



## South Park Bridge Replacement

# STORMWATER POLLUTION PREVENTION PLAN TECHNICAL INFORMATION REPORT

November, 2009

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## **1 INTRODUCTION AND PROJECT OVERVIEW**

The purpose of this report is to address the implementation of stormwater management activities prior to and during the construction phase of this project. This report is intended to provide project specific narrative for the intended methods to provide sediment and erosion control during construction. This report outlines a general approach and simplified order of work that may be followed or altered during construction. This project is being directed, administered, and funded by King County and has been designed according to the KCSWDM (2009) and Department of Ecology Stormwater Management Manual (SWMM 2007) criteria.

### **1.1 Project Description**

This project proposes to construct a new bascule bridge because the existing bridge is structurally deficient and functionally obsolete. The project involves re-aligning the roadway, constructing a new bridge, removing the existing bridge, and restoring the areas around the old bridge. Additional work elements specific to temporary erosion and sediment control involve constructing the bridge piers with caissons to reduce in-water work impacts, installing sand blankets to prevent silt re-suspension during pile driving activities, using bubble curtains to reduce underwater sound/vibration impacts to biological organisms, and providing shoreline mitigation/restoration to improve shoreline habitat areas.

### **1.2 Project Location and Limits**

The existing South Park Bridge No. 3179 is a 78-year old bridge built in 1931 and is located in an industrial area on the Duwamish Waterway, approximately 5 miles south of downtown Seattle, as shown in Figure 1. The project is located in Township 24N, Range 4E, Section 32 and encompasses the roadway corridor defined by 16<sup>th</sup> Avenue South (between East Marginal Way South and the South Park Bridge) and 14<sup>th</sup> Avenue South (between the bridge and South Cloverdale Street).

### **1.3 Project Areas and Impacts**

The proposed and existing project limits are identical, however, the proposed area within the project limits is slightly different than the existing area because the new bridge is slightly larger than the old bridge causing additional area on and below the bridge structure. The project will reduce the amount of impervious area within the project limits and implement new permanent stormwater quality treatment facilities. Two low impact development rain gardens are proposed in the south basin and an underground water quality wet vault is designed for the north basin. Below is a table summarizing the basin areas and treatment goals:

**Table 1. Project Areas Summary**

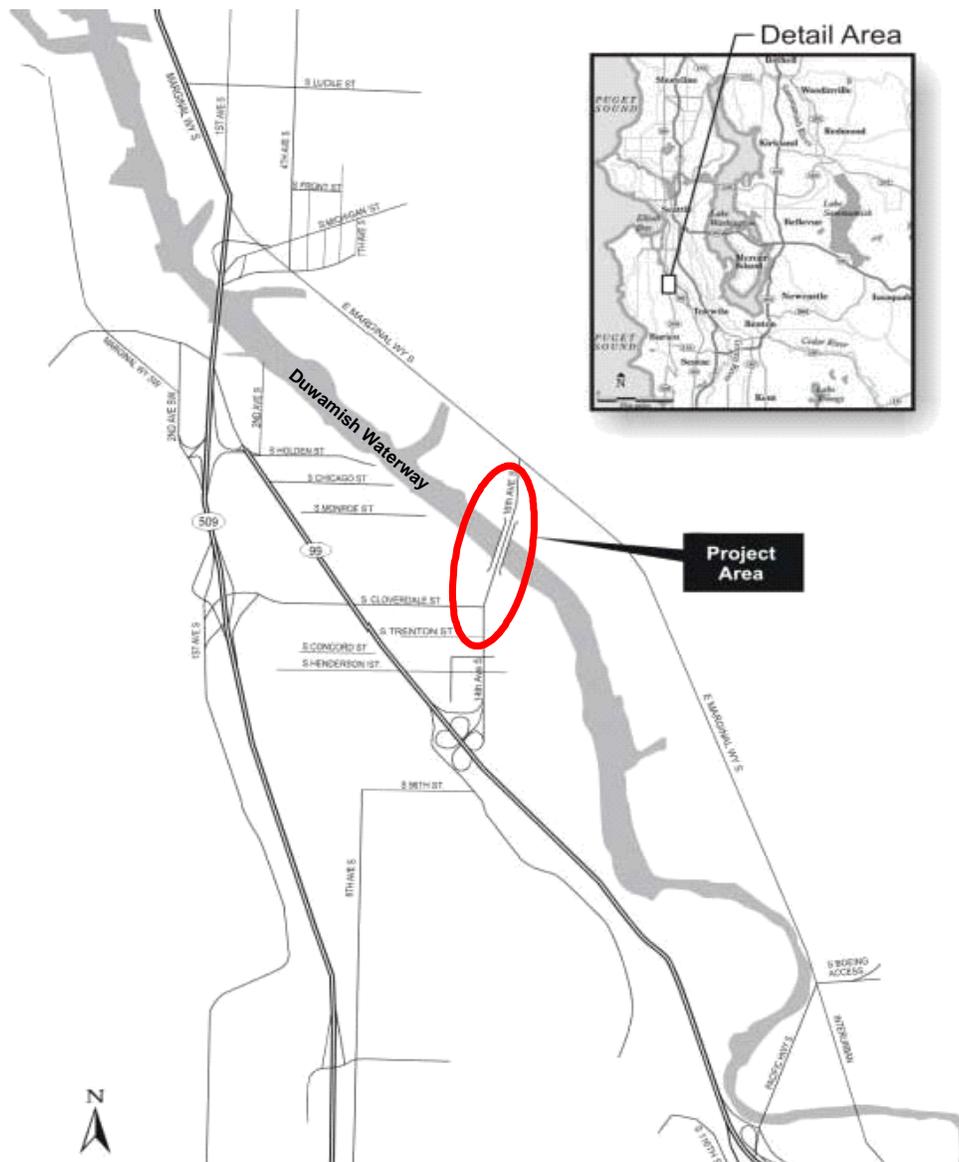
<b>Description</b>	<b>South Basin (acres)</b>	<b>North Basin (acres)</b>	<b>Project Totals (acres)</b>
Existing Basin Limits	6.15	5.44	11.59
Proposed Basin Limits	6.37	5.62	11.99
Existing Impervious Surface	4.25	5.33	9.58
Proposed Impervious Surface (New and Replaced)	3.55	5.52	9.07
Existing Pervious Surface	1.90	0.11	2.01
Proposed Pervious Surface	2.82	0.10	2.92
New Impervious Surface	1.15	0.73	1.88
Replaced Impervious Surface	2.40	4.79	7.19
Net Added Impervious Surface	-0.70	0.19	-0.13
Targeted Impervious Surface	1.15	0.73	1.88
Additional Treated Area <sup>1</sup>	1.38	0	1.38
Total Treated Area <sup>2</sup>	2.53	0.73	3.26
Total Area to be Disturbed	6.37	5.62	11.99

<sup>1</sup> The Additional Treated Area is pollution generating impervious area diverted from the City of Seattle combined storm/sewer system to the new stormwater treatment rain gardens.

<sup>2</sup> The total treated area reported in this Table is the total targeted pollution generating impervious surface requiring treatment. All project stormwater is routed through the stormwater quality treatment facilities prior to discharge into the Duwamish Waterway.

**Table 2. Project Earthwork Summary**

Description	Project Totals (C.Y.)
Approximate Cut Volumes	65,000
Approximate Fill Volumes	76,000
Contaminated Soil to be Treated	22,300



**Figure 1 – Site Location**

## **1.4 Existing Site Conditions**

The project has been split into two basins, the North Basin (existing and proposed) as well as the South Basin (existing and proposed). Both north and south basins are considered part of one combined Threshold Discharge Area (TDA). Basin boundaries, areas, etc...can be found in the Hydraulics/Storm Drainage Design Technical Information Report.

### **1.4.1 Existing North Basin Conditions**

The existing North Basin (ENB) is bordered by East Marginal Way South, Boeing on the east and west, and the Duwamish Waterway to the south. The existing North Basin is commercial/industrial and primarily impervious paved asphalt and concrete surfaces for the roadway, parking lots, and sidewalks. The Boeing Plant 2 Stormwater Drainage System areas were determined by Ecology and Environmental Inc., 02-16-07 and can be found in Appendix B (Figure 15) of the Hydraulics/Storm Drainage Design Technical Information Report.

