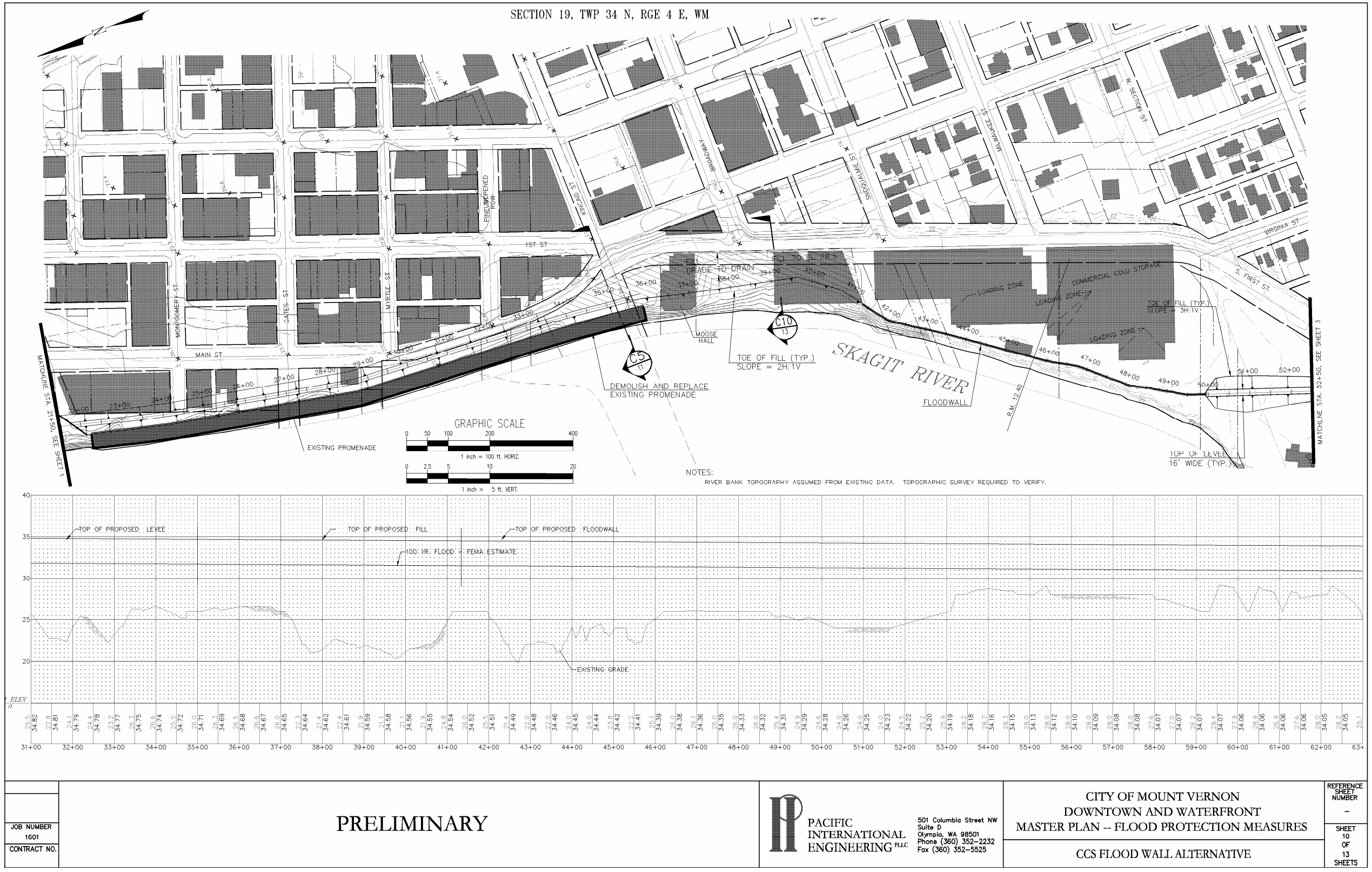
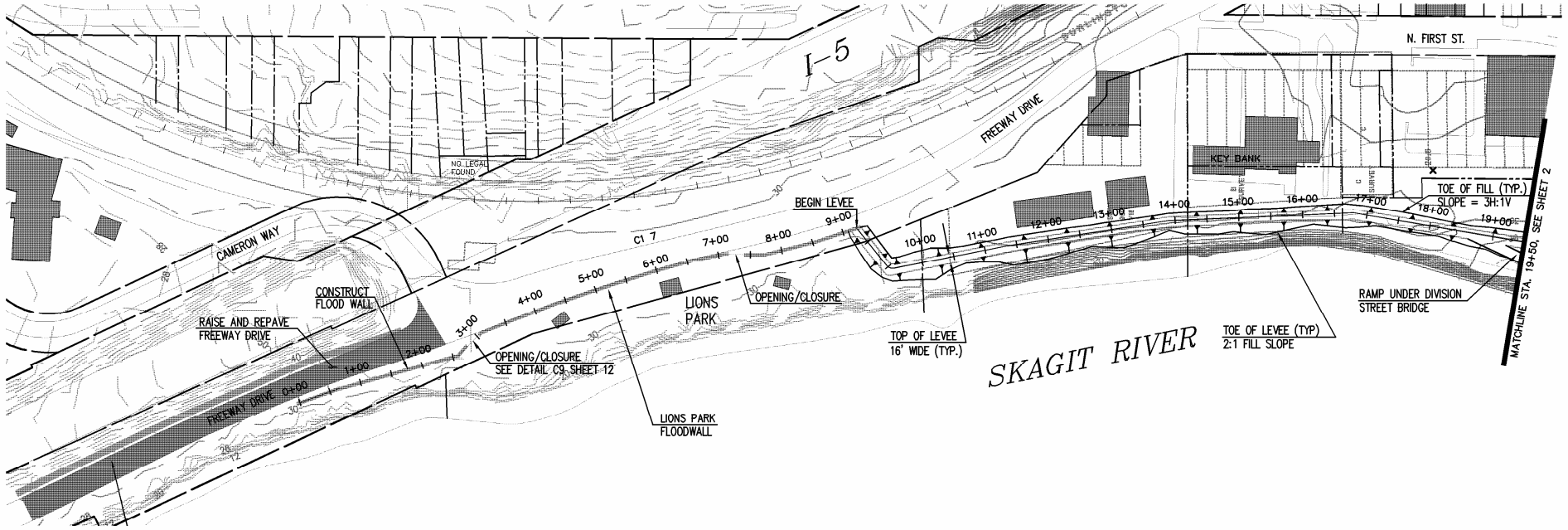


Figure 6. Commercial Cold Storage Floodwall Option

Figure 7a. Proposed Alignment of Preferred Alternative



GRAPHIC SCALE

0 50 100 200 400

1 inch = 100 ft. HORIZ.

0 2.5 5 10 20

1 inch = 5 ft. VERT.

NOTES:

1. RAISE FREEWAY DRIVE AT NORTH END OF LIONS PARK TO PREVENT FLOW UNDER I-5 OVERPASS.
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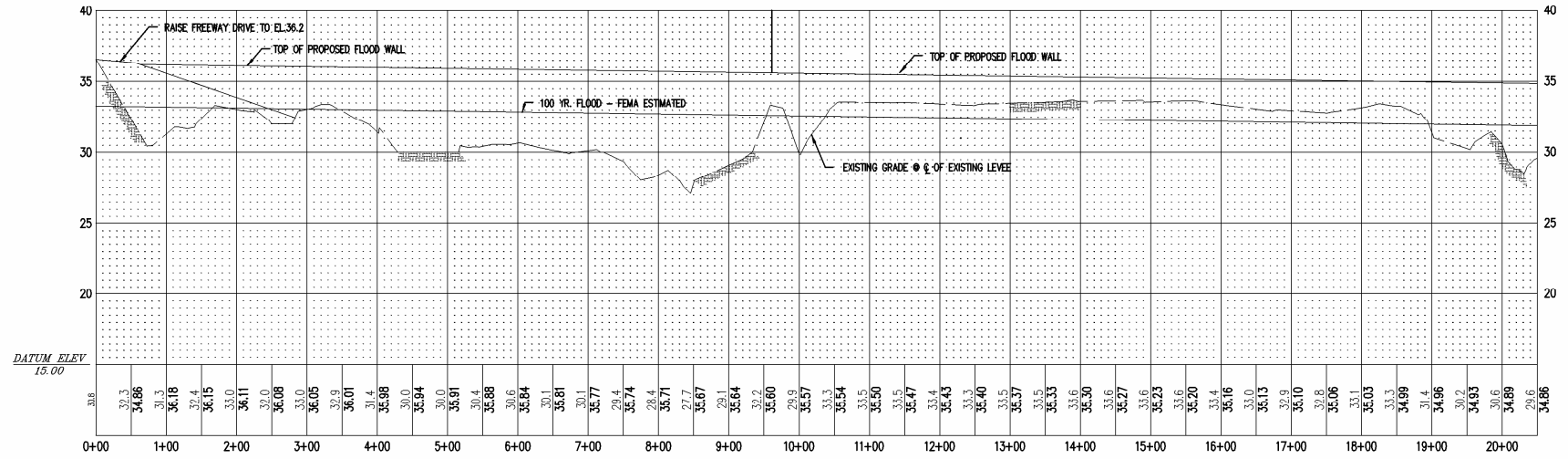


JOB NUMBER 1601

CONTRACT NO.

PRELIMINARY

PACIFIC INTERNATIONAL ENGINEERING PLLC
501 Columbia Street NW
Suite D
Olympia, WA 98501
Phone (360) 352-2232
Fax (360) 352-5525

CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

PREFERRED ALTERNATIVE - STA 0+00 - STA 19+50

REFERENCE SHEET NUMBER -

SHEET 1 OF 13 SHEETS

Figure 7b. Preferred Alternative – Station 0+00 – Station 19+50

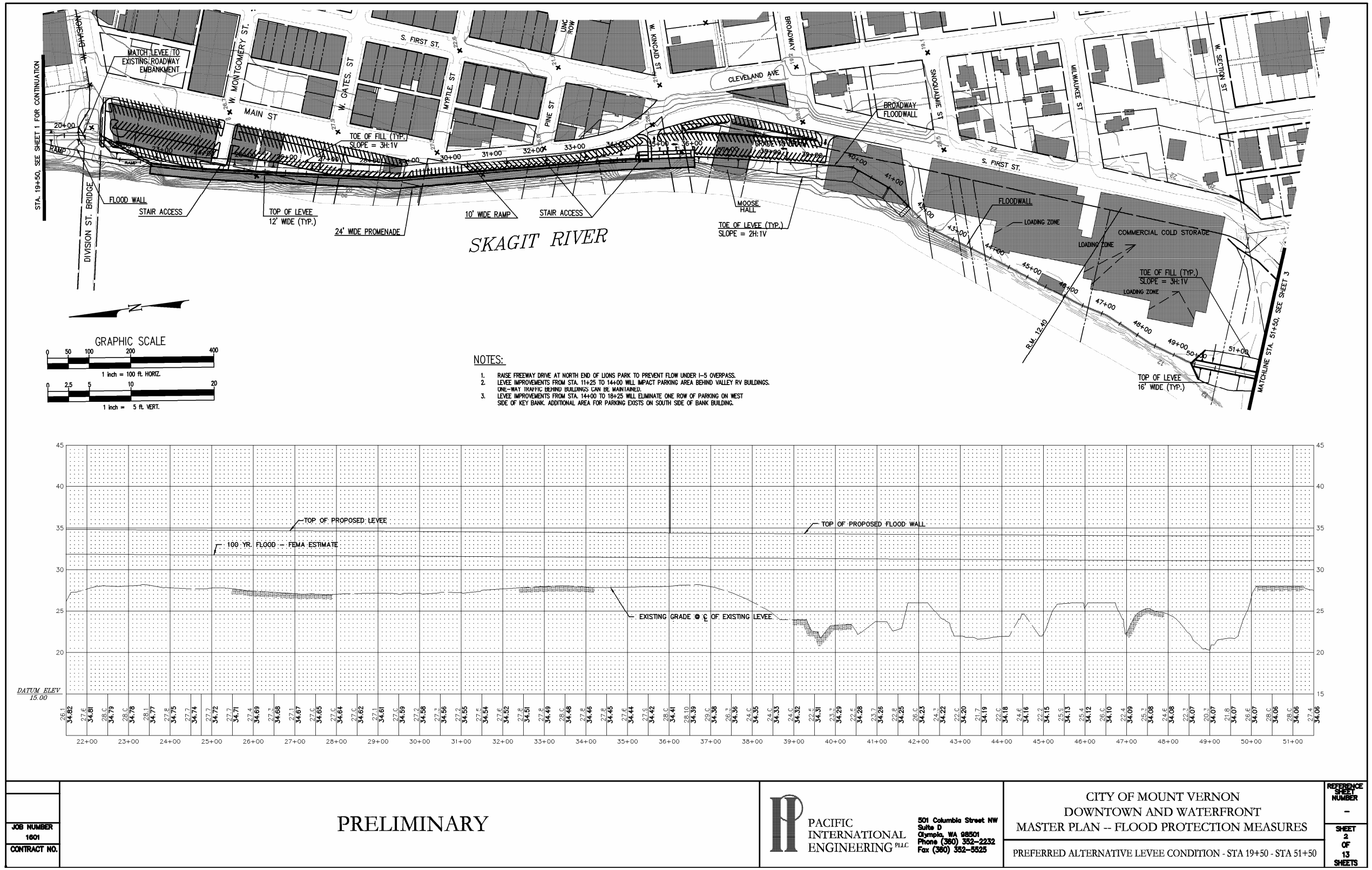


Figure 7c. Preferred Alternative – Station 19+50 – 51+50

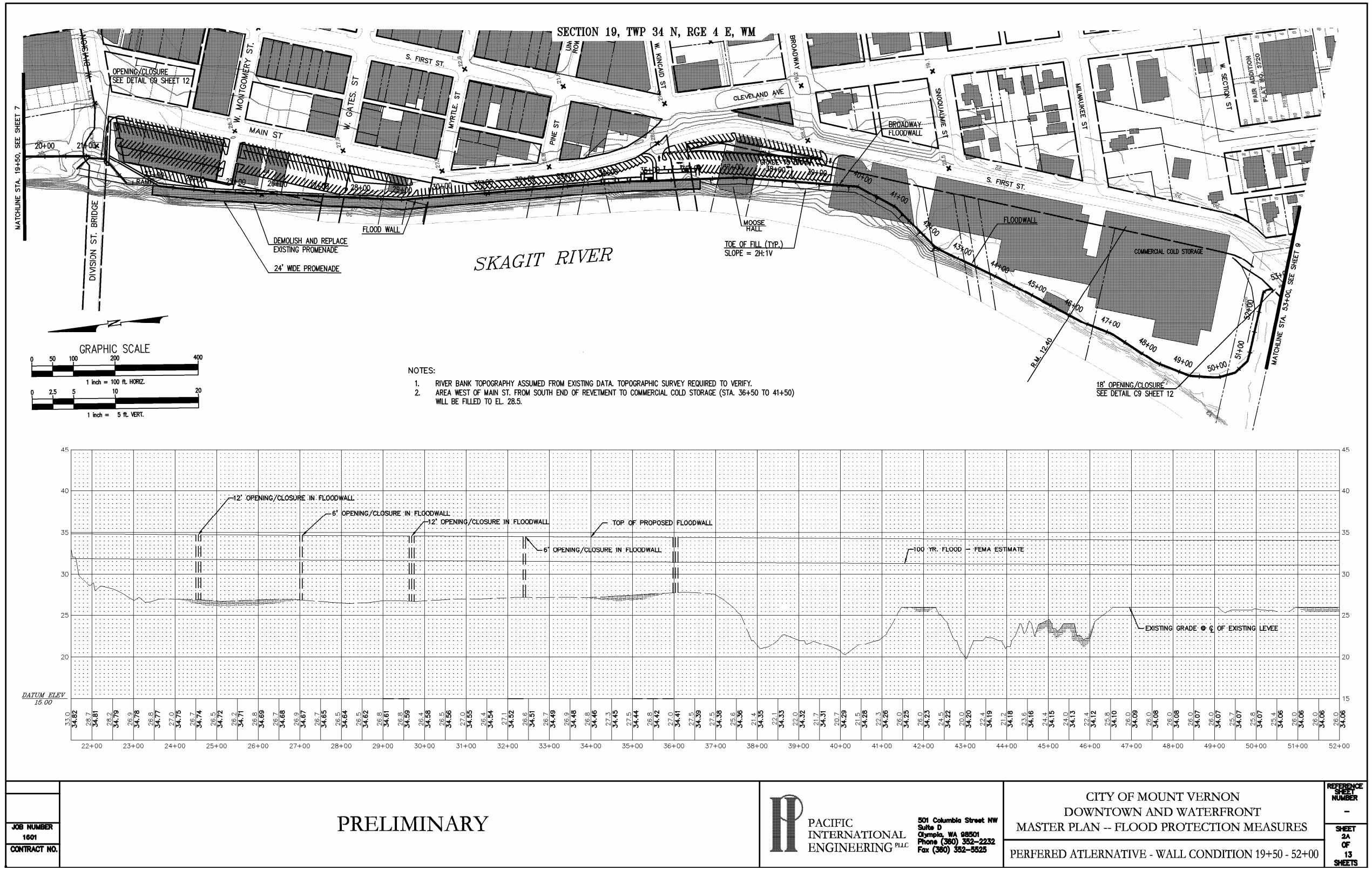


Figure 7d. Preferred Alternative – Wall Condition – Station 19+50 – Station 52+00