The ENB contains both private and public conveyance systems collecting onsite and offsite stormwater runoff into the Duwamish Waterway. The roadway runoff is collected into a conveyance system that discharges into the Duwamish Waterway through an existing 18-inch outfall pipe fitted with a tide-flap gate. Much of the Boeing offsite runoff is collected and conveyed in a private conveyance system that also connects to the public stormwater system and discharges through the same 18-inch diameter public outfall pipe. Boeing has additional private outfalls connecting directly to the Duwamish Waterway at various locations along the waterfront within the project limits.

The west side of the roadway has several large buildings and a large fenced parking lot. The Boeing Plant 2 is a historic and working aircraft manufacturing facility supported by two smaller buildings. The Boeing Pier (formerly Standard Oil) is located adjacent to the Duwamish Waterway and South Park Bridge. Boeing also has four large buildings on the east side of 16<sup>th</sup> Avenue South. A sidewalk, ramp access, and tunnel provide pedestrian access from the west to east side of the street mid-block between East Marginal Way South and the existing South Park Bridge Number 3179.

## **1.5 Existing South Basin Conditions**

The Existing South Basin (ESB) limits are shown in Exhibit 2 of Appendix A. The limits extend from South Cloverdale Street north to the Duwamish Waterway and extend approximately 300-foot left and right of 14<sup>th</sup> Avenue South.

The ESB is a combination of mixed retail, residential, and commercial use with both impervious and pervious surfaces. The existing 14<sup>th</sup> Avenue South roadway is constructed of asphalt concrete pavement, cement concrete traffic curb and gutters, and cement concrete sidewalks between South Cloverdale Street and Dallas Avenue South. The 14<sup>th</sup> Avenue South roadway surface is an exposed brick roadway from Dallas Avenue South to the roadway terminus at the Duwamish Waterway. Small portions of the project have existing pervious grass “planter strips and/or exposed gravel surfaces.”

The ESB limits were established based on the proposed project limits, limits of construction activity for temporary erosion control, construction staging, and physical surface grading for drainage areas. The basin limits were established to account for onsite surface runoff as well as offsite drainage impacts within the project limits. For the ESB, offsite flows (roof top collection, driveways, alleys, etc...) drain into the existing onsite drainage system. The proposed design will continue to accept and preserve the offsite flow patterns. However, only onsite flows will be used to determine the design criteria for the water quality facility requirements/threshold treatment criteria. Both on and offsite flows will be added together to design and size the conveyance system, and conveyance for the water quality treatment facilities.

### **1.5.1 Existing North Basin Outfalls and Shoreline Conditions**

#### **1.5.1.1 List of Outfalls**

The following is a list of existing outfalls labeled according to Boeing record documents on the north side of the waterway. The outfalls are labeled according to Boeing record documents according to outfall (OF) and lettered in order of sequence from downstream to upstream along the shoreline. See Exhibit 3 (Onsite Existing North Basin Exhibit) in Appendix A.

- 6-inch diameter CMP (Boeing OF-H, not found) serves only offsite stormwater runoff.
- 24-inch diameter CMP (Boeing OF-I, No. 4-125) serves only offsite stormwater runoff.
- 12-inch diameter pipe (Boeing, OF-J, not found) serves only offsite stormwater runoff
- 18-inch diameter SP (public outfall serving onsite stormwater runoff.. The pipe material is different between survey records and Boeing records and has been assumed to be concrete according to project survey records.
- 4-inch diameter SP (Boeing OF-K, surveyed as 6-inch diameter) serves only offsite stormwater runoff.
- 12-inch diameter SP (Boeing OF-L, abandon) flows are diverted to the public stormwater 18-inch diameter outfall.

The 18-inch diameter Boeing pipe that was not found is shown in the survey files and may be (most likely) the same pipe as the public outfall. Additionally, the 12-inch diameter outfall recorded in Boeing records may actually be the 18-inch diameter outfall.

#### **1.5.1.2 North Basin Public Outfall**

The existing public outfall extends beyond a sheet pile wall and old Standard Oil dock system. The pipe extends out into the waterway and is supported on wooden “joists” between four wooden piles. The end of the pipe has an iron tide flap that does not close completely and may allow river/saltwater to enter the pipe. Access to the outfall is controlled with security and fencing from the land-side, so a close visual inspection of the pipe was not performed to determine the condition of the existing outfall.

### 1.5.1.3 South Basin Public Outfall

Exhibit 2 in Appendix A of the Hydraulics/Storm Drainage Design Technical Information Report shows the south basin boundary, sub-basin areas, and basin discharge locations. The basin area is a combination of private and public land draining via surface runoff into private and public conveyance systems. The ESB has three discharge locations, the existing public 12-inch corrugated aluminum pipe outfall into the Duwamish Waterway, the combined storm/sewer system to the West Point Treatment Facility, and a 3-inch diameter iron pipe serving the private Marina parcels and draining into the Duwamish Waterway.

- Some of the south basin surface runoff is collected into a conveyance system and discharged into the Duwamish Waterway with the existing 12-inch diameter CMP public outfall. Appendix A contains exhibits illustrating limits, sizes, and flow patterns for the existing south basin conditions.
- The smaller 3-inch cast iron private outfall is located downstream of the public outfall and serves parcels operated and maintained by the Marina. Catch basins collect surface water runoff from the paved parcels and convey the water directly to the Duwamish Waterway without treatment. Down-turned elbows are used inside the catch basins to prevent oils from discharging through the outfall.
- The City of Seattle area within the south basin currently collects surface runoff and conveys flows through a combined storm/sewer system to the West Point Water Quality Treatment Facility.

### 1.5.2 Existing Bridge Conditions

The existing bridge is approximately 1,045 feet long between abutments and the overall length of the project area is approximately 2,400 feet. The existing roadway consists of four 9.5-foot lanes and a total pavement width of approximately 38-feet not including sidewalks. The bridge is comprised of approach fills, abutment walls, approach spans supported on piers, bascule towers, and the bascule movable section over the Duwamish Waterway navigable channel.

### 1.5.3 Existing Jurisdictional Boundaries

The project area is governed by three local government jurisdictions. The area north of the Duwamish Waterway (between East Marginal Way S. and the waterway) lies within the city limits for both the City of Seattle (northern portion) and the City of Tukwila (southern portion). The area south of the Duwamish Waterway (between the waterway and S. Cloverdale Street) lies within unincorporated King County and the City of Seattle. The two-block area between the riverbank and Dallas Avenue S. is in King County, and the city blocks to the south are in the City of Seattle.

### **1.5.4 Existing Land Use and Zoning**

Land uses in the project area are mixed residential, retail commercial, and industrial. The Boeing Company Plant 2 is located on the north side of the Duwamish Waterway. On the south side, retail commercial and light industrial land fronts 14<sup>th</sup> Avenue S. and the banks of river. Single family residences generally characterize the area south of the bridge.

### **1.5.5 Historic Site Development**

Between 1920 and 1930 a wooden swing bridge (14<sup>th</sup> Avenue South Bridge) structure was in service. During the early 1900's, the area shifted from mixed residential and farmlands to commercial and industrial uses. Between 1920 and 1935, a Standard Oil bulk fuel storage facility operated on a dock on the north shore. The north shore of the Duwamish Waterway became more industrialized during and following World War II. Commercial business activity in the project vicinity includes aviation manufacturing, oil transfer and storage, gasoline service stations, dry cleaners, boat storage yards, and light industrial warehouses.

## **1.6 Adjacent Areas**

An upstream and downstream analysis, offsite analysis, zero-net rise study, and river scour study has been performed for this project and are included in the Storm Drainage Technical Information Report.

### **1.6.1 North Basin Adjacent Areas**

The existing drainage patterns within the ENB will be preserved as part of this project. The existing stormwater runoff from East Marginal Way north of the project limits is offsite roadway stormwater runoff and will be conveyed to the existing 18-inch public outfall for discharge into the Duwamish Waterway.

The Boeing parcels drain through a combination of private and public conveyance systems. The stormwater runoff draining through the private conveyance systems and private outfalls will be preserved. On the west side of the ENB, offsite flows do not enter the basin boundary as surface runoff. The flows are collected in a private conveyance system, treated for water quality in a private (Boeing) water quality treatment vault/oil water separator, and conveyed to the private 24-inch diameter outfall (OF-I, 4-125) into the Duwamish Waterway. On the east side of the ENB, Boeing offsite flows are conveyed to the existing public conveyance system and discharge into the Duwamish Waterway via the 18-inch diameter public outfall.

### **1.6.2 South Basin Adjacent Areas**

The existing City of Seattle combined storm/sewer system does not have sufficient capacity to convey large storm events and treat the events at the West Point water quality treatment facility. The project will provide relief to the combined storm/sewer system and adjacent offsite properties by redirecting runoff that currently discharges into the City of Seattle combined storm/sewer system into a water quality treatment facility for discharge into the Duwamish Waterway.

### 1.6.2.1 Existing Marina and Shoreline

A private concrete boat launch ramp is located on the east side of the bridge and serves the Marina and Boat Service Business. The shoreline is a combination of dense grass, brush, rock, and mud, and sheet flows into the Duwamish Waterway. The existing catch basin serving the existing public 12-inch diameter corrugated aluminum metal pipe outfall is a brick and mortar catch basin that will be replaced.

The Marina has a storm drainage system including catch basins with down-turned elbows for oil containment. Based on a field visit, the marina did not seem to drain into the existing outfall or public combined storm/sewer system.

### 1.6.2.2 Existing Retail, Residential, and Bridge

Residential lots within the project limits are generally lower than the existing roadway. Some of the private residential lots show signs of long term water drainage issues and resulting damage caused by constant water contact and poor drainage. During a field visit, December 31, 2008, several houses had rotting siding, corner posts, porches, and car garages caused by long term water damage. Some houses had visible downspouts connecting to footing drains that connect to the combined storm/sewer system or infiltration trenches. The existing brick roadway is higher than the properties adjacent to the roadway. In general, the water drains off of the brick roadway into the back of parcel 2185600080 and then under the existing bridge. Two catch basins drain the area under the bridge, but standing water near the abutment wall was observed. The natural drainage path has been considered and the sediment trap/sump should be located near the natural low spot to allow surface runoff to naturally collect site runoff under the bridge.

## 1.7 Critical Areas

Portions of the site may contain contaminated soils or contaminated groundwater. The contaminated soils will be removed, stockpiled during testing, and transported to appropriate treatment/waste facilities. Any contaminated materials hauled and/or stored off-site must be stockpiled to contain sediment, pollution, and stormwater runoff according to appropriate best management practices.

Contaminated groundwater will need to be captured, and treated prior to discharge. Treated stormwater may be discharged into the Duwamish Waterway providing it meets or exceeds minimum pollutant loading thresholds and does not increase sediment loading in the waterway. Treated stormwater may also be discharged into the sewer system providing the contractor has the appropriate City permits for discharge.

## 1.8 Soils

The soils within the project limits have been investigated for strength, stability, quality of materials, suitability for the proposed improvements, and extent of contamination. A geotechnical report by Shannon and Wilson (2004) has been prepared documenting soils conditions and design criteria for the bridge, foundations, roadway, and other work elements associated with the project design.

### **1.8.1 Onsite Soil Conditions**

According to the National Resource Conservation Service historical data, the soils in the project vicinity are Vashon Till type material. Geotechnical investigations conducted by Shannon and Wilson and documented in the 2004 Geotechnical Report indicate that subsurface conditions under the project area consist of man-made fill and marsh deposits in the upper regions of the soils profile. This is underlain by loose to medium dense alluvial deposits consisting primarily of sand and very soft to medium stiff clayey and silty estuarine deposits. These normally consolidated non-glacial soils are underlain by over consolidated glacial soils (glaciomarine drift) that consist of stiff to hard, clayey silt to silty clay with some sand and gravel. The elevation (NAVD88) of the glacial soils ranges from approximately 95 feet under the proposed north bascule abutment to approximately 60 feet under the south bascule abutment. See Appendix F of the Hydraulics/Storm Drainage Design Technical Information Report for geotechnical borings and soils mapping.

### **1.8.2 Offsite Soil Conditions**

In the south basin, sewer service is a combination of septic and City combined storm/sewer system. A small portion of private residential home owners have septic systems. See Appendix F, Figure 15 of the Hydraulics/Storm Drainage Design Technical Information Report for the septic treatment areas.

### **1.8.3 Contaminated Soil Conditions**

A Focused Corrective Measure Study has been performed by Boeing (March, 2002) for the Southwest Bank Corrective Measure. The study was performed to determine the appropriate actions for the Southwest Bank Corrective Measure and determine the horizontal and vertical extent of soil that contained elevated levels of constituents of concern within the saturated zone (approximately 6-feet below ground surface). The soils above the saturated zone will also be managed for cleanup activities. Soil borings were performed, and groundwater sampling wells were installed and have been monitored for corrective action. Soils were tested and contamination parameters were identified for cadmium, copper, lead, and zinc. The stormwater and temporary erosion control measures have been designed to accommodate for contaminated soils, high ground water, dewatering, stockpiling, and transportation of materials. During construction, areas will be established to stockpile soil. The areas will be contained with berms, and all stockpiles will be covered with plastic. The soil will be tested and determined if it is clean or contaminated prior to transport and disposal. Contaminated soils will be transported to a facility capable of treating the contaminated soils. For additional site specific hazardous materials documentation refer to the South Park Bridge Project Hazardous Materials Technical Report (February 2004).

## **1.9 Potential Erosion Problems**

The site is generally flat on both sides of the river. Much of the area is paved or will be stabilized. The shoreline will have rock stabilization, large woody debris, and vegetation for soil stabilization. The project is within the 10-year floodway and the upstream reach is controlled by the Howard Hanson Dam.

## 1.10 Construction Phasing

The in-water work window for the project is between August 1 and February 15. Construction and demolition activities are estimated to start in April 2010 and end in March 2013, taking a total of approximately 34 months. The general sequence of construction activities is outlined below.

1. Sensitive areas (streams, wetlands, and their buffers) located within the project limits will be delineated on the ground with high-visibility construction fencing.
2. Install appropriate temporary erosion and sediment control (TESC) measures in all work areas prior to the initiation of ground-disturbing construction activities, including construction of temporary sediment ponds.
3. A construction staging area from which to mobilize construction equipment to the project site will be established.
4. The soil supporting the existing bascule bridge piers will be compaction grouted in order to protect the existing bridge from damage during excavation and pile driving activities.
5. The existing timber fenders adjacent to the north and south main piers will be removed via barge-mounted equipment.
6. Two temporary work trestles will be constructed on the west side of the existing bridge. One work trestle will extend from the south shore and the other will extend from the north shore.
7. Two cofferdams will be constructed to enclose the new pier footings using either barge-mounted equipment or equipment deployed on the temporary work trestles.
8. The material within the cofferdam will be excavated up to six feet below the mud line, to the bottom of the concrete seal of the bascule pier footing.
9. Temporary steel piles will be installed within the cofferdams, and a temporary drill platform will be built above the cofferdam. A bubble curtain or cylinder system will be installed either around individual piles or around the inside perimeter of the cofferdam to minimize acoustic impacts to fish within the Duwamish Waterway.
10. The foundation supports for each main bascule pier will be constructed. Excavated material will be transferred to an acceptable disposal location that, if necessary, is approved to receive contaminated materials.
11. After the foundation seal concrete is formed and poured the cofferdam will be dewatered. All wastewater within the casing will be pumped out and treated by a sand media filter. Pier footings and bascule piers then will be constructed, including control towers.
12. The main pier cofferdams will be removed and properly disposed of.
13. Movable leaf trusses will be installed from barge-mounted cranes and/or work trestles, prestressed girders for the approach spans will be erected, and the concrete for the approach span decks and bascule span deck will be poured.
14. The temporary work trestles will be removed.
15. The western portion of the pier protection fenders for the new bridge will be installed.
16. New submarine cables for electrical power and control lines will be installed using directional boring construction from pits constructed on both sides of the shores.