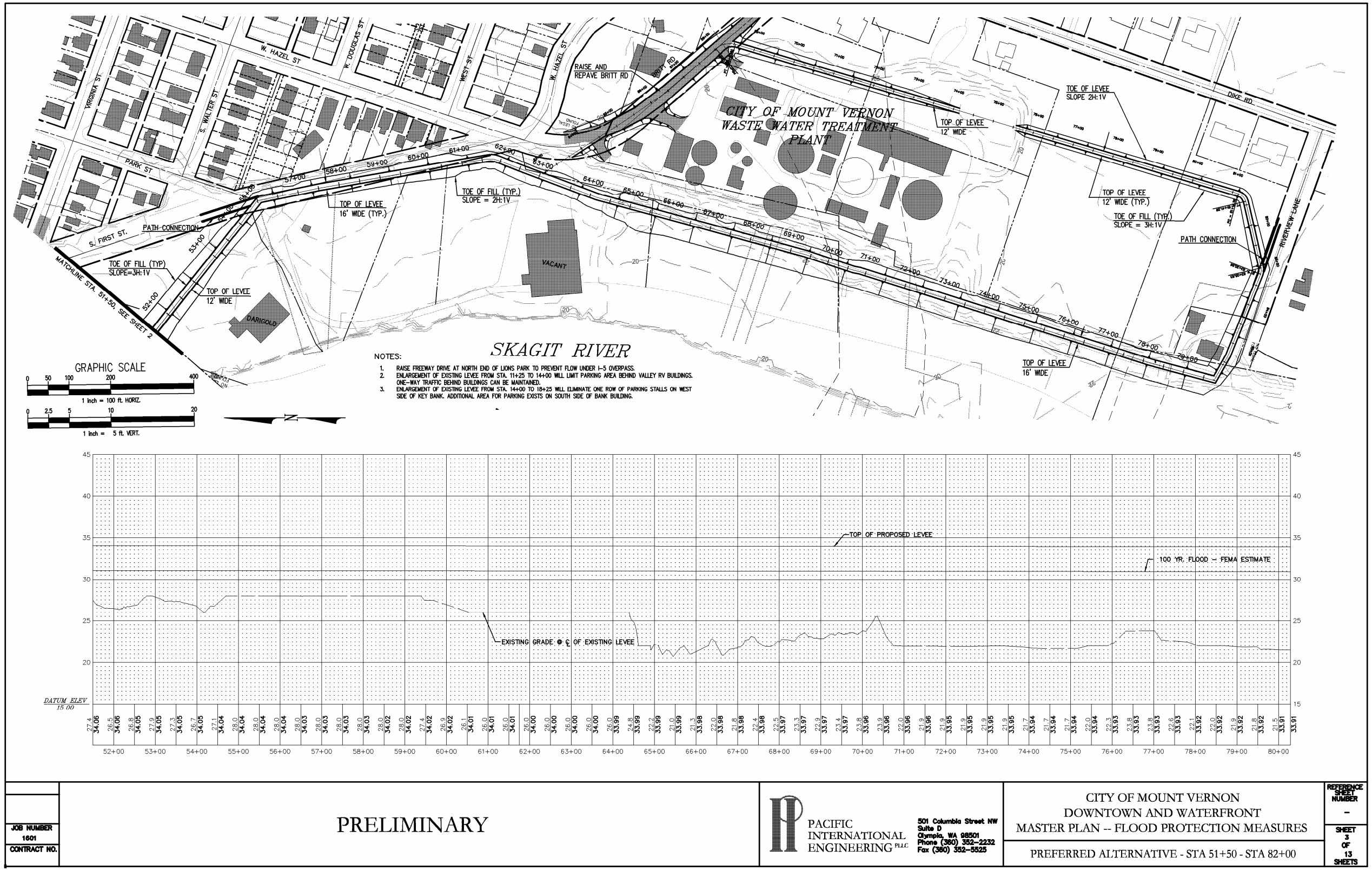


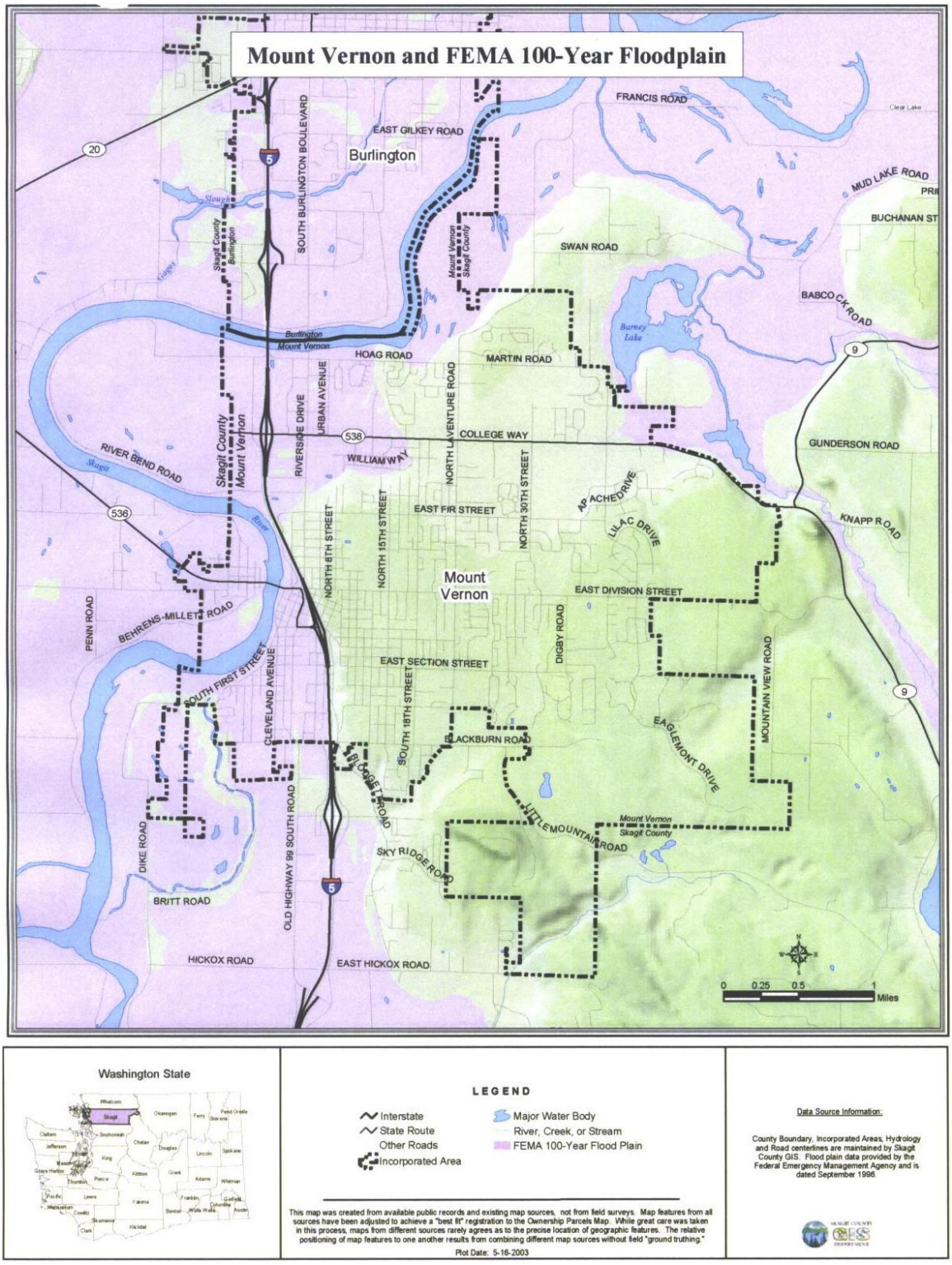
Figure 7e. Preferred Alternative – Station 51+50 – Station 82+00

Figure 8a. Typical Flood-Fighting Measures

Figure 8b. Typical Flood-Fighting Measures

Source: National Cooperative Soil Survey Web Soil Survey 1.1

Figure 9. Soils Map of the Mount Vernon Area



Source: Skagit County

Figure 10. Mount Vernon and FEMA 100-Year Floodplain

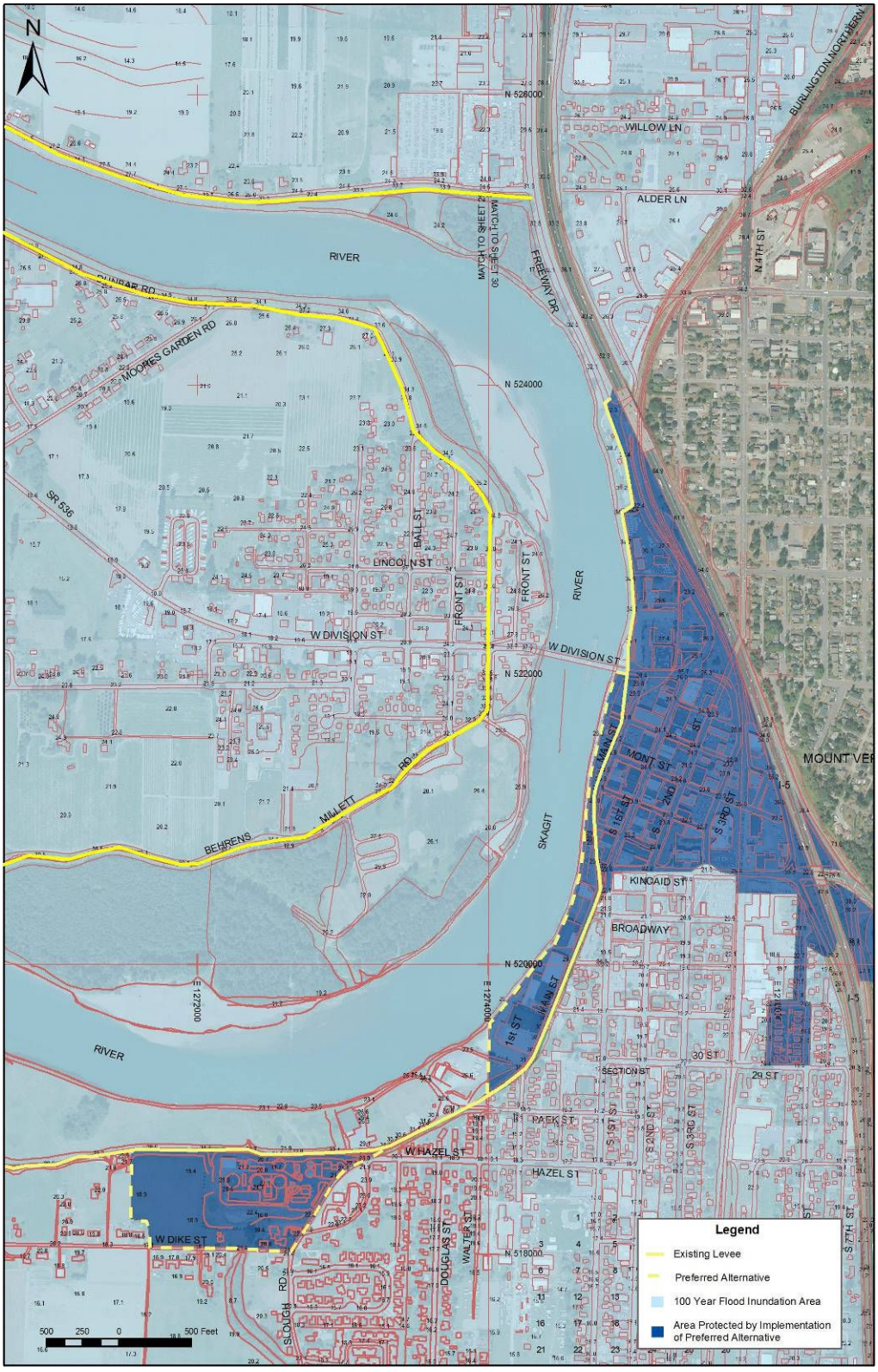


Figure 11. 100-year Flood Inundation Area with Implementation of the Preferred Alternative