17. The north and south bridge approaches will be constructed. This includes re-grading the intersection south of the bridge and completing roadway work to prepare for the bridge opening to vehicular traffic.
18. After the new movable bridge and approaches are constructed, traffic will be routed onto the new alignment. The existing bridge and approaches will be closed to prepare for demolition.
19. A second set of two temporary work trestles will be constructed on the eastern, upstream side of the existing bridge.
20. Temporary cofferdams will be installed around each existing bascule and intermediate pier. These cofferdams will isolate the in-water work areas for removal of existing bridge foundations.
21. Five existing piers and their foundations will be removed using equipment deployed from working trestles and barges. The existing bridge decking, superstructure, and approaches will also be removed.
22. Habitat quality of the shoreline under and adjacent to the new bridge will be enhanced, including removal of existing riprap, rocks, and debris. The shoreline will be stabilized with vegetation planting and native substrates, as well as large woody debris.

Temporary erosion and sediment controls will be installed in accordance with the 2005 King County Surface Water Design Manual (KCSWDM) prior to beginning ground disturbing activities. The ESC strategy for this project includes:

- Marking clearing limits
- Protecting existing and constructed storm drain inlets from sediment with catch basin inserts
- Installing temporary stabilized construction accesses, and designated equipment cleaning areas
- Protecting adjacent properties and the Duwamish Waterway from sediment transport using temporary silt fence
- Protecting the river from sediment by routing construction runoff to sediment traps and sand media filters
- Covering disturbed areas with non-erodible material as soon as practical
- Controlling dust by watering construction areas as needed
- Protecting the Duwamish Waterway from construction debris by providing a containment system
- Compliance with all KCSWDM (2005) ESC requirements (see ESC notes and details in Appendix A of this report)

Erosion control features will remain in place until permanent vegetation is sufficiently established. Earthwork should occur in the dry season as much as possible and in-water work will be completed within the fish window specified by the Department of Fish and Wildlife. However, if construction occurs during the wet season, temporary cover measures for exposed slopes will be necessary. This will consist of mulching on shallower slopes, and erosion control blanket or plastic sheeting on steeper slopes. Erosion control blanket and permanent erosion control seeding will be established on all 2:1 fill slopes regardless of the season. See Appendix A for the Temporary Erosion Control plans, notes, and details.

## 1.11 Financial/Ownership Responsibilities

The project is a public improvement project within King County and City of Seattle right-of-way. The project is lead by King County and bonding worksheets usually prepared for private developer projects have not been developed.

## 2 EROSION AND SEDIMENT CONTROL MINIMUM REQUIREMENTS AND NARRATIVE

The 12 TESC elements are described below. Common design and procedural BMPs are described for each element, followed by a list of applicable BMPs.

### 2.1 TESC Element 1: Mark Clearing Limits

Prior to land-clearing activities, mark all clearing limits shown on the plan in the field with high-visibility fences to protect sensitive areas and their buffers (including vegetation to preserve), as well as adjacent properties. Retain duff layer, native topsoil, and existing vegetation in an undisturbed state to the maximum extent practicable.

#### PHYSICAL BMPS

- High visibility fence will be used to delineate the construction zones and prevent construction impacts outside of the project limits. This is intended to preserve natural vegetation outside of the construction project limits.
- There are not any wetlands or streams with buffer zones on this project. Work in the river and shoreline shall be protected/contained/controlled with appropriate BMPs to prevent sediment suspension and transport in the river.

### 2.2 TESC Element 2: Establish Construction Access

Access points shall be stabilized with a construction access comprised of a quarry spalls pad, crushed rock, or equivalent BMP, per Standard Specification 8-01.3(7) and the Standard Plans. Install stabilized construction access points prior to grading operations. Access points and haul routes are reduced to the fewest number possible for this project. The construction entrances shall be sloped downward into the site to reduce track-out of sediments onto the roadway. If sediment is tracked off-site, roads are to be cleaned thoroughly at the end of the day or more frequently if necessary. Sediment shall be removed from roads by shoveling or sweeping, and removed sediment should be transported to a controlled disposal area. If the stabilized construction entrance is not effective in preventing sediment from being tracked onto roads, a tire wash must

be used and the wash-water must be discharged to a separate on-site treatment system, such as closed-loop recirculation or land application, or discharged to a sanitary sewer (if allowed by individual permit). Street washing is only allowed after sediment is removed from the street. If streets are washed with water, wash-water must be treated prior to discharge.

#### PHYSICAL BMPS

- Stabilized construction entrances will be used for both the north and south basins
- Construction road stabilization will be necessary for this project. Much of the existing surfaces are paved. The construction sequence shall be performed to keep as much of the “yard” and working areas with existing pavement in-tact during construction so the contractor is utilizing the paved stabilized surfaces.
- Street cleaning will be performed daily or more frequently as necessary.
- Tire wash may be necessary and shall be used if the construction entrance is not sufficient.

### 2.3 TESC Element 3: Control Flow Rates

Protect downstream properties and waterways from erosion by preventing increases in the volume, velocity, and peak flow rates for stormwater runoff from the site during construction. Install sediment control facilities to provide flow control as early in the construction process as feasible and protect infiltration facilities from siltation during the construction phase. Also install the permanent bypass interceptor line to bypass East Marginal Way and Boeing runoff around the site.

#### PHYSICAL BMPS

- Temporary sediment vault
- Sediment trap/sump with pumps, and baker tanks.
- Check Dams

### 2.4 TESC Element 4: Install Sediment Controls

Install sediment control BMPs prior to soil-disturbing activities. Prior to leaving a construction site or discharging to an infiltration facility, concentrated stormwater runoff from disturbed areas must pass through sediment ponds or traps. Sheet flow runoff must pass through sediment control BMPs specifically designed to remove sediment from sheet flows such as filter berms, vegetated filter strips, or silt fencing. Because maintaining sheet flows greatly reduces the potential for erosion, runoff should be maintained and treated as sheet flow whenever possible.

The underground wet vault will be built during the initial phases of the project. The vault may be used as a temporary sediment trap during construction. After earthwork activities have been completed, and the finished grading is permanently stabilized, the vault shall be pumped dry, cleaned, and put on-line as a water quality treatment wet vault with discharge into the Duwamish Waterway. A Chitosan Enhanced Sand Filter and additional portable tanks may be used in conjunction with the vault for water quality treatment, storage, and flow control.

Due to construction phasing, the last item of work involves removing the existing bridge, abutments, and constructing the rain gardens. The rain gardens will function as infiltration facilities and should not be used for sediment trapping or flow control storage during construction. Temporary sumps, sediment traps, and baker tanks will be required for the south side of the project. A chitosan enhanced sand filtration system may be necessary to treat stormwater runoff prior to discharge

Non-stormwater (dewatering, line flushing) discharges must also be controlled to protect downstream properties. When non-stormwater discharges are routed through separate storm sewer systems, the flow rate must be controlled to minimize scouring and flushing of sediment trapped in the system.

#### PHYSICAL BMPS

- Silt fence
- Wattle
- Temporary sediment pond or trap
- Straw bale barrier
- Street cleaning
- Surface roughening
- Level spreader
- Inlet protection
- Outlet protection
- Preserving natural vegetation
- Portable storage water tanks
- Stormwater chemical treatment (Chitosan Enhanced Sand Filter System)
- Filter berm (gravel, wood chip, or compost)
- Construction stormwater filtration

Note: All TESC plans, including stormwater chemical treatment, whether originally planned or added after construction begins, must notify and be approved by King County/City of Seattle water quality programs.

## 2.5 TESC Element 5: Stabilize Soils

Stabilize all exposed and un-worked soils by applying effective BMPs that protect the soil from wind, raindrops, and flowing water. Selected soil stabilization measures must be appropriate for the volume of flow, time of year, site conditions, estimated duration of use, and the water quality impacts that stabilization agents may have on downstream waters or groundwater.

Soil stockpiles are especially vulnerable to slumping when saturated and must be stabilized and protected with sediment-trapping measures. Plastic may be necessary on silty stockpiles, as it is the only BMP that can prevent soil saturation. Stockpiles should be located away from storm drain inlets, waterways, and drainage channels where possible.