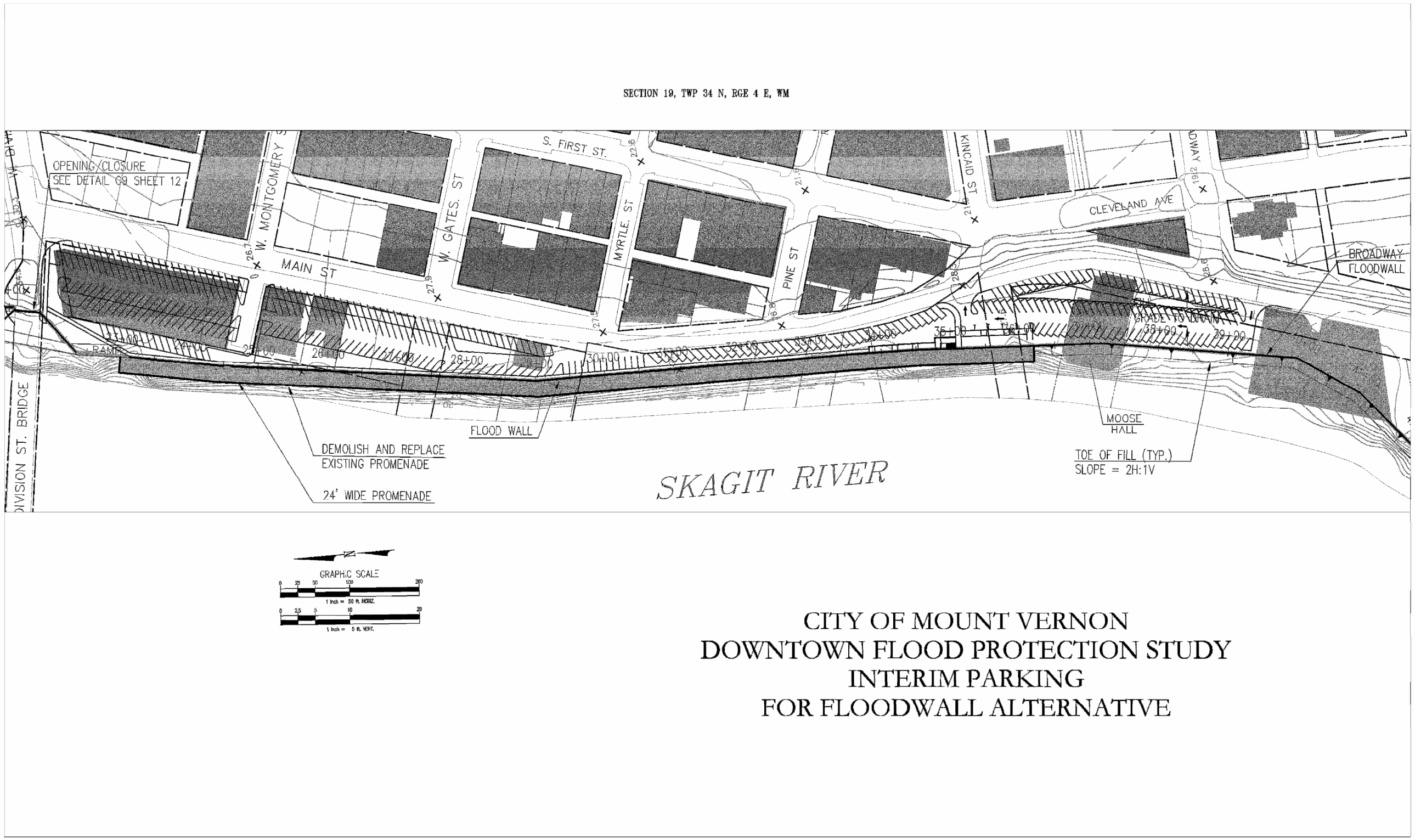


Figure 12. Interim Parking Plan

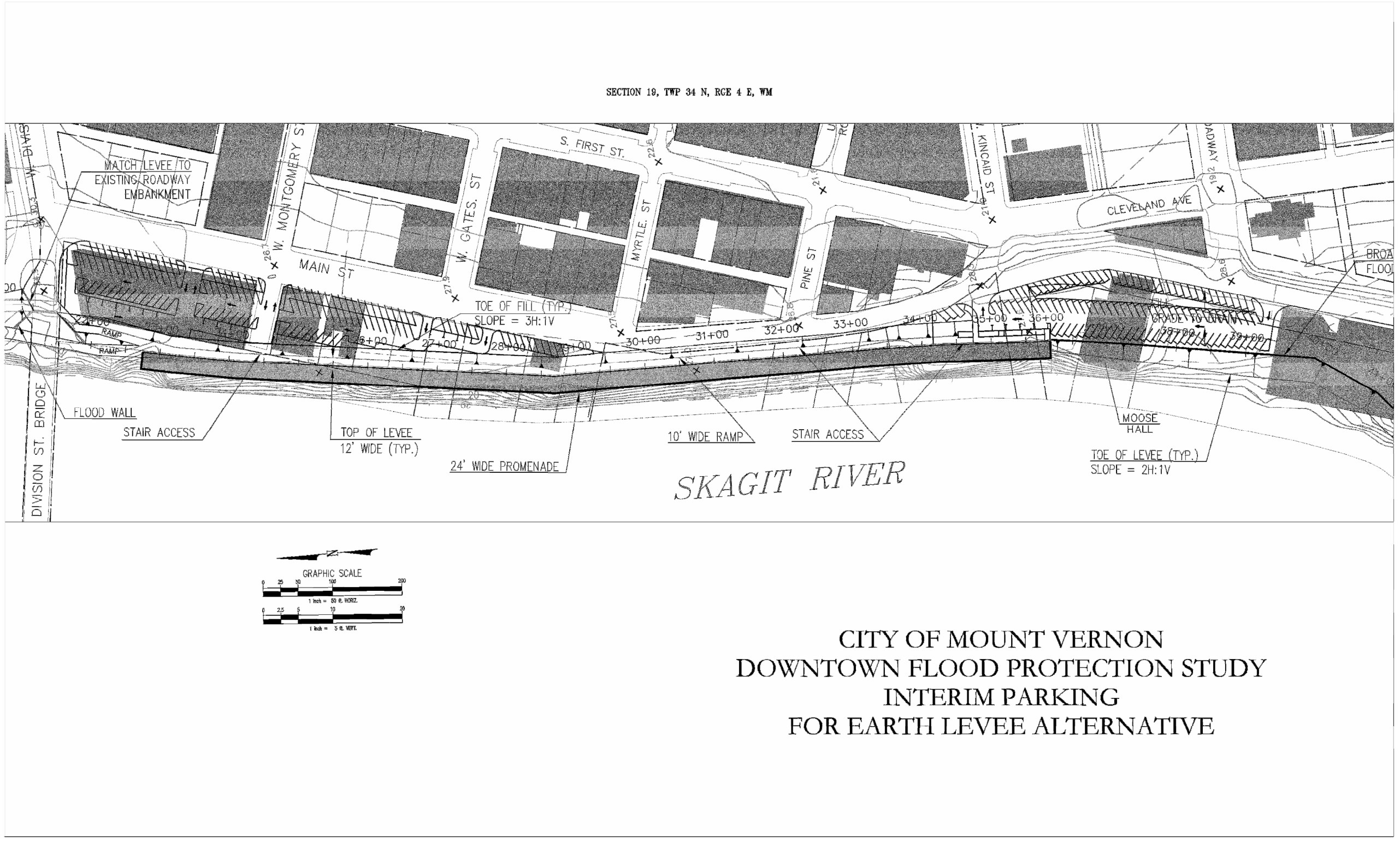


Figure 13. Interim Parking Plan

Appendix A

Scoping Notice and Summary of Public Scoping Comments

City of Mount Vernon
Determination of Significance and
Notice of Public Hearing on Scope of EIS

Proponent: City of Mount Vernon

Project Name: Mount Vernon Downtown Flood Protection

Project Description: The Mount Vernon Downtown Flood Protection Project is being proposed to protect the City's downtown area from flood damage up to and including the 100-year event on the Skagit River. In addition to flood protection, the project's goals include enhancing public access to the shoreline and river and maintaining the existing availability of parking in the downtown area. Flood protection alternatives being considered include enhancement of an existing levee with potential alternate levee alignments in some locations; construction of a new floodwall; and no action.

Location: Left bank of the Skagit River at Mount Vernon, from approximately River Mile (RM) 12 to approximately RM 13.2.

Lead Agency: City of Mount Vernon

Environmental Impact Statement (EIS) Required: The city of Mount Vernon, acting as the SEPA lead agency for this proposal, has determined that the proposal is likely to have a significant adverse environmental impact on the environment. An environmental impact statement (EIS) is required under RCW 43.21C.030(2)(C). This decision was made after a review of the information on file with the lead agency. This information is available to the public on request.

The lead agency has identified the following potential areas for discussion in the EIS: Earth; Surface Water Movement/Quantity/Quality; Runoff/Absorption; Plants and Animals; Land and Shoreline Use; Transportation, specifically parking; Historic and Cultural Preservation; and Utilities.

Scoping: Agencies, affected tribes, and members of the public are invited to comment on the scope of the EIS. You may comment on alternatives, mitigation measures, probable significant adverse impacts, and licenses or other approvals that may be required. The method and deadline for giving us your comments is by (1) submitting your written comments to the Responsible Official by 5:00 PM on July 18, 2006 AND/OR (2) presenting oral comments at the public hearing.

PUBLIC HEARING: A public hearing will be held before the Responsible Official on Tuesday, July 11, 2006 from 5:00 to 7:00 pm at the Mount Vernon Police Court Campus, 1805 Continental Place, Mount Vernon, Washington, 98273.

Responsible Official and Contact Person: Jana Hanson
Director, Community and Economic Development
P. O. Box 809
Mount Vernon, WA 98273

Date of Issuance: June 19, 2006

PACIFIC INTERNATIONAL ENGINEERING PLLC

Technical Memorandum:

Mount Vernon Downtown Flood Protection Evaluation
Summary of Public Comments on EIS Scoping and Topics to be Addressed in Draft EIS

The City of Mount Vernon issued a Determination of Significance and Scoping Notice for the proposed Downtown Flood Protection Evaluation on June 19, 2006. The public comment period on the scope of the Environmental Impact Statement (EIS) extended through July 18, 2006.

As part of the scoping and public involvement process, a public scoping meeting was held in Mount Vernon on July 11, 2006. At the meeting, City representatives and members of the City's consultant team presented the flood protection alternatives currently under consideration for inclusion in the EIS. The public was invited to provide comments and suggestions for other alternatives, discuss issues of concern, and recommendations on ways to avoid or minimize potential impacts to the natural and built environment. Nine members of the public provided oral comments, which were recorded by a court reporter. In addition, attendees were invited to add items to the "Impacts and Issues" lists posted as part of the public workshop.

Written comments from individuals, agencies, and organizations were also received during the public comment period.

Summary of Comments Received at Public Scoping Meeting

The major topics of interest or concern raised at the public scoping meeting were:

- Minimizing impacts on existing businesses and infrastructure in the downtown area
- Potential impacts on historic structures
- Potential impacts on and benefits to recreation and shoreline access
- Potential impacts on and benefits to visual aesthetics
- Potential changes in flood flows affecting west Mount Vernon
- Potential effects on water quality, especially with regard to salmon
- Assumptions used in developing the 100-year flood elevation

A majority of those speaking at the public meeting indicated support for the two "action" alternatives currently under consideration. Downtown property owners and members of the broader community were supportive of alternatives that provide flood protection while minimizing impacts on existing buildings and infrastructure in the downtown area.

Two of those commenting expressed concern about potential impacts on historic structures.

A representative of Diking District #1 noted that permanent flood protection measures are needed because flood fighting is too expensive and too labor intensive. It was noted that there is also a need to improve flood protection for west Mount Vernon.

One commenter recommended that the alternatives development process employ adaptive management techniques (i.e., alternatives be modified as needed as additional information becomes available). The same commenter requested that the EIS contain illustrations of the various alternatives that would help readers visualize how the downtown area would look, and how access to the riverfront would be achieved. This individual noted that the EIS should contain a discussion of the alternatives' consistency with existing regulations and land use plans. Information on potential flooding impacts to west Mount Vernon was requested. It was recommended that the use of "green" building materials be investigated to reduce potential stormwater impacts.

Another speaker recommended the inclusion of a west Mount Vernon bypass as an alternative to be considered. This commenter also recommended that the design of flood protection alternatives take into account changes in hydrology that may result from climate change. It was recommended that modifications be made to the Kincaid Street Bridge to reduce log jam hazard.

One individual requested information on how the levee alternative would affect recreation opportunities in the area.

A speaker indicated that there should be more extensive public involvement in the process and recommended that the Citizens Advisory Group include members of the general public in addition to downtown property owners. Another individual recommended that a community visioning process for downtown redevelopment be initiated in the near future.

One individual asked for information on a temporary floodwall that is being constructed. (Esco Bell, Public Works, indicated that the floodwall is being constructed to replace sandbags as part of flood fighting efforts, and is not part of any of the alternatives proposed for evaluation in the EIS.)

Summary of Written Comments Received during Public Comment Period

The major topics of interest or concern raised in written comments were:

- Potential impacts on fish and wildlife habitat
- Potential impacts on historic structures and archaeological resources
- Evaluation of additional alternatives (combined floodwall and levee, portable flood wall, flood bypass, setback levees)
- Potential flood effects on areas upstream and downstream

- Potential flood effects on right-bank areas
- Relationship of the project to downtown redevelopment planning
- Relationship of the project to the Corps' general investigation of flood control alternatives for the basin
- Minimizing impacts on existing businesses, including the availability of parking

The Washington Department of Fish and Wildlife expressed concern about confinement of the river channel at Mount Vernon and the effects of channel confinement on fish and wildlife habitat and natural channel-maintenance processes. It was recommended that the EIS evaluate a levee setback alternative that would focus on increasing channel capacity.

The Department of Archaeology & Historic Preservation indicated that because project construction would trigger federal agency actions, the provisions of Section 106 of the National Historic Preservation Act would apply. The Department expressed concern about potential impacts on archaeological resources and recommended that an archaeological survey of the study area be conducted before any ground-disturbing activities begin. The Department also recommended consultation with interested Tribes.

The Washington Trust for Historic Preservation recommended that the EIS clearly identify and evaluate potential impacts on historic, archaeological, and cultural resources and that mitigation measures be developed to avoid or significantly reduce impacts to these resources. The organization recommended that a survey of historic structures be completed not only for potentially affected buildings, but for the entire downtown core as well. Individuals submitting written comments also expressed concern about potential impacts to older buildings in the downtown area.

A member of the Mount Vernon Farmers Market board expressed support for the construction of a levee through downtown, but noted that construction would displace the Farmers Market from its current location. It was recommended that the City work closely with the Market Board and vendors to identify suitable interim and permanent locations for the Market.

The Skagit River System Cooperative (SRSC) raised questions regarding changes in flow distribution across the channel and potential impacts on right-bank areas. SRSC indicated that the EIS should explain the relationship of the City's flood protection evaluation with the U.S. Army Corps of Engineers' general investigation study of flood control alternatives for the Skagit River Basin. SCRC also recommended that the document evaluate a range of mitigation measures to fully offset the impacts that could result from a flood protection project.

The Skagit Fisheries Enhancement Group recommended that the scope of the EIS be broadened to include mitigation for past impacts on salmon habitat that occurred as a result of the City's growth over time. The Group proposed that the document evaluate an alternative involving construction of a new distributary channel from the Sterling area to Padilla Bay, with the goal of improving salmon habitat while reducing flood elevations.

Futurewise recommended three additional alternatives for evaluation: combination floodwall and levee, portable flood walls, and a flood bypass.

The owners of Commercial Cold Storage expressed support for the floodwall alternative, but stated that the levee alternative would be unacceptable because of impacts on vehicular access to the cold storage facility.

Several writers recommended that the EIS evaluate construction of a flood bypass at Mount Vernon. One commenter questioned the hydrologic analyses used in developing the alternatives currently proposed for evaluation and presented a discussion of the potential benefits of a flood bypass compared with other alternatives.

Several individuals made recommendations for expanding the public planning process.

One commenter expressed concern about potential impacts on the availability of parking in the downtown core and recommended that alternatives include measures to promote transit, pedestrian, and bicycle transportation. Another commenter expressed a preference for minimizing parking along the waterfront.