In western Washington, cover exposed soil that is not being worked-whether final grade or not-within the following time limits, using approved soil cover practices:

October 1 through April 30	2 days maximum
May 1 through September 30	7 days maximum

Expose no more soil than can be covered within the above time limits. Construction activities should never expose more erodible earth than amounts shown below.

October 1 through April 30	5 acres
May 1 through September 30	17 acres

#### PHYSICAL BMPS

- Preserving vegetation
- Temporary mulching
- Placing erosion control blanket and plastic covering
- Seeding and planting
- Gravel base
- Sodding
- Check dam\*\*
- Wattle\*\*
- Surface roughening\*\*\*
- Stabilized construction entrance
- Construction road stabilization
- Dust control BMPs
- Soil binding using polyacrylamide\*

\* While polyacrylamide alone does help stabilize soils, using it in conjunction with mulch provides more protection for disturbed soil. (Contractor may request)

\*\* Check dams and wattles alone do not stabilize soils. These BMPs should be used in conjunction with other soil stabilization BMPs.

\*\*\* Surface roughening alone does not provide soil stabilization. Another BMP should be used in conjunction with surface roughening to protect the soil from raindrop impacts. It must be performed prior to seeding, per the Standard Specifications.

A percolation test has been performed for the soils within the rain garden areas to determine if the soils percolate well and if a construction geotextile for separation is warranted to prevent treated runoff from infiltrating and spreading contamination plumes toward the river. The test results report between 0.4 and 1.3 inches per hour infiltration rates of the existing soils. The long term infiltration rates are anticipated to be between 0.1 and 0.3 inches per hour (assuming a value of 4 for the factor of safety). These infiltration rates are well below the thresholds that would require installation of a liner, but the liner is proposed as a conservative judgment for addressing potential contamination issues.

## 2.6 TESC Element 6: Protect Slopes

Construct cut-and-fill slopes in a manner that will minimize erosion by (1) reducing continuous length and steepness, and (3) roughening slope surfaces, considering soil type and its potential for erosion (such as track walking). In addition, all soil must be protected from concentrated flows through temporary conveyances such as diversions and pipe slope drains.

To capture sediment and runoff when cutting trenches, place excavated soil on the uphill side of the trench (when consistent with safety and space considerations). Contaminated groundwater shall be pumped from the trenches and contained for testing and treatment prior to discharge.

#### PHYSICAL BMPS

- Channel lining (riprap, grass)
- Temporary pipe slope drain
- Interceptor dike and swale
- Gradient terraces
- Placing erosion control blanket
- wattles

### **2.7 TESC Element 7: Protect Drain Inlets**

Protect all operable storm drain inlets from sediment with approved inlet BMPs.

#### PHYSICAL BMPS

- Inlet protection (above/below grate and grate covers)
- Check dam

### **2.8 TESC Element 8: Stabilize Channels and Outlets**

Check dams should be placed at regular intervals (see the Standard Plans) within constructed channels that are cut down a slope. All temporary conveyance channels should be designed, constructed, and stabilized to prevent erosion. Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches shall be provided at the outlets of all conveyance systems.

#### PHYSICAL BMPS

- Channel lining (riprap, grass)
- Check dam
- Temporary seeding and planting
- Erosion control blanket
- Sodding
- Outlet/outfall protection

### **2.9 TESC Element 9: Control Pollutants**

All pollutants, including construction materials, waste materials, and demolition debris, must be handled and disposed of in a manner that does not cause contamination of stormwater. Wood debris may be chopped and spread on-site. Application of fertilizers and other chemicals should be conducted in a manner and at application rates that will not result in loss of chemicals to stormwater runoff. Manufacturers' label requirements for application rates and procedures must be followed.

Methods for controlling pollutants that can be considered hazardous materials, such as hydrocarbons and pH-modifying substances, must be described in the contractor's SPCC plan. The plan must be prepared to meet Standard Specification 1.07.15(1) and the Washington State Department of Ecology's (Ecology's) standards. Stormwater or groundwater that has come into

contact with curing concrete must be sampled to ensure water quality standards are not violated. (See water quality monitoring protocols in Section 6-8 for sampling information). Process water (for example, concrete washout, slurry water, and hydrodemolition) must be contained and cannot be discharged to waters of the state. Contaminated groundwater shall be pumped from the trenches and contained for testing and treatment prior to discharge.

## **2.10 TESC Element 10: Control Dewatering**

When groundwater is encountered in an excavation or other area, control, treat, and discharge it as described in Standard Specification 8-01.3(1)C. Contaminated groundwater shall be pumped from the trenches and contained for testing and treatment prior to discharge.

## **2.11 TESC Element 11: Maintain BMPs**

A Certified Erosion and Sediment Control Lead (CESCL) shall inspect BMPs per Standard Specification 8-01.3(1)B to ensure they perform their intended function properly until the Project Engineer determines that final stabilization is achieved. Final stabilization means completion of all soil-disturbing activities and establishment of a permanent vegetative cover or permanent stabilization measures (such as riprap) to prevent erosion. Temporary BMPs shall be removed within 30 days after final stabilization is achieved.

Maintain BMPs in accordance with Standard Specification 8-01.3(15). When the depth of accumulated sediment and debris reaches approximately one-third the height of the device, the contractor must remove the deposits. BMP implementation and maintenance should be documented in the Site Log Book. Clean sediments may be stabilized on-site if the Project Engineer approves.

## **2.12 TESC Element 12: Manage the Project**

Apply the following actions on all projects:

- (1) Preserve vegetation and minimize disturbance and compaction of native soil, except as needed for building purposes.
- (2) Phase development projects to minimize the amount of soil exposed at any one time and prevent the transport of sediment from the site during construction.
- (3) Time sediment control BMP installation in accordance with TESC Element 4.
- (4) To minimize erosion, follow soil cover timing requirements and exposure limits in TESC Element 5 and Standard Specification 8-01.3(1). Projects that infiltrate all runoff are exempt from the above restrictions. Individual contract Special Provisions and Project Engineer directives may be more stringent, based on specific location characteristics or changing site and weather conditions.
- (5) The work of utility contractors and subcontractors is coordinated to meet requirements of both the TESC and SPCC plans.

- (6) All BMPs are inspected, monitored, and maintained in accordance with TESC Element 11. Sampling will be conducted to ensure compliance (see Section 6-4 for details).
- (7) The certified Erosion Control Lead is on-site or on-call at all times.
- (8) The TESC and SPCC plans are kept on-site or within reasonable access to the site. Due to the unpredictable nature of weather and construction conditions, the TESC plan is a flexible document that should be modified whenever field conditions change. Whenever inspections and/or monitoring reveal that the BMPs identified in the TESC plan are inadequate due to the actual discharge of or potential to discharge pollutants, the plan must be modified (as appropriate) as soon as possible but within 7 days. Fully implement and maintain BMPs as soon as possible but within 10 days. Most of these updates can be drawn onto the plans sheets. The plan must also be update whenever there are changes in the project design or in construction methods that could affect the potential for erosion or spills.

### 3 CSWPPP ANALYSIS AND DESIGN

The construction stormwater pollution prevention plan (CSWPPP) is applicable to the proposed construction activities and the time of year construction is to take place. The CSWPPP design and analysis is based on guidelines and criteria established in the Biological Assessment (March 2009). Runoff flow calculations for sizing erosion control features are included in Section 3.2.

#### 3.1 ESC Plan Analysis and Design (Part A)

Construction activities that could contribute pollutants to surface stormwater are:

- Demolition and removal
- Construction
- Clearing and grading
- Filling
- Excavation
- Compaction

The BMPs selected to address the pollution generated from the construction activities listed are:

Clearing Limits: The clearing limits will be delineated with high visibility fence, silt fence and/or metal fence.

Cover Measures: All earth work areas not covered by quarry spalls will be stabilized with a 2” layer of straw mulch. Cut and fill slopes will be covered with erosion control blanket over a layer of compost. Surface roughening and temporary seeding will be used to stabilize exposed soils.

Wattles will be installed in the earth work area to reduce flow velocity, spread the flow width, and capture sediment.