An individual requested that the EIS include information on the relationship between the flood protection evaluation and the downtown Master Plan and stated that any alternative chosen for implementation should maximize flood protection. This writer raised concerns about impacts on salmon and salmon migration as well as potential flooding impacts on west Mount Vernon.

Appendix B

Historic Structures Survey

DRAFT

ASSESSMENT OF BUILDINGS IN THE MOUNT VERNON DOWNTOWN FLOOD PROTECTION PROJECT SKAGIT COUNTY, WASHINGTON

Report Prepared for

Pacific International Engineering
Edmonds, Washington

and

City of Mount Vernon
Washington

By

Lorelea Hudson

December 13, 2006

NWAA Report Number WA 06-95

Northwest Archaeological Associates, Inc.
5418 - 20th Avenue NW, Suite 200
Seattle, Washington 98107

INTRODUCTION

The City of Mount Vernon is assessing alternatives for protecting the city from damage caused by flooding on the Skagit River. Action alternatives being considered include constructing a flood wall, levee, or combination of both, generally following the alignment of an existing levee. The City, as the State Environmental Policy Act (SEPA) lead agency for the project, is preparing an environmental impact statement (EIS) to address project effects. Northwest Archaeological Associates, Inc. was retained to inventory and evaluate buildings that may be affected by the action alternatives considered in this EIS. Archaeological resources and Traditional Cultural Properties were not included in NWAA's study.

Regulatory Context

The project is subject to the Washington SEPA which requires the project proponent to identify any places or objects listed on, or eligible for national, state, or local preservation registers in the vicinity of the project, describe evidence for sites of historic archaeological, scientific, or cultural importance in the vicinity of the project, and describe proposed measures to reduce or control impacts to those sites. Although there is at present no Federal nexus for this project, regulations for implementing Section 106 of the National Historic Act (NAPA), as amended, provide useful guidelines for this assessment. The NAPA requires federal agencies to identify and assess the effects of their undertakings on historic properties and to consult with others to find acceptable ways to avoid, minimize, or mitigate any adverse effects. Resources protected are those that are listed on, or are eligible for the National Register of Historic Places (NRHP). Eligible properties generally must be 50 years old, meet at least one of four criteria of significance, and retain integrity sufficient to convey that significance. Maximum coordination with the environmental review process required by the National Environmental Policy Act (NEPA) and SEPA is encouraged.

The project must comply with two Washington State laws, the Indian Graves and Records Act (RCW 27.44), which prohibits knowingly disturbing a Native American or historic grave, and the Archaeological Sites and Resources Act (RCW 27.53), which requires that anyone proposing to excavate into, disturb, or remove artifacts from an archaeological site on public or private lands obtain a permit from the Department of Archaeology and Historic Preservation (DAHP) in Olympia.

Project Location and Description

The project is located along the left (east) bank of the Skagit River, primarily in downtown Mount Vernon, in Sections 19 and 30, Township 34 North, Range 4 East, Willamette Meridian (Figure 1). The proposed flood protection improvements being considered will extend south from Division Street (project station 21+50), through a series of parking lots west of Main Street and along South First Street, to Virginia Street (station 51+50) (Figure 2). The northern half of this area is adjacent to Mount Vernon's downtown core and provides much of the parking for nearby retail and commercial businesses. The south half is a mix of retail, commercial, and specialty businesses such as law offices and architects, as well as government offices, the library, post office, and

residential housing. South First Avenue is part of an existing flood levee south of Broadway Street.

Action alternatives being considered include: construction of a flood wall, which will extend six to eight feet above the existing ground surface, and modification of the existing levee. The width of the modified levee will vary from about 26 to 70 feet wide at the base and the top elevation will be raised 6 to 8 feet. A combination of flood wall and levee is being considered. As currently designed, both flood protection measures require subsurface excavation and removal of 11 buildings.

METHODS

Methods included a review of records at local, county, and state agencies, archival research, and field survey. Maps, provided by Pacific International Engineering, outlined the project area between Stations 21+50 and 51+50 and indicated the buildings likely to be affected (Figure 2). Prior to the field survey, cultural resources reports, the state historic inventory data base, Washington Heritage Register, and National Register of Historic Places (NRHP) were reviewed at the Washington State Department of Archaeology and Historic Preservation (DAHP). Skagit County Assessor records were also reviewed to determine the construction date and nature of potential historic properties.

Buildings 50 years or older were recorded on Washington State Historic Property Inventory data base forms (Appendix A). Photographs were taken of each building and its setting and the property was mapped. Building occupants were interviewed where possible or when permission was needed to access property. Additional research included review of records and collections at the City of Mount Vernon, Skagit County, Skagit County Historical Museum, the Mount Vernon Public Library, Mount Vernon Chamber of Commerce, Washington State Archives Northwest Region, the University of Washington Libraries, and the Seattle Public Library. Primary resources included Sanborn Fire Insurance Company maps and Polk Directories, as well as newspapers and death records. Unfortunately, building permits prior to the 1970s were not located at the city, county, or state archives.

Previous Studies

Based on the examination of DAHP's inventories and records at the Skagit County Historical Museum, there are no previously recorded historical resources in the project area. Few buildings within the project vicinity are in the state inventory data base and only one, the Lincoln Theater is listed in the NRHP. The city does not lack historic buildings, but no systematic inventories of these resources have been conducted. There are, however, walking tour brochures of Mount Vernon that list historic buildings of note (Willis 1977; Fallis nd). Neither tour addresses any of the buildings within the project.

HISTORICAL SETTING

Joseph Dwelley and Jasper Gates are generally credited with the first non-Native American settlement at Mount Vernon. They arrived in 1870 and filed land claims soon

after. Gates, whose claim would encompass most of downtown Mount Vernon, received title to his land in 1876. Dwelley, Gates' neighbor to the south and William Brice, who settled just north, also received their land titles that year. Nearly all of the flood control project falls within Gates' and Dwelley's property, except for a small segment, south of West Section Street, which is part of a parcel claimed and purchased by Havar Baratt (Bureau of Land Management Patent Records; General Land Office 1872). In 1877, Harrison Clothier and E.G. English purchased 10 acres from Gates, established a store and laid out the town, naming it in honor of George Washington's home and burial place. The town plat included two major streets, Front and Main, parallel to the Skagit River. Clothier and English's store was likely located within the flood control project along the south side of West Montgomery Street, between Main and Front (Interstate Publishing 1906:189-190; Sanborn Fire Insurance Co. 1906:2).

Key to the growth and success of Mount Vernon, as well as logging and mining in the Upper Skagit River country, was removal of a massive, two-part, log jam that stretched 1.5 miles along the river. Small steamboats bringing in goods from greater Puget Sound had to unload below Mount Vernon at the down river edge of the log jam. Travel on the river above Mount Vernon was by canoe. Efforts to remove the jam began in 1876 and by the next year a 250-foot wide channel was cut, giving steamboats access to the town of Mount Vernon. The following year a 120-foot channel was cut through the upper jam. However, it took another 10 years to completely remove all of the logs and clear the river for relatively unimpeded navigation (Willis 1973:40).

Logging and mining expanded rapidly after the log jams were cleared and Mount Vernon grew as the supply center for loggers, prospectors, and settlers. Commercial activities in town centered on the river front along Front Street where steamers docked. Hotels, saloons, stores, livery stables, and blacksmiths along Front provided goods and services to a largely transient population (Willis 1975:62) By 1881 Mount Vernon had 75 permanent residents and three years later the town was voted the seat for Skagit County, edging out rival LaConner. During the 1880s, Mount Vernon's first fraternal lodges were formed, including the Odd Fellows and Masons. This decade also saw a growth in the number of local sawmills, establishment of a newspaper, and Mount Vernon's first brick building (Interstate Publishing Co. 1906:191-195). Although steamboat traffic continued to be brisk, by the end of the decade town leaders were looking away from the river and toward railroads as the transportation of the future.

The Great Northern Railway (GN) reached Mount Vernon in August 1891 and by 1892 provided a passenger depot on Kincaid Street, just east of 3rd Street (Sanborn Fire Insurance Co. 1892:1)

One month prior to GN's arrival, Mount Vernon experienced a devastating fire that spelled the end of Front Street's role in the commercial growth of the community. The fire started in the Washington Hotel, which was located on Front Street near Division Street, and spread west and south destroying 16 businesses and two houses (Interstate Publishing 1906:196; Sanborn Fire Insurance Co. 1890:1; 1892:2). Many of these businesses were located on wharves along the west side of Front Street, and included an ice cream store, barber, saloon, and a billiards hall (Sanborn Fire Insurance Co. 1890:1; 1892:2). After the fire, rebuilding efforts turned away from the river and focused on the growing commercial district between 1st Street and the railroad.

The area between Front and Main Streets was again decimated by fire in 1900 when the block between Montgomery and Gates Streets burned. The buildings destroyed were part of early Mount Vernon and included the Clothier & English store, the Ruby House, and Mount Vernon Hotel. Both the1891 and 1900 fires destroyed areas within the current flood control project. Although the core of downtown Mount Vernon had moved to 1st Street, businesses were still operating along Main Street. In 1906, businesses included three blacksmiths, a livery, new and second hand furniture, the Mount Vernon Creamery, a Chinese laundry, a bottling works, flour and feed, grain and hay, and warehouses for baled hay and lime and plaster (Sanborn Fire Insurance Co. 1906:2, 3).

While the largest river transportation impediments were removed on the Skagit River, the watercourse was still wild with snags and devastating seasonal floods. Front Street in Mount Vernon eventually washed away from yearly flooding before the bank was stabilized with a revetment. Townspeople regularly petitioned for governmental assistance to create improvements along the riverbank to protect property, but early efforts were privately funded. Diking efforts in the 1870s reclaimed acreage for farming but flooding remained a constant problem. In 1888, the Skagit County Commissioners addressed the issue by establishing diking districts in the valley (DeLorme 1977:19). By 1894, the Skagit River had been substantially diked from its mouth to beyond Sedro Woolley, which improved conditions but did not always prevent flood damage.

Reclamation allowed farmers to increase not only the amount of land in cultivation, but also their herds of dairy cattle. Creameries were established in Mount Vernon as early as 1895 in response to increased milk production. Local dairy producers and Mount Vernon civic leaders drew two condenseries to town in the early twentieth-century to process milk from nearby dairies (Fallis nd:1; Sheridan and NWAA 2002:7; Wallis1973:136).

Improved transportation was key to the development of the dairy and other industries in Mount Vernon. The town's ferry across the Skagit River was replaced by a wooden truss bridge in 1893, greatly improving access to creameries for dairy farmers. This bridge has since been replaced but the location on Division Street, at the north end of the flood control project, remains the same. In addition to the GN, the Pacific Northwest Traction Company made Mount Vernon a terminus for its interurban trolley line to Burlington in 1912. With an auto stage connection between Mount Vernon and Everett and another interurban line from there to Seattle, the community had access to larger regional and national markets for all types of agricultural products (Sheridan and NWAA 2002:7). The interurban extended along First and Main Streets in Mount Vernon, north from its depot near West Kincaid and South Main Streets (Sanborn xx). Later industries, including vegetable and fruit processing and canning, and seed, bulb, and flower production have benefitted from improved roads and highways. The Pacific Highway, later designated US Highway 99, passed through Mount Vernon via 2nd Street, and was the main north-south route until replaced by Interstate 5 in the 1960s.

SURVEY RESULTS

Nine of the buildings examined were recorded on Washington State Historic Property Inventory forms. The buildings recorded were over 50 years old and retained their historic fabric. The Moose Hall, although built in 1920, was not inventoried because the exterior was so altered that there was little to indicate the building was historic. One

building, the Laughlin/Eddy Furniture Store, meets the criteria of significance for the Washington Heritage Register (WHP) and the NRHP. Table 1, a summary of all the buildings, is followed by a brief description of each resource.

Table 1. Buildings Examined for the Mount Vernon Flood Protection Project.

NO.	PROJECT STATION	PARCEL ID	TYPE/NAME	ADDRESS	DATE BUILT	NRHP ELIGIBLE*
1	22+00	P51999	Retail store/ Main Street Salon & Easton's Books	305-307 S Main St	1947	No
2	23+00	P51998	Neighborhood shopping center/ Main Street Plaza	315 S Main St	1975	No
3	24+00	P51997	Retail store (vacant)/ Laughlin//Eddy Furniture	319 S Main St	1908	Yes
4	25+00	P51996	Retail store and office/Classic Upholstery	401-405 S Main St	1966 remodel	No
5	25+50	P51995	Office building/Wisner Building	409-411 S Main St	1945	No
6	28+50	P52152	Restaurant/Courtyard Café	509 S Main St	1947	No
7	37+00	P26530	Fraternal building/Loyal Order of Moose No. 1640	801 S Main St	1920	No
8	42+50 & 43+00	P54226	Office building /House and garage (apt), Cascade Law Center	414 Snoqualmie St	1900	No
9	42+50	P54228	Office building/House, Harold A. Page, Architect	416 Snoqualmie St.	1900	No
10	44+50	P54210	Service garage/Mt. Vernon Parks Dept.	419 Milwaukee St	est 1968	No
11	48+50	P26500	Building removed ca. 2003	511 Section St	NA	NA
12	49+50	P54314	House/residence	1204 Virginia St	1920	No

*Recommendation by NWAA.

No. 1 – Main Street Salon and Easton's Books

The building at 305-307 South Main Street is on the southwest corner of Main and Division Streets. When built in the mid-1940s, the building housed a single business, but as early as the 1960s the space was divided to accommodate two (Polk Directory 1962). This irregularly shaped, one story building is clad with brick and stucco and has a poured concrete foundation and floor, and a flat roof with parapet. Large aluminum frame windows and a metal awning dominate the east-facing façade. The windows at 307 slant out from the sill to the awning. The windows at 305 are vertical and may have been the result of a remodel. The west elevation of the building faces the Skagit River and contains two rear entrances.

While no historic photographs of this building were found, it is likely that the slanted windows at 307 are part of the original design, though the windows themselves appear new. The vertical windows at 305 extend to the sidewalk and do not appear original. The awning is new construction

No. 2 – Main Street Plaza
This building was not recorded because it was less than 50 years old.

No. 3 – Laughlin/Eddy Furniture Store
The Laughlin/Eddy building faces South Main Street on the northwest corner of Main and West Montgomery. This rectangular, two story, wood frame building spans the entire width of the block between Main and Front Streets and was built in 1908. The most striking feature of the building is the stamped sheet metal facade and siding which was manufactured by George L. Mesker and Company of Evansville, Indiana. The south, north, and west (back) elevations are covered with sheet metal stamped to resemble sandstone blocks, while the facade is a combination of decorative stamped panels and cornice and cast iron columns. The facade is symmetrical with three pairs of one-over-one double-hung windows on the second floor and a recessed entrance flanked by bays with three large display windows. The double entrance doors are wood framed glass. Five paired, fixed transom windows also span the facade.

There are 10 windows on the south elevation, most of which are covered with wood. Nine of these are symmetrical in arrangement; three rows of three, one row for each floor. The three second story, one over one windows are taller than the first and transom (mezzanine) level windows, and are similar in height to the second story facade windows. A single two-over-two window is at the west corner of the south elevation, adjacent to a door.

The west elevation, or backside of the building, faces the revetment parking lot which was formerly Front Street. There are two, two-over-two double-hung window on the second floor at each corner; one smaller wood in-filled window on the transom level, and a two-over-two double-hung window adjacent to a three-panel door on the first level. No doors or windows are visible on the north elevation. The metal cladding is painted light green and “Eddy’s New & Used” is painted in black on the west elevation (rear of building).

On the base of a column at the southeast corner of the facade is a nameplate indicating the manufacturer of the stamped metal facade and cladding; “G.L. MESKER, & CO., EVANSVILLE, IND.” Stamped architectural sheet metal was popular between 1875 and 1925 because it was not only decorative, but fire-resistant, light, strong, inexpensive, and easy to install. By the end of the nineteenth century, stamped metal (steel) had replaced cast iron for cornices, building facades and other architectural details (Bryjka 2006; Dierickx 1988). Stamped galvanized sheet metal was particularly popular in small communities where there were few, if any, architects.

George L. Mesker & Company was the nation’s largest architectural ironworks, edging out his brothers’ company, Mesker Brothers of St. Louis, Missouri. George L. Mesker established his ironworks in 1885 after working some years for his father and several years after his brothers’ own venture. Following in his brother’s footsteps, George began sending out catalogs of his products. “From 1908 to 1913 George L. Mesker & Co. sold almost as many fronts as during the previous twenty-three years of operation” (Bryjka 2006:7). One of these was the J.B. Laughlin building in Mount Vernon, which was featured in the 1910 George L. Mesker & Company catalog. The Laughlin building catalog sketch includes a centered pediment above the cornice on the facade though there is no pediment visible in a 1913 photograph of the building (Mesker 1910; *Mount*

Vernon Argus 1913), nor any evidence of one today. It is likely this pediment was in the imagination of the catalog artist.

Mr. Mesker's catalog most likely played a role in the selection of cladding components for the Laughlin/Eddy building, but it is also possible that Mr. Laughlin was familiar with the Mesker product and reputation as he had once lived in Illinois. Illinois architecture benefitted from its position between Evansville and St. Louis, homes of the Mesker ironworks. Mesker buildings were common in the state and many remain today (Bryjka 2006).

In all probability, John B. Laughlin financed the construction of the Laughlin/Eddy Furniture Store in 1908. Mr. Laughlin and his wife, Louise (spelled Lonisa in the Census), lived in Mount Vernon as early as 1900 and were in the furniture business by at least 1903 (Polk Directory 1903:57; U. S. Bureau of Census 1900:47A). In 1908, their furniture business was located on 1st near Myrtle, but by 1910 had moved to 319 South Main Street (Mesker 1910:np; Polk Directory 1907-1908:334). J.B. Laughlin, Complete Home Furnisher advertised "A Complete Line of Furniture and House Furnishing" (Polk Directory 1923-1924:157). The Laughlin furniture store continued operation into the mid-1940 when Mr. Laughlin died. Mrs. Laughlin died in 1948 and both are buried in Mount Vernon (Skagit Valley Genealogical Society 2003:198). The Laughlin's building may have been vacant or used for storage after the Laughlin's death but there was no business listing for 319 Main in 1948 (Polk Directory 1948). By the early 1960s, the Eddy family was operating Eddy's Furniture at 319 South Main Street (Polk Directory 1962:49). The Eddys sold new and used furniture as noted on the back side of the building.

The Laughlin/Eddy building is an excellent, intact example of a stamped sheet metal-clad commercial building constructed in the early twentieth century. It also is one of only a handful of known George L. Mesker & Company buildings in Washington State, most of which are in eastern Washington (Michael House, personnel communication 2006). The Laughlin/Eddy building meets the criteria of significance for the WHR and NRHP and recommended eligible for the NRHP

No. 4 – Classic Upholstery

The building is on the southwest corner of Montgomery and Main Streets, the probable location of the early Clothier and English store, and is now occupied by Classic Upholstery. This rectangular, two-story brick building has a poured concrete foundation, flat roof, and decorative brick parapet. The building faces Main Street and spans the entire block, west to a parking lot that was formerly Front Street. The second floor of the east (façade), north, and west elevations are dominated by a series of one-over-one double-hung windows with brick sills. There also are four smaller one-over-one windows on the second floor of the south elevation. The building façade (east side) also has a large decorative panel between the two rows of windows. While the appearance of the upper story on the east façade is symmetrical, the first story is not. There are two retail/commercial spaces but the entryways differ. The 401 entry is recessed and flanked by large display window, and while the 405 entry is also recessed, it is at the end of a bank of large aluminum framed display windows. The building can also be entered via doors on the north and west elevations. A wooden stairway was added to the backside (west side) of the building to provide access to a door on the second floor.

This door does not appear original to the building. In addition, two arched windows have been added at the southwest corner. Brick on the façade has been painted various brick-tone colors which gives the brick a new appearance.

County Assessor records show this building was constructed in 1966, but the style, materials, and Sanborn maps suggest a construction date between 1912 and 1921. The 1966 date probably refers to a remodel rather than the original construction. According to Polk directories and Sanborn maps, this building served as the National Guard Armory (1921) and a store and grocery warehouse (1946) before being divided into two retail spaces (Polk 1962: 49; Sanborn Fire Insurance 1912:4; 1921:6; 1921-1946:6). In 1962, the Simmonds Paint Company (401) and Dick Prankard's Sports (405) occupied the building (Sanborn 1962:49). In 1948, Simmonds Paint was located south in the neighboring building at 411 Main (Sanborn 1948:378). Two businesses are also shown in the building in 1973: Ray's Decor Center (paints) and Bob's Sports Center (Sanborn 1973:119). The second floor was either residential or office space painted various brick-tone colors which gives the brick a new appearance.

No. 5 – Wisner Building

When built in 1945, the Wisner Building was located in the middle of the block. Since that time, all of the buildings to the south have been removed, giving the Wisner Building the appearance of being the last building on the block. The façade (east elevation) is symmetrical with four aluminum framed sliding windows on the second floor and two bands of four vertical, wood framed, fixed windows flanking three entryways on the first level. A transom window is above each door and a flat awning spans the façade just above the windows. Originally a two-story square, clay tile building with a brick façade and stepped parapet, the building now has a large, one story concrete block addition that extends from the back (west) elevation. Brick is visible on the back (west) side of building and the other elevations are primarily stucco.

The Wisner Building appears to have been built on the 1906 site of a Chinese laundry and a bottling works and the 1921 site of a welding shop (Sanborn 1906:2; 1921:6). The original square building housed two stores and in 1962, these business were the Du Drop Tavern (409) and Daco Camera Shop (411) (Polk 1962:49). Apartments were on the second floor. Both businesses continued into the 1970s and today both spaces serve as law offices (Polk 1973:119).

No. 6 – Courtyard Café

This one story poured concrete building stands alone in a large parking lot along the west side of South Main Street. The north and south elevations are without windows, doors, or decoration suggesting there were adjacent buildings at one time, or they were planned. The symmetrical façade (east elevation) is covered with stucco and is dominated by band of large fixed windows that flank and are between two doors. A flat, metal awning spans the façade just above the windows. Simple decorative lines included in concrete pour highlight the façade. The back, or west elevation has one door and six windows. One window is an aluminum slider which is not original to the building. The remaining windows have been in filled with wood or glass blocks. The glass block windows do not appear to be original.

When built in 1946 or 1947, the building was occupied by two businesses, one of which was Daco Camera Shop (Polk 1948:378; Sanborn 1946:6). By 1962, the camera shop moved north and both spaces were taken over by the Shamrock Tavern which continued to occupy the space for many years (Polk 1962:49; 1973:119).

No. 7 – Moose Hall

The Moose Hall was not recorded. This building has been severely altered by an addition along the river and is clad in T1-11 siding. The only historic architectural elements visible were four double hung windows (Figure xx). Although the County Assessor's records place the date of construction at 1920, the building does not appear on the Sanborn Fire Insurance maps until after 1921. The Moose Hall appears to be one building but is actually two. The 1921-1946 Sanborn Fire Insurance map labels the south buildings the Moose Hall and the north building as lodge rooms. The hall was a rectangular one-story building and the lodge rooms was a one story irregularly shaped structure (Sanborn 1921-1946:9). The current Moose Hall is two stories

The Loyal Order of Moose was not listed as one of the early fraternal organizations in Mount Vernon (Interstate Publishing 1906).

No. 8 – Cascade Law Center (two buildings)

The buildings at 414 Snoqualmie Street were built as a house (A) and presumably a garage (B). Today they function as a law office (A) and small house (B). The one-story, hip roof law office building faces Snoqualmie and currently shares a driveway with its neighbor (416 Snoqualmie). It has a front-gable addition to the façade, probably an enclosed porch. Both the house (B) and office (A) have wood-shingle siding, which, while perhaps more than 50 years old (there is evidence of old paint on the shingles at the rear of the building), does not appear original to either structure. The siding on the office continues seamlessly with the addition and railings on the stairs on the façade. The office has two large fixed windows on the façade (north side), and one-over-one double-hung vinyl windows in wood frames on the west side, including a three-window bay. The window openings have been filled-in on the east side. The rear of the office (south side) has one small fixed and one one-over-one double-hung window on the main floor, and two sliding aluminum-frame windows sub-grade. There is also a door with a small hipped-roofed covering held-up with brackets. The door and main-floor windows appear original.

The small hipped-roof house (B) has a new door and window on the north side; a ribbon of three fixed windows (new glass in original frames) and one aluminum sliding window on the west side; two aluminum sliding windows and a filled-in door on the south side; and a French door flanked by fixed-pane windows on the east side. Only the ribbon window appears original.

Both the office and house have poured concrete foundations, and asphalt/composition shingle roofs.

The County Assessor's records give a construction date of 1900 for the office (A), but in 1906 and 1912 a building labeled "Case Oil Storage" was located at this address (Sanborn 1906 and 1912). It is possible the dwelling (now the office, A) shown on the 1921 Sanborn map either incorporated or is the remodeled oil storage building (Sanborn 1906; 1912; 1921). Building permits, which would greatly aid in determining this, could

not be located at the city, county, or State Archives. The house (B) does not show on the any of the Sanborn maps, and was likely built after 1946 (Sanborn 1921 and 1921 revised 1946).

No. 9 – Architect Office
The house at 416 Snoqualmie Street was built in 1900 and for most of the past 100 years functioned as a home (Skagit County Assessor's Records). Today it is the office of an architect. This one story, side gable house faces Snoqualmie and is adjacent to an earthen levee which extends above the house. The house was originally T shaped, but has since been remolded to form a rectangle. The front door is covered by a small porch and the stairs have been replaced by a ramp. The back ell has a front gable roof with hip-type roof additions to each side. The back stoop is covered by a small gable porch. All of the windows have been replaced with vinyl one over one or fixed pane. There is little landscaping around the house.

No. 10 – Mount Vernon Parks and Recreation Department Garage
This concrete block building was not recorded because it was built around 1968 (Larry Otos, personal communication).

No. 11 – Building at 511 Section Street
Building removed around 2003 (Skagit County Assessor's records).

No. 12 – House at 1204 Virginia Street
This one story, side gable, bungalow-style house was built in 1920. As was typical of this style, the front porch has tapered wood columns supporting the front gable porch roof, there are knee brackets under the roof overhang, and the facade is symmetrical. A stone fireplace extends through the roof on the north elevation. All of the window openings remain but the windows have been replaced by side by side vinyl sliders. The back entrance, off the alley, is the primary access, although the front of the house faces Virginia Street. The street and adjacent flood levee are much higher than the land around the house, making access to the front porch difficult. The front stairs have been replaced and a new back porch was added to the house in 1990 (Skagit County Assessor's Records).

Conclusions and Recommendations

Only one of the buildings inventoried, the Laughlin/Eddy Furniture Store at 319 South Main Street, meets the criteria of historical significance for the WHR and NRHP. The project will adversely impact this historic property if it is altered, moved, or destroyed. If impacts cannot be avoided then mitigation measures should be developed. These might include:

- Photographic documentation and detailed architectural description of the interior and exterior of the building;

- Detailed history of the building, including information on the Laughlin and Eddy families and the George L. Mesker Company;

- An oral history of the building that includes the Eddy family and local residents with knowledge of the building;

- A collection of historical photographs of the building.

- Development of a public exhibit or signs detailing the history of the Laughlin/Eddy Furniture Store and the Main Street and Front Street business district.

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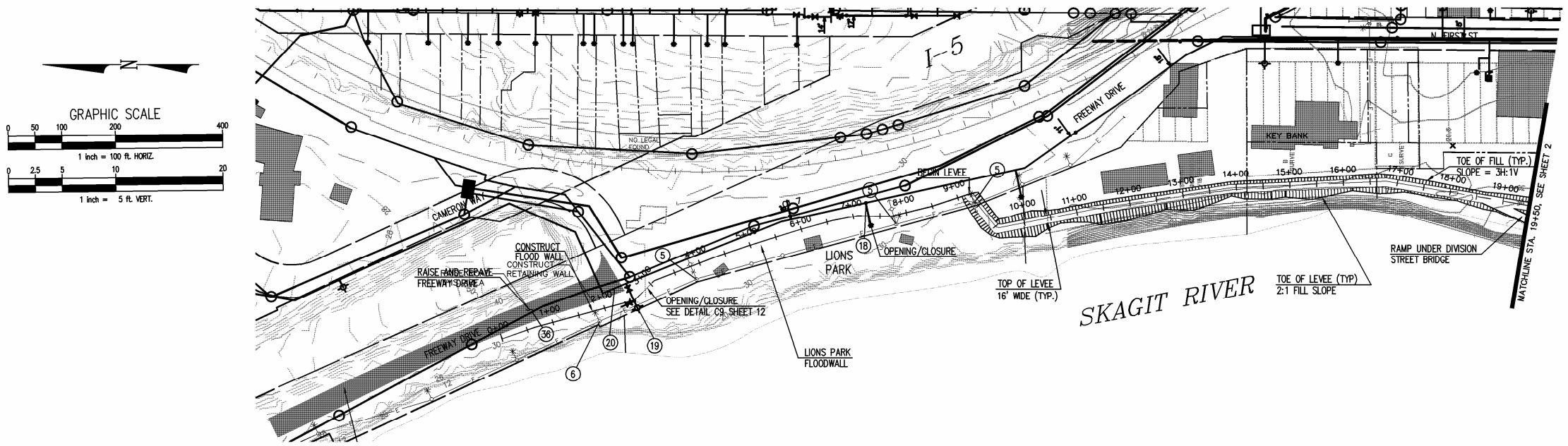
Appendix C

Inventory of Affected Utilities

Table C-1. Utilities Affected by Construction of the Preferred Alternative

Utility Type	Location	Action
Water	Britt Road at West Hazel Street	Adjust 8-in fire service and 4-in service to provide ≤4 ft cover up to finish grade
	West of S. 1st between W. Hazel and W. Park Streets	Replace existing water line with 6-inch ductile iron line in 12-inch steel casing through levee
	West of S. 1st between W. Snoqualmie and W. Kincaid Streets	Realign 1-1/2-inch service to avoid passing through levee
		Replace existing water line with 10-inch ductile iron line inside16-inch steel casing through levee
	S. Main between W. Kincaid and W. Myrtle Streets	Protect existing 18-inch RCP pipe in place through levee
	S. Main at W. Myrtle Street	Protect existing 18-inch RCP pipe in place near levee
	W. Division just east of Division Street Bridge	Protect existing 12-in ductile iron pipe in place near levee
	West of Freeway Dr. at vacated Highland Street	Provide floodwall pipe penetration for existing 1-1/2-in service
	Freeway Dr. and Cameron Way	Relocate existing fire hydrant to east side of floodwall
Sewer	WWTP west side	Protect existing sewer line crossing Skagit River in place through levee
	Britt Road at W. Hazel Street	Protect existing sewer main in place
	S. 1st and W. Park Street	Modify existing pump station
		Protect existing 48-in sewer line in place through levee
	S. Main and W. Pine Street	Abandon existing sewer main
	Skagit River shoreline from W. Myrtle to W. Division	Abandon existing sewer main
	Skagit River shoreline from W. Montgomery to W. Division Street	Replace or abandon existing sewer force main
	W. Division just east of Division Street Bridge	Protect existing sewer main in place near levee
	Freeway Dr. north of Cameron Way	Protect existing sewer in place
Electrical	Britt Road at W. Hazel Street	Protect existing 15 kv 4-in conduit in place
	S. 1st and W. Hazel Street	Replace existing pole to clear levee
	S. 1st and W. Park Street	Replace two existing poles to clear levee
	Skagit River shoreline between W. Kincaid and W. Division Streets	Remove and replace existing luminaries along boardwalk
	North side of Division St. just east of Division Street Bridge	Protect existing electrical features in place
	Lions Park	Remove and replace poles in new alignment
	Freeway Dr. north of Cameron Way	Remove and reset existing luminaries

SECTION 19, TWP 34 N, RGE 4 E, WM



ELECTRICAL

1. PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.
2. REPLACE EXISTING POLE.
3. REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.
4. PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.
5. REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.
6. RESET EXISTING LUMINARES.
7. PROTECT EXISTING POLE IN PLACE.