The project is partially located within an area of the Duwamish Waterway that has been designated as a superfund site. It is likely that soil removed from excavations for the new bridge piers and foundations will be contaminated. All excavated soil will be stockpiled onsite or on lined barges and tested to determine if it is contaminated. All stockpiles will be covered with plastic sheeting while the testing is conducted to stabilize the soil and to prevent leaching and spread of any contaminated materials that may be present in the stockpile. If a stockpile is found to contain hazardous material, it will be sent to a facility for special treatment and disposal.

Perimeter Protection: Silt fence will be placed downhill from the construction activities and along the river. Check dams (triangular silt dikes) will be placed in existing and temporary ditches.

Traffic Area Stabilization: Four stabilized construction entrances will be installed to stabilize the accesses into the construction site. A construction entrance will be installed at Dallas Avenue and at Orr Street to provide access to the work area on the south side of the South Park Bridge. Two entrances will be installed on the east and west sides of 16<sup>th</sup> Avenue South to provide access to the work area on the north side of the bridge. A wheel wash system may be necessary and may be installed at each of the onstruction entrances.

Sediment Retention: Collected surface water will be routed to temporary holding ponds or sumps at the low points under the new bridge. One sump will be constructed within each of the two work areas north and south of the Duwamish River. The runoff will be pumped from the sumps and treated with chitosan enhanced sand media filters and chemical treatment before being discharged to the Duwamish River. Supplemental storage of runoff and dewatering will be provided with Baker tanks as necessary. See Section 3.2 for the sediment pond sizing calculations. Catch basin inlet protection and block and gravel curb inlet protection will be used to minimize sediment deposits and dispersion in the drainage system.

Surface Water Collection: Interceptor ditches will be installed within the work area to convey runoff from disturbed areas to the sumps and sand media filter systems.

#### Dewatering Control and In-water Work:

Temporary sediment control sheeting will be installed to isolate the in-water construction of the new bridge pier foundations and the demolition of the existing bridge pier foundations from the Duwamish Waterway. All wastewater and process water within the cofferdams will be pumped out and treated by the sand media filters. All excavated soil and demolition debris will be removed from the cofferdams and either placed in trucks or on barges and hauled offsite for proper disposal. Spill aprons or containment tarps will be installed under excavation equipment to reduce the risk of material entering the Duwamish Waterway.

If ground water is encountered in other excavations, it will be routed to sediment traps and treated for sediment removal.

River sediments within the project limits may be contaminated with hazardous materials from adjacent superfund sites. A sand drainage blanket consisting of sandy gravel will be placed on

the riverbed within the limits of the in-water work to minimize the re-suspension of potentially contaminated sediments as a result of work activities.

Dust Control: Dry exposed soil surfaces will be wetted to prevent wind erosion and dust.

### 3.2 SWPPS Plan Design (Part B)

#### Temporary Sediment Pond Design, South Side

Assumptions and data entry:

Project location is SeaTac

3.55 acres impervious area

2.82 acres pervious till grass

Total tributary area is 6.37 acres

15-minute time step

A sediment pond shall be used where the contributing drainage area is 3 acres or more.

The proposed South Basin erosion control flows assume the entire basin is cleared and grubbed.

Step 1: Obtain the discharge from the hydrologic calculations of the 15-minute peak flow for the 2-year runoff event ( $Q_{2-15min}$ ) using KCRTS.

The screenshot shows the KCRTS software interface with the following data:

---Annual Peak Flow Rates---				-----Flow Frequency Analysis-----			
Flow Rate (CFS)	Rank	Time of Peak		Peaks (CFS)	Rank	Return Period	Prob
0.753	4	2/09/01	12:45	3.22	1	100.00	0.990
0.360	7	1/06/02	1:00	2.00	2	25.00	0.960
1.40	3	12/08/02	17:15	1.40	3	10.00	0.900
0.121	8	8/26/04	1:00	0.753	4	5.00	0.800
2.00	2	11/17/04	5:00	0.589	5	3.00	0.667
0.568	6	1/18/06	15:00	0.568	6	2.00	0.500
0.589	5	11/24/06	1:00	0.360	7	1.30	0.231

$Q_{2-15min} = 0.568$  cfs

Step 2: Determine the Pond geometry. Determine the required surface area at the top of the pond with the equation:

$$SA = 2 \times Q_{2-15min} / 0.00096$$

$$SA = 2 \times 0.568 \text{ cfs} / 0.00096 \text{ ft/s}$$

$$SA = 1183 \text{ SF}$$

There is enough space available to grade a pond/trap of this size but Baker Tanks will be necessary for containment and treatment of contaminated water.

#### Temporary Sediment Pond Design, North Side

Assumptions and data entry:

Project location is SeaTac

0.0 acres impervious area

5.62 acres pervious till grass (all asphalt is removed at once)

Total tributary area is 5.62 acres

15-minute time step

A sediment pond shall be used where the contributing drainage area is 3 acres or more. The proposed North Basin erosion control flows assume the entire north basin is cleared for construction.

Step 1: Obtain the discharge from the hydrologic calculations of the 15-minute peak flow for the 2-year runoff event ( $Q_{2-15min}$ ) using KCRTS.

Flow Rate (CFS)	Rank	Time of Peak	Peaks (CFS)	Rank	Return Period	Prob
0.664	4	2/09/01 12:45	2.84	1	100.00	0.990
0.318	7	1/06/02 1:00	1.77	2	25.00	0.960
1.23	3	12/08/02 17:15	1.23	3	10.00	0.900
0.107	8	8/26/04 1:00	0.664	4	5.00	0.800
1.77	2	11/17/04 5:00	0.520	5	3.00	0.667
0.501	6	1/18/06 15:00	0.501	6	2.00	0.500
0.520	5	11/24/06 1:00	0.318	7	1.30	0.231
2.84	1	1/09/08 6:30	0.107	8	1.10	0.091
Computed Peaks			2.48		50.00	0.980

$Q_{2-15min} = 0.501$  cfs

Step 2: Determine the Pond geometry. Determine the required surface area at the top of the riser pipe with the equation:

$$SA = 2 \times Q_{2-15min} / 0.00096$$

$$SA = 2 \times 0.501 \text{ cfs} / 0.00096 \text{ ft/s}$$

$$SA = 1044 \text{ SF}$$

A water quality wet vault will be constructed to provide water quality treatment to the north basin runoff once the project is completed. This vault will be installed as a first order of work to allow the vault to be used as a sediment pond to contain construction runoff. The vault is not large enough to contain all of the runoff from the 2-year design flow, and Baker tanks will be required to provide supplemental storage.

### 3.3 Spill Prevention Control and Countermeasures (SPCC) Requirements

The Contractor shall develop a Spill Prevention, Control and Countermeasures (SPCC) Plan per the amendment to the WSDOT Standard Specifications §1-07.15(1).

This plan is for control of pollutants on construction sites that have the potential to harm human health or the environment, (RCW 70.105, Hazard Waste Cleanup-Model Toxics Control Act). The plan shall address sources of pollutants, critical receptors, spill prevention and containment, spill response, and reporting requirements. This plan is expected to address comprehensive control of pollutants that include, but are not limited to, management of fuels, oils, solvents, and chemicals used in operations and maintenance, solid waste decomposition products determined by Department of Ecology to present a hazard, and maintenance and management of contaminated soils and water encountered or generated on the construction site.

The Contractor shall make available at the construction site an individual designated as the SPCC Lead that is knowledgeable in hazardous waste recognition, and spill control and response. The SPCC Lead is the person responsible for developing and implementing the SPCC Plan. In the event of a hazardous material spill, the SPCC Lead is the designated person to respond and alert the appropriate authorities. At a minimum this individual will have training or experience in the following:

1. Knowledge of basic hazard and risk assessment techniques
2. Knowledge of the proper selection and use of personal protective equipment
3. An understanding of basic hazardous materials terms.
4. Ability to perform basic control, containment, and/or confinement operations within the capabilities of the resources and personnel protective equipment available.
5. Knowledge of how to implement decontamination procedures.
6. An understanding of relevant standard operating procedures and termination procedures contained in the SPCC.