WATER

10. PROTECT EXISTING WATER MAIN IN PLACE.
11. RESETE EXISTING HYDRANT. ADJUST 8–INCH FIRE SERVICE AND 4–INCH SERVICE TO PROVIDE NO GREATER THAN 4–FT. COVER UP TO FINISH STREET GRADE.
12. REPLACE EXISTING WATER LINE WITH 6–INCH DUCTILE IRON LINE IN 12–INCH STEEL CASING THROUGH THE LEVEE.
13. REALIGN 1–½–INCH SERVICE TO AVOID PASSING THROUGH LEVEE.
14. REPLACE EXISTING WATER LINE WITH 10–INCH DUCTILE IRON LINE INSIDE 16–INCH STEEL CASING.
15. PROTECT EXISTING 18–INCH CCP PIPE IN PLACE.
16. WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12–INCH DUCTILE IRON PIPE IN PLACE.
17. WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1–½–INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

18. RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.
19. FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18–INCH DUCTILE IRON LINE IN PLACE.
20. PROTECT EXISTING 6–INCH DUCTILE IRON LINE ON PENETRATION THROUGH FLOODWALL.
21. MAKE PIPE PENETRATION IN PROPOSED FLOODWALL ALIGNMENT AND RELOCATE METER VAULT TO RESOLVE CONFLICT WITH PROPOSED FLOODWALL ALIGNMENT.
22. ABANDON EXISTING GATE VALVE IN PLACE WHERE THE VALVE IS TO THE WEST OF THE PROPOSED FLOODWALL.
23. PROTECT EXISTING WATER MAIN AT PENETRATION THROUGH PROPOSED FLOODWALL.
25. RELOCATE EXISTING FIRE HYDRANT AWAY FROM PROPOSED LEVEE.
26. ABANDON EXISTING WATER MAIN IN CONFLICT WITH PROPOSED LEVEE.

SEWER

30. PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.
31. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.
32. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.
33. PROTECT EXISTING 48–INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.
34. ABANDON EXISTING SANITARY SEWER MAIN.
35. REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.
36. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.
39. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING WASTEWATER PUMP STATION.
40. ABANDON EXISITING SANITARY SEWER MAIN IN CONFLICT WITH PROPOSED LEVEE AND INSTALL NEW MANHOLE AT TERMINATION POINT.
41. ABANDON EXISITING SANITARY SEWER MAIN AND ASSOCIATED MANHOLES IN CONFLICT WITH PROPOSED LEVEE.

NOTES:

1. RAISE FREEWAY DRIVE AT NORTH END OF LIONS PARK TO PREVENT FLOW UNDER I–5 OVERPASS.
2. LEVEE IMPROVEMENTS FROM STA. 11+25 TO 14+00 WILL IMPACT PARKING AREA BEHIND VALLEY RV BUILDINGS. ONE–WAY TRAFFIC BEHIND BUILDINGS CAN BE MAINTAINED.
3. LEVEE IMPROVEMENTS FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.

JOB NUMBER 1601
CONTRACT NO.

PRELIMINARY

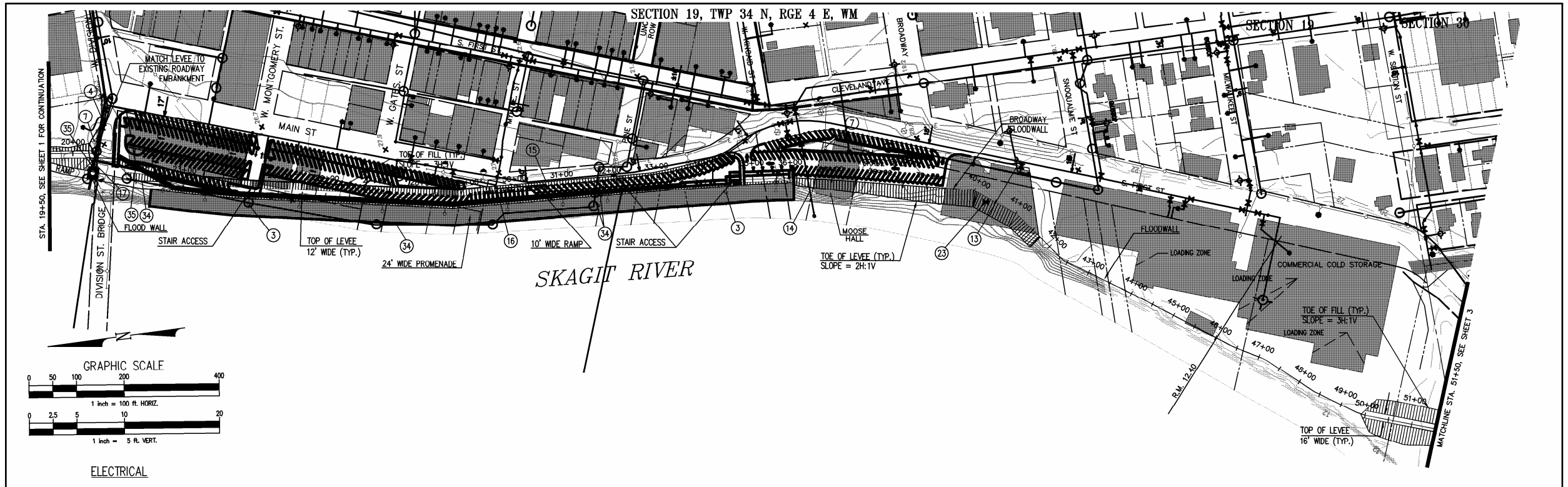
PACIFIC INTERNATIONAL ENGINEERING PLLC
501 Columbia Street NW
Suite D
Olympia, WA 98501
Phone (360) 352–2232
Fax (360) 352–5525

CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

UTILITY PREFERRED ALT. - STA 0+00 - STA 19+50

REFERENCE SHEET NUMBER -

SHEET 1 OF 13 SHEETS



ELECTRICAL

1. PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.
2. REPLACE EXISTING POLE.
3. REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.
4. PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.
5. REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.
6. RESET EXISTING LUMINARES.
7. PROTECT EXISTING POLE IN PLACE.

WATER

10. PROTECT EXISTING WATER MAIN IN PLACE.
11. RESETE EXISTING HYDRANT. ADJUST 8-INCH FIRE SERVICE AND 4-INCH SERVICE TO PROVIDE NO GREATER THAN 4-FT. COVER UP TO FINISH STREET GRADE.
12. REPLACE EXISTING WATER LINE WITH 6-INCH DUCTILE IRON LINE IN 12-INCH STEEL CASING THROUGH THE LEVEE.
13. REALIGN 1-½-INCH SERVICE TO AVOID PASSING THROUGH LEVEE.
14. REPLACE EXISTING WATER LINE WITH 10-INCH DUCTILE IRON LINE INSIDE 16-INCH STEEL CASING.
15. PROTECT EXISTING 18-INCH CCP PIPE IN PLACE.
16. WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12-INCH DUCTILE IRON PIPE IN PLACE.
17. WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1-½-INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

18. RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.
19. FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18-INCH DUCTILE IRON LINE IN PLACE.
20. PROTECT EXISTING 6-INCH DUCTILE IRON LINE ON PENETRATION THROUGH FLOODWALL.
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25. RELOCATE EXISTING FIRE HYDRANT AWAY FROM PROPOSED LEVEE.
26. ABANDON EXISTING WATER MAIN IN CONFLICT WITH PROPOSED LEVEE.

SEWER

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31. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.
32. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.
33. PROTECT EXISTING 48-INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.
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35. REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.
36. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.
39. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING WASTEWATER PUMP STATION.
40. ABANDON EXISITING SANITARY SEWER MAIN IN CONFLICT WITH PROPOSED LEVEE AND INSTALL NEW MANHOLE AT TERMINATION POINT.
41. ABANDON EXISITING SANITARY SEWER MAIN AND ASSOCIATED MANHOLES IN CONFLICT WITH PROPOSED LEVEE.

NOTES:

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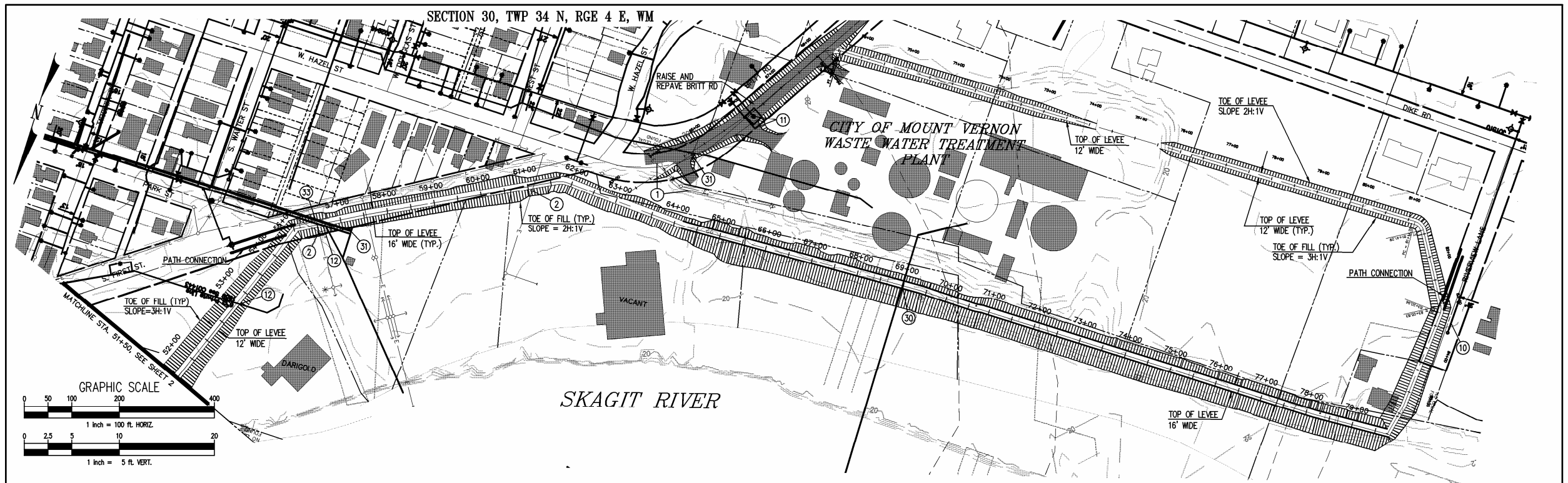
2. LEVEE IMPROVEMENTS FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.

JOB NUMBER 1601 CONTRACT NO.	PRELIMINARY	PACIFIC INTERNATIONAL ENGINEERING PLLC 501 Columbia Street NW Suite D Olympia, WA 98501 Phone (360) 352-2232 Fax (360) 352-5525	CITY OF MOUNT VERNON DOWNTOWN AND WATERFRONT MASTER PLAN -- FLOOD PROTECTION MEASURES UTILITY PREFERRED ALT. - STA 19+50 - STA 51+50	REFERENCE SHEET NUMBER - SHEET 2 OF 13 SHEETS



ELECTRICAL

(1) PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.

(2) REPLACE EXISTING POLE.

(3) REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.

(4) PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.

(5) REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.

(6) RESET EXISTING LUMINARES.

(7) PROTECT EXISTING POLE IN PLACE.

WATER

(10) PROTECT EXISTING WATER MAIN IN PLACE.

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(12) REPLACE EXISTING WATER LINE WITH 6-INCH DUCTILE IRON LINE IN 12-INCH STEEL CASING THROUGH THE LEVEE.

(13) REALIGN 1-½-INCH SERVICE TO AVOID PASSING THROUGH LEVEE.

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(15) PROTECT EXISTING 18-INCH CCP PIPE IN PLACE.

(16) WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12-INCH DUCTILE IRON PIPE IN PLACE.

(17) WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1-½-INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

(18) RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.

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(20) PROTECT EXISTING 6-INCH DUCTILE IRON LINE ON PENETRATION THROUGH FLOODWALL.

(21) MAKE PIPE PENETRATION IN PROPOSED FLOODWALL ALIGNMENT AND RELOCATE METER VAULT TO RESOLVE CONFLICT WITH PROPOSED FLOODWALL ALIGNMENT.

(22) ABANDON EXISTING GATE VALVE IN PLACE WHERE THE VALVE IS TO THE WEST OF THE PROPOSED FLOODWALL.

(23) PROTECT EXISTING WATER MAIN AT PENETRATION THROUGH PROPOSED FLOODWALL.

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(33) PROTECT EXISTING 48-INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.

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2. ENLARGEMENT OF EXISTING LEVEE FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING STALLS ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.