The Contractor shall take measures to prevent solid wastes from becoming a source of pollutants to stormwater or decomposition products from entering waters of the state. The Contractor should use best available practices to contain, segregate, store, and dispose of solid wastes consistent with state and local statutes and ordinances controlling solid waste disposal.

## **4 DESIGN REFERENCES**

King County Surface Water Design Manual, 2005

King County Road Design and Construction Standards, 2007

Dept. Of Ecology Stormwater Management Manual for Western Washington, 2005

## APPENDIX A

Erosion Control Structure Notes	2 Pages
Erosion Control General Notes	3 Pages
Temporary Erosion Control Plans	12 Pages
Temporary Erosion Control Details	3 Pages
CWSPPP Worksheet Forms	7 Pages

# EROSION CONTROL STRUCTURE NOTES

**NOTE**

THE NUMBER OF CODE DESIGNATION REFERS TO THE SHEET NUMBER OF THE CONTRACT PLANS.

SAND DRAINAGE BLANKET	QUARRY SPALLS	TEMPORARY SCHEDULE A STORM SEWER PIPE 8 IN. DIAM.	TEMPORARY EROSION CONTROL BLANKET	PLASTIC COVERING	ROCK CHECK DAM	STABILIZED CONSTRUCTION ENTRANCE	TEMPORARY SEDIMENT CONTROL SHEETING	INLET PROTECTION	SILT FENCE	STRAW BALE	COIR LOG	TEMPORARY SEDIMENT VAULT/TRAP AND SUMP	INTERCEPTOR DITCH	TEMPORARY CURB	DEBRIS CONTAINMENT SYSTEM	HIGH VISIBILITY FENCE	TEMPORARY CONSTRUCTION FENCE	DOUBLE 14 FT. CHAIN LINK GATE CONSTRUCTION GEOTEXTILE FOR SEPARATION	SEE GENERAL NOTES
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CODE DESIG.	STATION	TON	C.Y.	L.F.	S.Y.	S.Y.	L.F.	S.Y.	L.F.	EACH	L.F.	EACH	L.F.	EACH	L.F.	L.F.	S.Y.	L.F.	L.F.	EACH	S.Y.	GENERAL NOTES
	STAGE 1																					
EC04	SPB 23+00 - SPB 34+00									25	955					1,146	1,068	1				1,11
EC05, EC06	SPB 34+00 - SPB 46+00									34	757					292						1,11
EC04	SPB 27+50 (160.00' LT)								233													2
EC05	SPB 40+90 (75.00' RT)								57													2
EC04	SPB 29+50 (0.00')											20										3
EC04	SPB 31+00 (0.00')											21										3
EC05	SPB 37+00 (0.00')											20										3
EC05	SPB 38+60 (0.00')											20										3
EC04	SPB 26+50 (120.00' LT)					885																4
EC04	SPB 27+50 (80.00' LT)				221																	5
EC04	SPB 31+00 (170.00' LT)											11										5
EC04	SPB 31+25 (100.00' LT)											31										5
EC04	SPB 31+50 (160.00' LT)											66										5
EC04	SPB 31+60 (130.00' LT)											34										5
EC04	SPB 27+00 (0.00') - SPB 31+00 (40.00' LT)											215										5
EC04	SPB 29+40 (0.00')											145										472
EC04	SPB 31+00 (0.00')											153										495
EC05	SPB 37+00 (0.00')											142										463
EC05	SPB 38+60 (0.00')											135										439
EC04	SPB 32+60 (0.00')	519																				6
EC04	SPB 33+25 (0.00')											255										6
EC05	SPB 35+25 (0.00')	519																				6
EC05	SPB 34+70 (0.00')	280																				6
EC04	SPB 31+50 (0.00')											408										8
EC05	SPB 36+60 (0.00')											434										8
EC04	SPB 30+00 (80.00' RT)																					
EC04	SPB 30+00 (80.00' LT)													1								
EC04	SBP 30+00 (60.00' RT) - 31+00 (60.00' RT)								63							105						9,12
EC05	SPB 39+00 - 41+50															300						
EC06	SPB 45+50 (25.00' RT)											125										2
EC04	SPB 31+40 (0.00')																					235
EC04	SPB 36+80 (0.00')																					287
EC04	SPB 28+25 (40.00' RT) - 29+60 (50.00' RT)													6								14
EC04	SPB 32+15 (40.00' LT)	633																				6
EC05	SPB 35+70 (40.00' LT)	280																				6
EC04	SPB 29+75 (40.00' RT)																					15
	STAGE 2																					
EC07	SPB 23+00 - SPB 34+00											26										1
EC07, EC08	SPB 34+00 - SPB 46+00											20										1
EC07	SPB 31+70 (0.00')	167																				6
EC08	SPB 36+50 (0.00')	157																				6
EC07	SPB 27+25 (100.00' LT)																					4
EC07	SPB 27+30 (LT) - 30+80 (RT)											320										
EC07	SPB 27+75 (120.00' RT) - 29+75 (140.00' RT)											190										
EC07	SPB 30+85 (140.00' RT) - 31+00 (125.00' LT)																					13
EC08	SPB 36+50 (100.00' RT) - 37+50 (160.00' LT)																					13
EC08, EC09	SPB 39+90 (25.00' RT) - 43+25 (10.00' RT)																					4
EC07	SBP 26+50 (40.00' RT)																					2
	SHEET TOTAL	2,810		1,153	635	842	2,115	63	602	565	105	1,712	87	522	2	105	300	1,438	1,068	1	1,869	

- 1) INLET PROTECTION SEE DETAIL 3 ON SHEET ED01 OR DETAIL 1 ON SHEET ED03
- 2) STABILIZED CONSTRUCTION ENTRANCE SEE DETAIL 5 ON SHEET ED01
- 3) FOR STRAW BALE LOCATION SEE DETAIL 5 ON SHEET ED01
- 4) PLASTIC COVERING SEE DETAIL 4 ON SHEET ED02
- 5) SEE SHEETS EC04, EC05, AND DETAIL 3 ED02 FOR QUARRY SPALL LOCATIONS
- 6) INSTALL SAND DRAINAGE BLANKET SEE DETAIL 6 ON SHEET ED01
- 7) SEE DETAIL 3 ON SHEET ED02 FOR CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE
- 8) INSTALL EROSION CONTROL BLANKET SEE DETAIL 1 ON SHEET ED01
- 9) FOR GRADING ON INTERCEPTOR DITCH SEE DETAIL 1 ON SHEET ED02
- 10) PLACE COIR LOG SEE DETAIL 2 ON SHEET ED01
- 11) FOR SILT FENCE AND HIGH VISIBILITY FENCE DETAIL SEE DETAIL 4 ON SHEET ED01
- 12) FOR ROCK CHECK DAM SPACING AND DIMENSIONS SEE DETAIL 1 ON SHEET ED02
- 13) TEMPORARY SEDIMENT CONTROL SHEET SEE DETAIL 2 ON SHEET ED03
- 14) STRAW BALES TO BE PLACED AROUND TEMPORARY PIPE INLETS FOR INLET PROTECTION
- 15) CONSTRUCT TEMPORARY SUMP SEE DETAIL 2 ON SHEET ED02

FIELD BOOK: _____ SURVEYED: _____ SURVEY BASE MAP: _____ DESIGN ENTERED: LISA JOHNSON DESIGNED: ERIC ANDERS CHECKED: JIM RHODES SUPERVISOR: SALIMA NAGJI			FED. AID No. _____ PROJECT No. 300197 SURVEY No. 32-24-4-22 MAINTENANCE DIVISION No. _____	<b>95% SUBMITTAL NOT FOR CONSTRUCTION</b>	<b>KING COUNTY DEPT. OF TRANSPORTATION</b> HAROLD TANIGUCHI, DIRECTOR <b>SOUTH PARK BRIDGE #3179 REPLACEMENT</b> EROSION CONTROL STRUCTURE NOTES - 1	 EN01 SHEET OF SHEETS <b>316-63 ( )</b>
NUM. REVISION BY DATE						



**STORMWATER POLLUTION PREVENTION PLAN NOTES (SWPPP)  
IN COMPLIANCE WITH THE STORMWATER MANAGEMENT MANUAL FOR PUGET SOUND (2005)**