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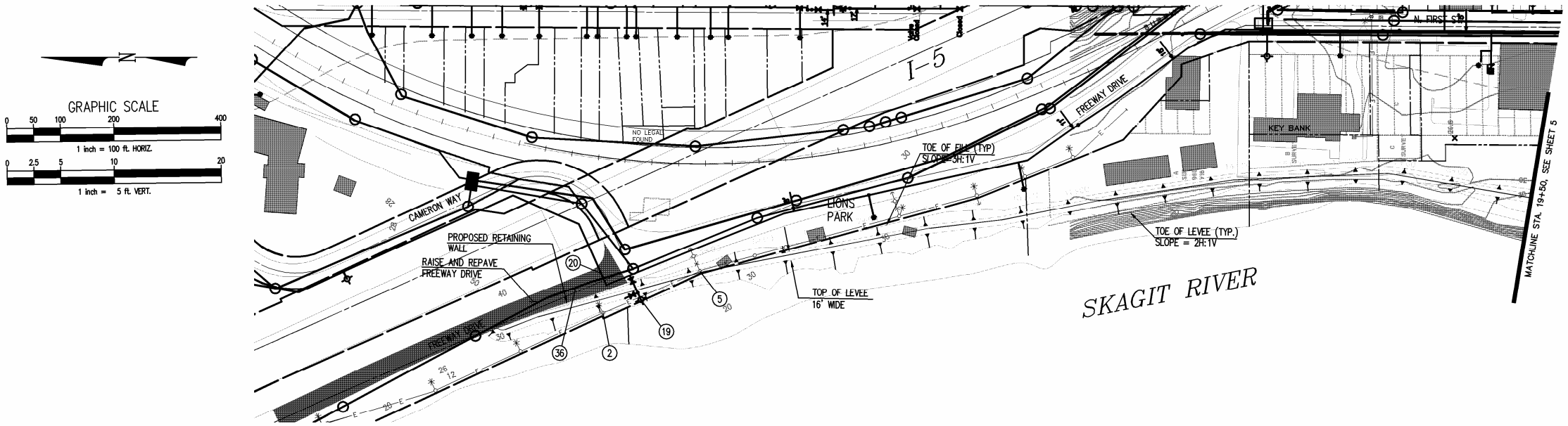
SECTION 19, TWP 34 N, RGE 4 E, WM



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WATER

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WATER (continued)

18. RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.
19. FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18–INCH DUCTILE IRON LINE IN PLACE.
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23. PROTECT EXISTING WATER MAIN AT PENETRATION THROUGH PROPOSED FLOODWALL.
25. RELOCATE EXISTING FIRE HYDRANT AWAY FROM PROPOSED LEVEE.
26. ABANDON EXISTING WATER MAIN IN CONFLICT WITH PROPOSED LEVEE.

SEWER

30. PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.
31. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.
32. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.
33. PROTECT EXISTING 48–INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.
34. ABANDON EXISTING SANITARY SEWER MAIN.
35. REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.
36. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.
39. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING WASTEWATER PUMP STATION.
40. ABANDON EXISITING SANITARY SEWER MAIN IN CONFLICT WITH PROPOSED LEVEE AND INSTALL NEW MANHOLE AT TERMINATION POINT.
41. ABANDON EXISITING SANITARY SEWER MAIN AND ASSOCIATED MANHOLES IN CONFLICT WITH PROPOSED LEVEE.

NOTES:

1. RAISE FREEWAY DRIVE AT NORTH END OF LIONS PARK TO PREVENT FLOW UNDER I–5 OVERPASS.
2. LEVEE IMPROVEMENTS FROM STA. 11+25 TO 14+00 WILL IMPACT PARKING AREA BEHIND VALLEY RV BUILDINGS. ONE–WAY TRAFFIC BEHIND BUILDINGS CAN BE MAINTAINED.
3. LEVEE IMPROVEMENTS FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.

JOB NUMBER 1601
CONTRACT NO.

PRELIMINARY

PACIFIC INTERNATIONAL ENGINEERING PLLC
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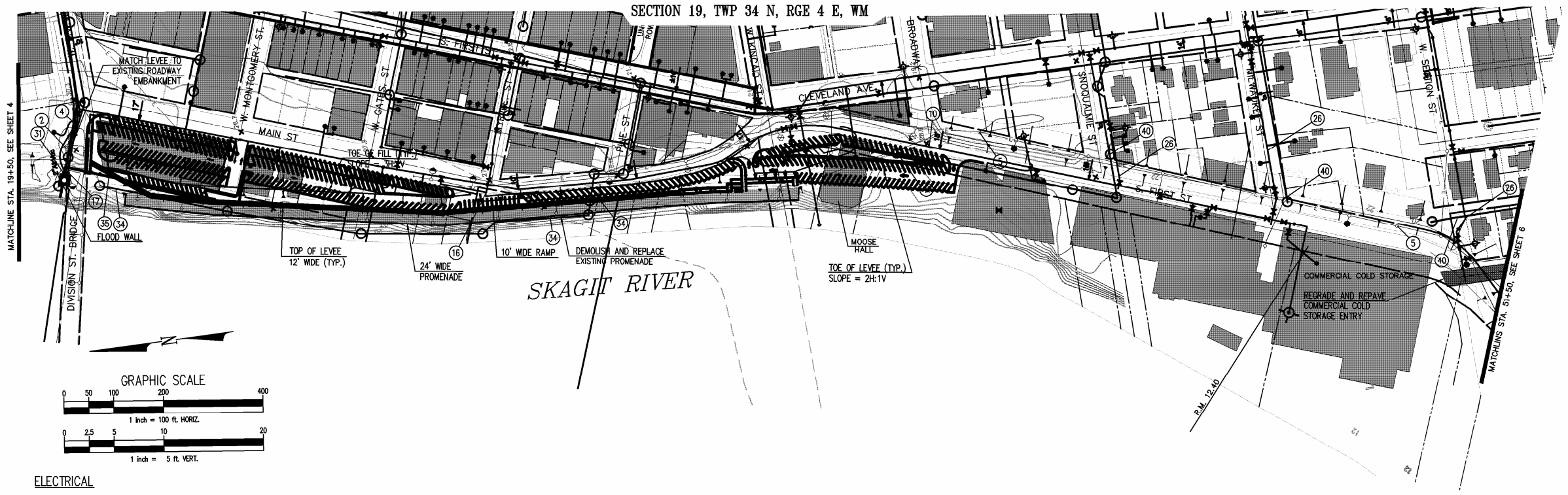
CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

UTILITY LEVEE ALT. - STA 0+00 - STA 19+50

REFERENCE SHEET NUMBER –

SHEET 4 OF 13 SHEETS



ELECTRICAL

(1) PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.

(2) REPLACE EXISTING POLE.

(3) REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.

(4) PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.

(5) REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.

(6) RESET EXISTING LUMINARES.

(7) PROTECT EXISTING POLE IN PLACE.

WATER

(10) PROTECT EXISTING WATER MAIN IN PLACE.

(11) RESETE EXISTING HYDRANT. ADJUST 8-INCH FIRE SERVICE AND 4-INCH SERVICE TO PROVIDE NO GREATER THAN 4-FT. COVER UP TO FINISH STREET GRADE.

(12) REPLACE EXISTING WATER LINE WITH 6-INCH DUCTILE IRON LINE IN 12-INCH STEEL CASING THROUGH THE LEVEE.

(13) REALIGN 1-½-INCH SERVICE TO AVOID PASSING THROUGH LEVEE.

(14) REPLACE EXISTING WATER LINE WITH 10-INCH DUCTILE IRON LINE INSIDE 16-INCH STEEL CASING.

(15) PROTECT EXISTING 18-INCH CCP PIPE IN PLACE.

(16) WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12-INCH DUCTILE IRON PIPE IN PLACE.

(17) WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1-½-INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

(18) RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.

(19) FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18-INCH DUCTILE IRON LINE IN PLACE.

(20) PROTECT EXISTING 6-INCH DUCTILE IRON LINE ON PENETRATION THROUGH FLOODWALL.

(21) MAKE PIPE PENETRATION IN PROPOSED FLOODWALL ALIGNMENT AND RELOCATE METER VAULT TO RESOLVE CONFLICT WITH PROPOSED FLOODWALL ALIGNMENT.

(22) ABANDON EXISTING GATE VALVE IN PLACE WHERE THE VALVE IS TO THE WEST OF THE PROPOSED FLOODWALL.

(23) PROTECT EXISTING WATER MAIN AT PENETRATION THROUGH PROPOSED FLOODWALL.

(25) RELOCATE EXISTING FIRE HYDRANT AWAY FROM PROPOSED LEVEE.

(26) ABANDON EXISTING WATER MAIN IN CONFLICT WITH PROPOSED LEVEE.

SEWER

(30) PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.

(31) PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.

(32) STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.

(33) PROTECT EXISTING 48-INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.

(34) ABANDON EXISTING SANITARY SEWER MAIN.

(35) REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.

(36) PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.

(39) STRUCTURAL AND SITE MODIFICATIONS TO EXISTING WASTEWATER PUMP STATION.

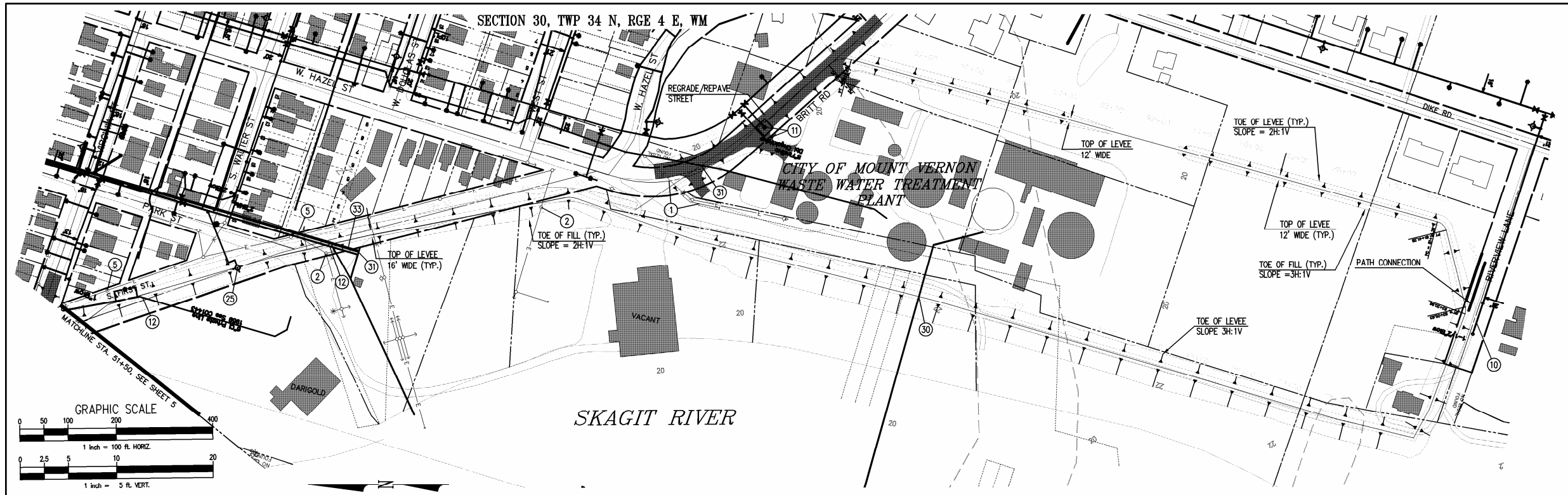
(40) ABANDON EXISITING SANITARY SEWER MAIN IN CONFLICT WITH PROPOSED LEVEE AND INSTALL NEW MANHOLE AT TERMINATION POINT.

(41) ABANDON EXISITING SANITARY SEWER MAIN AND ASSOCIATED MANHOLES IN CONFLICT WITH PROPOSED LEVEE.

NOTES:

1. RIVER BANK TOPOGRAPHY ASSUMED FROM EXISTING DATA. TOPOGRAPHIC SURVEY REQUIRED TO VERIFY.
2. PETERSON ST. AT NORTH END. ONE-WAY ACCESS TO EAST SIDE OF BUILDINGS ALONG MAIN ST. WILL BE MAINTAINED. RELOCATION OF UTILITIES TO BE DEFINED AS PART OF PRELIMINARY DESIGN.

JOB NUMBER 1601 CONTRACT NO.	PRELIMINARY	PACIFIC INTERNATIONAL ENGINEERING PLLC 501 Columbia Street NW Suite D Olympia, WA 98501 Phone (360) 352-2232 Fax (360) 352-5525	CITY OF MOUNT VERNON DOWNTOWN AND WATERFRONT MASTER PLAN -- FLOOD PROTECTION MEASURES UTILITY LEVEE ALT. - STA 19+50 - STA 51+50	REFERENCE SHEET NUMBER - SHEET 5 OF 13 SHEETS



ELECTRICAL

1. PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.
2. REPLACE EXISTING POLE.
3. REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.
4. PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.
5. REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.
6. RESET EXISTING LUMINARES.
7. PROTECT EXISTING POLE IN PLACE.

WATER

10. PROTECT EXISTING WATER MAIN IN PLACE.
11. RESETE EXISTING HYDRANT. ADJUST 8-INCH FIRE SERVICE AND 4-INCH SERVICE TO PROVIDE NO GREATER THAN 4-FT. COVER UP TO FINISH STREET GRADE.
12. REPLACE EXISTING WATER LINE WITH 6-INCH DUCTILE IRON LINE IN 12-INCH STEEL CASING THROUGH THE LEVEE.
13. REALIGN 1-½-INCH SERVICE TO AVOID PASSING THROUGH LEVEE.
14. REPLACE EXISTING WATER LINE WITH 10-INCH DUCTILE IRON LINE INSIDE 16-INCH STEEL CASING.
15. PROTECT EXISTING 18-INCH CCP PIPE IN PLACE.
16. WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12-INCH DUCTILE IRON PIPE IN PLACE.
17. WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1-½-INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

18. RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.
19. FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18-INCH DUCTILE IRON LINE IN PLACE.
20. PROTECT EXISTING 6-INCH DUCTILE IRON LINE ON PENETRATION THROUGH FLOODWALL.
21. MAKE PIPE PENETRATION IN PROPOSED FLOODWALL ALIGNMENT AND RELOCATE METER VAULT TO RESOLVE CONFLICT WITH PROPOSED FLOODWALL ALIGNMENT.
22. ABANDON EXISTING GATE VALVE IN PLACE WHERE THE VALVE IS TO THE WEST OF THE PROPOSED FLOODWALL.
23. PROTECT EXISTING WATER MAIN AT PENETRATION THROUGH PROPOSED FLOODWALL.
25. RELOCATE EXISTING FIRE HYDRANT AWAY FROM PROPOSED LEVEE.
26. ABANDON EXISTING WATER MAIN IN CONFLICT WITH PROPOSED LEVEE.

SEWER

30. PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.
31. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.
32. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.
33. PROTECT EXISTING 48-INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.
34. ABANDON EXISTING SANITARY SEWER MAIN.
35. REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.
36. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.
39. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING WASTEWATER PUMP STATION.
40. ABANDON EXISITING SANITARY SEWER MAIN IN CONFLICT WITH PROPOSED LEVEE AND INSTALL NEW MANHOLE AT TERMINATION POINT.
41. ABANDON EXISITING SANITARY SEWER MAIN AND ASSOCIATED MANHOLES IN CONFLICT WITH PROPOSED LEVEE.

NOTES:

1. RAMP AT STA. 56+50 REQUIRED FOR ACCESS TO DARIGOLD BUILDING AND VACANT BUILDING TO SOUTH (NOT SHOWN).
2. ADDITIONAL LEVEE ALONG RIVER VIEW LANE MAY BE REQUIRED TO PROTECT PLANNED EXPANSION OF WASTEWATERTREATMENT PLANT.

JOB NUMBER 1601
CONTRACT NO.

PRELIMINARY

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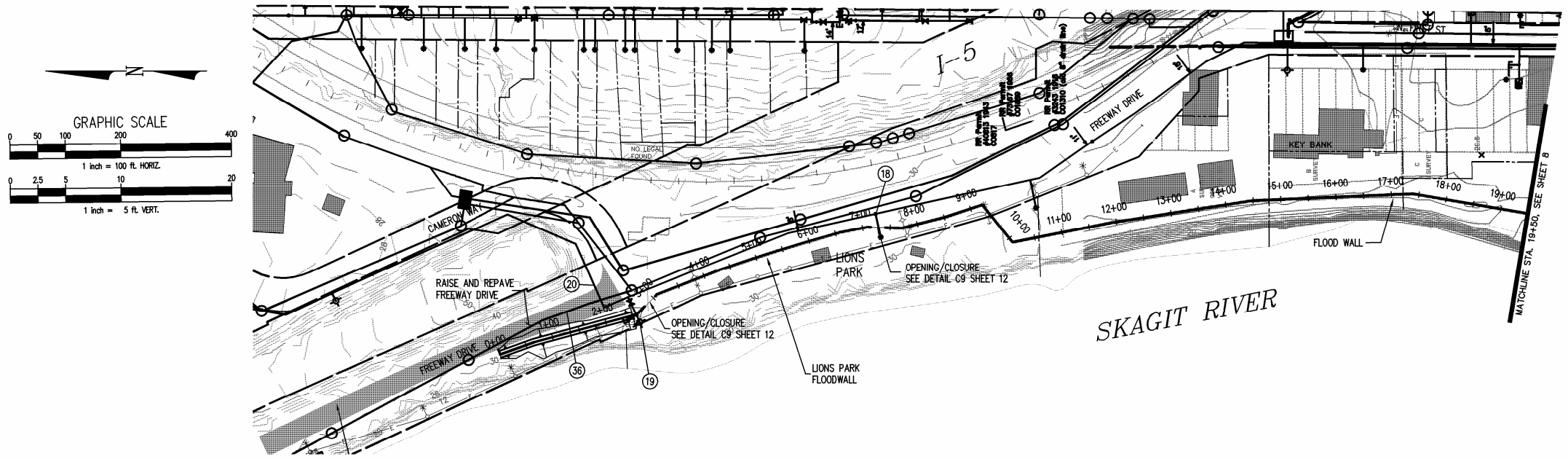
CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

UTILITY LEVEE ALT. - STA 51+50 - STA 82+00

REFERENCE SHEET NUMBER -

SHEET 6 OF 13 SHEETS

SECTION 19, TWP 34 N, RGE 4 E, WM



ELECTRICAL

1. PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.
2. REPLACE EXISTING POLE.
3. REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.
4. PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.
5. REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.
6. RESET EXISTING LUMINARES.
7. PROTECT EXISTING POLE IN PLACE.

WATER

10. PROTECT EXISTING WATER MAIN IN PLACE.
11. RESETE EXISTING HYDRANT. ADJUST 8–INCH FIRE SERVICE AND 4–INCH SERVICE TO PROVIDE NO GREATER THAN 4–FT. COVER UP TO FINISH STREET GRADE.
12. REPLACE EXISTING WATER LINE WITH 6–INCH DUCTILE IRON LINE IN 12–INCH STEEL CASING THROUGH THE LEVEE.
13. REALIGN 1–½–INCH SERVICE TO AVOID PASSING THROUGH LEVEE.
14. REPLACE EXISTING WATER LINE WITH 10–INCH DUCTILE IRON LINE INSIDE 16–INCH STEEL CASING.
15. PROTECT EXISTING 18–INCH CCP PIPE IN PLACE.
16. WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12–INCH DUCTILE IRON PIPE IN PLACE.
17. WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1–½–INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

18. RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.
19. FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18–INCH DUCTILE IRON LINE IN PLACE.

SEWER

30. PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.
31. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.
32. STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.
33. PROTECT EXISTING 48–INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.
34. ABANDON EXISTING SANITARY SEWER MAIN.
35. REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.
36. PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.

NOTES:

1. RAISE FREEWAY DRIVE AT NORTH END OF LIONS PARK TO PREVENT FLOW UNDER I–5 OVERPASS.
2. LEVEE IMPROVEMENTS FROM STA. 11+25 TO 14+00 WILL IMPACT PARKING AREA BEHIND VALLEY RV BUILDINGS. ONE–WAY TRAFFIC BEHIND BUILDINGS CAN BE MAINTAINED.
3. LEVEE IMPROVEMENTS FROM STA. 14+00 TO 18+25 WILL ELIMINATE ONE ROW OF PARKING ON WEST SIDE OF KEY BANK. ADDITIONAL AREA FOR PARKING EXISTS ON SOUTH SIDE OF BANK BUILDING.

JOB NUMBER 1601
CONTRACT NO.

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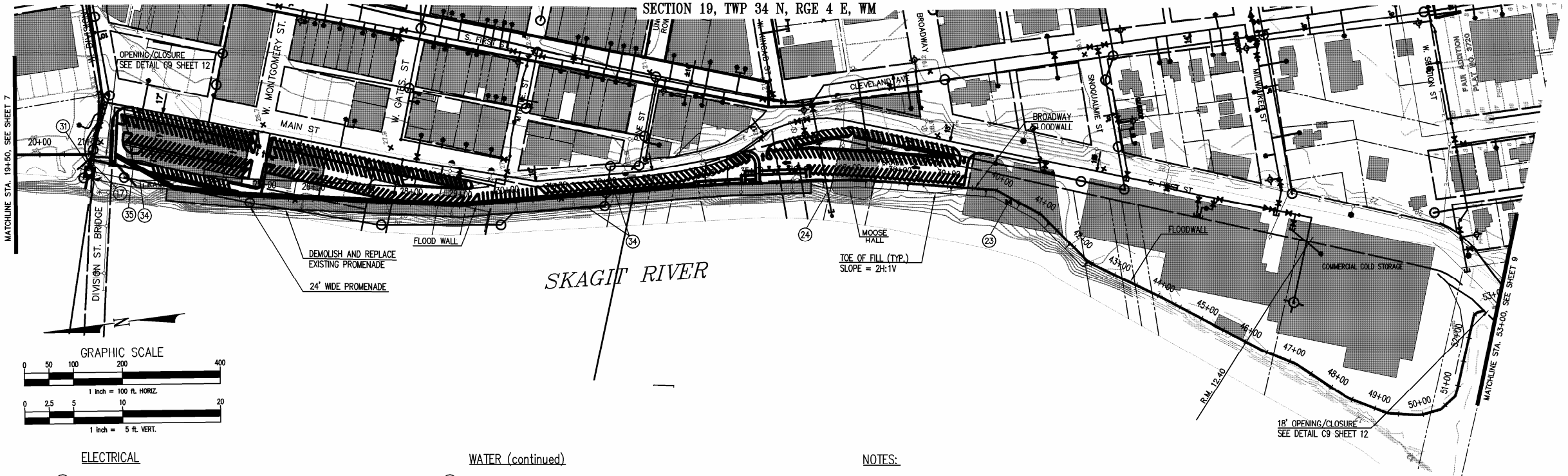
CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

UTILITY FLOOD WALL ALT. - STA 0+00 - STA 19+50

REFERENCE SHEET NUMBER –

SHEET 7 OF 13 SHEETS



GRAPHIC SCALE

0 50 100 200 400
1 inch = 100 ft. HORIZ.

0 2.5 5 10 20
1 inch = 5 ft. VERT.

ELECTRICAL

(1) PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.

(2) REPLACE EXISTING POLE.

(3) REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.

(4) PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.

(5) REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.

(6) RESET EXISTING LUMINARES.

(7) PROTECT EXISTING POLE IN PLACE.

WATER

(10) PROTECT EXISTING WATER MAIN IN PLACE.

(11) RESETE EXISTING HYDRANT. ADJUST 8–INCH FIRE SERVICE AND 4–INCH SERVICE TO PROVIDE NO GREATER THAN 4–FT. COVER UP TO FINISH STREET GRADE.

(12) REPLACE EXISTING WATER LINE WITH 6–INCH DUCTILE IRON LINE IN 12–INCH STEEL CASING THROUGH THE LEVEE.

(13) REALIGN 1–½–INCH SERVICE TO AVOID PASSING THROUGH LEVEE.

(14) REPLACE EXISTING WATER LINE WITH 10–INCH DUCTILE IRON LINE INSIDE 16–INCH STEEL CASING.

(15) PROTECT EXISTING 18–INCH CCP PIPE IN PLACE.

(16) WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12–INCH DUCTILE IRON PIPE IN PLACE.

(17) WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1–½–INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

(18) RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.

(19) FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18–INCH DUCTILE IRON LINE IN PLACE.

SEWER

(30) PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.

(31) PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.

(32) STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.

(33) PROTECT EXISTING 48–INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.

(34) ABANDON EXISTING SANITARY SEWER MAIN.

(35) REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.

(36) PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.

NOTES:

1. RIVER BANK TOPOGRAPHY ASSUMED FROM EXISTING DATA. TOPOGRAPHIC SURVEY REQUIRED TO VERIFY.
2. AREA WEST OF MAIN ST. FROM SOUTH END OF REVETMENT TO COMMERCIAL COLD STORAGE (STA. 36+50 TO 41+50) WILL BE FILLED TO EL. 28.5.

JOB NUMBER 1601
CONTRACT NO.

PRELIMINARY

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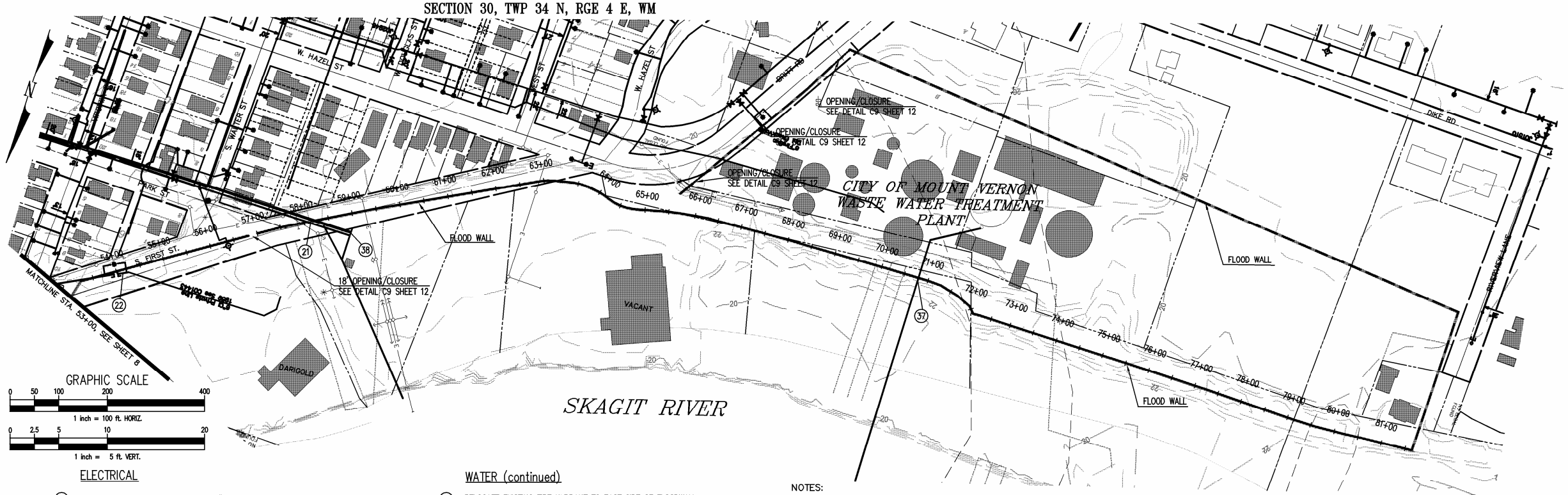
CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

UTILITY FLOOD WALL ALT. - STA 19+50 - 52+00

REFERENCE SHEET NUMBER -

SHEET 8 OF 13 SHEETS

SECTION 30, TWP 34 N, RGE 4 E, WM



NOTES:

1. OPENING IN WALL AT STA. 58+00 REQUIRED FOR ACCESS TO DARIGOLD BUILDING AND VACANT BUILDING TO SOUTH (NOT SHOWN).
2. ADDITIONAL FLOOD WALL ALONG RIVER VIEW LANE MAY BE REQUIRED TO PROTECT PLANNED EXPANSION OF WASTEWATER TREATMENT PLANT.

ELECTRICAL

(1) PROTECT EXISTING 15 KVA LINE AND 4" PVC IN PLACE.

(2) REPLACE EXISTING POLE.

(3) REMOVE EXISTING LUMINARES AND REPLACE WITH NEW ALONG PROMENADE.

(4) PROTECT EXISTING UNDERGROUND ELECTRICAL IN PLACE.

(5) REMOVE AND REPLACE EXISTING OVERHEAD ELECTRICAL IN NEW ALIGNMENT.

(6) RESET EXISTING LUMINARES.

(7) PROTECT EXISTING POLE IN PLACE.

WATER

(10) PROTECT EXISTING WATER MAIN IN PLACE.

(11) RESETE EXISTING HYDRANT. ADJUST 8-INCH FIRE SERVICE AND 4-INCH SERVICE TO PROVIDE NO GREATER THAN 4-FT. COVER UP TO FINISH STREET GRADE.

(12) REPLACE EXISTING WATER LINE WITH 6-INCH DUCTILE IRON LINE IN 12-INCH STEEL CASING THROUGH THE LEVEE.

(13) REALIGN 1-½-INCH SERVICE TO AVOID PASSING THROUGH LEVEE.

(14) REPLACE EXISTING WATER LINE WITH 10-INCH DUCTILE IRON LINE INSIDE 16-INCH STEEL CASING.

(15) PROTECT EXISTING 18-INCH CCP PIPE IN PLACE.

(16) WEST DIVISION ST. JUST EAST OF THE DIVISION ST. BRIDGE: PROTECT EXISTING 12-INCH DUCTILE IRON PIPE IN PLACE.

(17) WEST OF FREEWAY DRIVE AT LIONS PARK: RELOCATE EXISTING 1-½-INCH SERVICE AND PROVIDE FLOODWALL PIPE PENETRATION.

WATER (continued)

(18) RELOCATE EXISTING FIRE HYDRANT TO EAST SIDE OF FLOODWALL.

(19) FREEWAY DRIVE AND CAMERON WAY: PROTECT EXISTING 18-INCH DUCTILE IRON LINE IN PLACE.

SEWER

(30) PROTECT EXISTING SANITARY SEWER LINE CROSSING SKAGIT RIVER IN PLACE AT PENETRATION THROUGH LEVEE.

(31) PROTECT EXISTING SANITARY SEWER MAIN IN PLACE.

(32) STRUCTURAL AND SITE MODIFICATIONS TO EXISTING PUMP STATION IN PROPOSED LEVEE ALIGNMENT.

(33) PROTECT EXISTING 48-INCH SANITARY SEWER IN PLACE THROUGH PROPOSED LEVEE.

(34) ABANDON EXISTING SANITARY SEWER MAIN.

(35) REPLACE OR ABANDON EXISTING SANITARY FORCE MAIN.

(36) PROTECT EXISTING SANITARY SEWER MAIN IN PLACE WHEN REGRADING FREEWAY DRIVE.

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CITY OF MOUNT VERNON
DOWNTOWN AND WATERFRONT
MASTER PLAN -- FLOOD PROTECTION MEASURES

UTILITY FLOOD WALL ALT. - STA 51+50 - 82+00

REFERENCE SHEET NUMBER -

SHEET 9 OF 13 SHEETS