- APPROVAL OF THIS TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) PLAN/SURFACE WATER POLLUTION PREVENTION PLAN (SWPPP) DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.). THESE PLANS ARE DESIGNED TO MEET THE INTENT AND REQUIREMENTS OF THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (SMMPs) AND ITS PROVISION FOR A SWPPP BY THE WASHINGTON STATE DEPT. OF TRANSPORTATION.
- THE IMPLEMENTATION OF THESE PLANS AND THE CONSTRUCTION, REGULAR REVIEW, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND PLANS UNTIL ALL CONSTRUCTION IS APPROVED AND ACCEPTED BY KING COUNTY DEPT. OF TRANSPORTATION.
- THE BOUNDARIES OF THE CLEARING LIMITS ARE SHOWN ACCORDING TO PROJECT PHASING AND MAY NOT SHOW COMPREHENSIVE LIMITS ON ANY ONE SHEET. LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY A CONTINUOUS LENGTH OF BRIGHTLY COLORED SURVEY TAPE (OR FENCING, IF REQUIRED) PRIOR TO CONSTRUCTION. VEGETATION OR STAKES CAN SUPPORT THE TAPE. THE TAPE SHALL BE 4 FEET HIGH. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE MAINTAINED BY THE TESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER; THE CLEARING LIMITS SHALL COINCIDE WITH GRADING LIMITS AT TOP AND TOE OF "CUTS AND FILLS" UNLESS OTHERWISE INDICATED ON THE PLANS.
- THE TESC FACILITIES SHOWN ON THIS PLAN SHALL BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED. WET SEASON RUNS FROM OCT. 1 THROUGH APRIL 30 AND THE DRY SEASON FROM MAY 1 THROUGH SEPT. 30.
- THE TESC FACILITIES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING CONSTRUCTION PERIOD, THESE TESC FACILITIES SHALL BE UPGRADED (I.E. SEDIMENT TRAPS/SUMPS EXPANDED, MAINTAINED, NAD OR RELOCATED). ALL AREAS TO BE PLANTED OR SEEDED SHALL HAVE STRAW MULCH USED AS TEMPORARY COVER MEASURE, REMOVED PRIOR TO PLANTING AND SEEDING OPERATIONS. AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC...).
- THE TESC FACILITIES SHALL BE INSPECTED DAILY BY THE TESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING IN ACCORDANCE WITH THE SPECIAL PROVISIONS. WRITTEN RECORDS SHALL BE KEPT OF DAILY REVIEWS OF TESC FACILITIES DURING THE WET SEASON AND WEEKLY DURING THE DRY SEASON.
- AS A GENERAL RULE, ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED TESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC...). THE COUNTY MAY REDUCE THESE TIME LIMITS DEPENDING ON SITE CONDITIONS OR ANTICIPATED WEATHER CONDITIONS. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS UNLESS THE COUNTY DETERMINES THAT WINTER WEATHER MAKES VEGETATION ESTABLISHMENT INFEASIBLE. ALL AREAS THAT REACH FINAL GRADE OR WILL REMAIN UNWORKED FOR MORE THAN ONE YEAR SHALL BE STABILIZED WITHIN SEVEN DAYS. SEE THE LANDSCAPING AND/OR MITIGATION PLANS.
- THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR IMMEDIATELY FOLLOWING A STORM EVENT.
- AT NO TIME SHALL MORE THAN 6 INCHES OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED AND ADJUSTED PRIOR TO FINAL INSPECTION APPROVAL. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS (WHEEL WASH), MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY OR BE USED IN CONJUNCTION WITH SUPPLEMENTAL CONTAINMENT SYSTEMS.
- PLASTIC COVERING SHALL BE APPLIED IN ACCORDANCE WITH TESC PLANS, SPECIFICATIONS AND DIRECTED (WITH APPROPRIATE ANCHORING SUCH AS ROPE AND SAND BAGS) BY THE ENGINEER ON DISTURBED AREAS THAT REQUIRE COVER MEASURES FOR LESS THAN 30 DAYS OR AS A COVER FOR SEED (OPAQUE PLASTIC ONLY) DURING THE COLD WINTER MONTHS FOR CREATING A GREENHOUSE EFFECT TO ENCOURAGE GRASS GROWTH. PLASTIC COVERING SHALL NOT BE USED UPSLOPE OF AREAS ADVERSELY IMPACTED BY ITS CONCENTRATED RUNOFF, UNLESS DIVERSION OR RETENTION AND DISSIPATION MEASURES ARE IN PLACE AND FUNCTIONING.
- PERIMETER PROTECTION TO FILTER SEDIMENT FROM SHEETWASH SHALL BE LOCATED DOWNSLOPE OF ALL DISTURBED AREAS WHERE SHOWN ON THE PLAN. PERIMETER PROTECTION SHALL BE INSTALLED PRIOR TO UPSLOPE GRADING. SILT FENCE SHALL BE USED FOR PERIMETER PROTECTION, UNLESS OTHER MEASURES ARE APPROVED (E.G. BRUSH BARRIER, VEGETATED STRIPS, DIVERSION DITCHES, WATTLES, SILT CURTAINS, ETC...).
- INLET PROTECTION SHALL BE USED ON ALL DRAIN INLETS DOWNSLOPE AND WITHIN 30 FEET OF A DISTURBED AREA. THEY SHALL BE CHECKED AND CLEANED WEEKLY AND AFTER EACH STORM EVENT.
- PREVENTIVE MEASURES TO MINIMIZE THE WIND TRANSPORT OF SOIL SHALL BE TAKEN WHEN A TRAFFIC HAZARD MAY BE CREATED OR WHEN SEDIMENT TRANSPORTED BY THE WIND IS LIKELY TO BE DEPOSITED IN DRAINAGE WAYS OR WATER RESOURCES. WHEN USING WATER FOR DUST CONTROL, SPRAY UNTIL SOIL IS WET BUT RUNOFF IS NOT INITIATED. THE USE OF POLYACRYLAMIDES (PAM) MAY BE USED FOR DUST CONTROL ON STEEP SLOPES WHEN APPLIED PER MANUFACTURERS RECOMMENDATIONS AND WITH ENGINEERS PRIOR APPROVAL.
- DUST CONTROL: MINIMIZE THE PERIOD OF SOIL EXPOSURE THROUGH THE USE OF TEMPORARY GROUND COVER AND STABILIZATION PRACTICES. EXPOSED DUST PRODUCING SURFACES SHALL BE SPRINKLED DAILY UNTIL WET WHILE AVOIDING PRODUCING RUNOFF; REPEAT AS NEEDED. PAVED STREETS SHALL BE SWEEPED DAILY OR MORE OFTEN DURING CONSTRUCTION ACTIVITIES.

- CONTRACTOR SHALL DEVELOP A "SPILL PREVENTION AND COUNTERMEASURES CONTROL" (SPCC) PLAN AND IDENTIFY PERSON(S) RESPONSIBLE FOR IMPLEMENTING THE PLAN IF A SPILL OF A DANGEROUS OR HAZARDOUS WASTE SHOULD OCCUR. ANY SPILL THAT OCCURS REGARDLESS OF SIZE AND/OR TYPE OF SPILL SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND THE WASHINGTON STATE DEPARTMENT OF ECOLOGY - "SPILL RESPONSE UNIT" IN REDMOND AT THEIR 24-HOUR TELEPHONE (425-649-7000. IN THE CASE OF A SMALL ISOLATED SPILL THAT IS CONTAINED, COVER WITH AN ABSORBENT MATERIAL (I.E. SAWDUST, KITTY LITTER, ETC... NO STRAW) AND CONTACT THE ENGINEER IMMEDIATELY, THIS SPEC PLAN SHALL BE SUBMITTED FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL COMPLIANCE WITH THE WASHINGTON STATE "DROPPING LOAD OR OTHER MATERIALS-COVERING" (RCW 46.51.655.3/4) AND KING COUNTY CODE "UNSECURED LOADS" (KCC 10.12.040b).
- CONTRACTOR SHALL CONSTRUCT AND STABILIZE TEMPORARY SEDIMENT TRAP/POND/SUMP AND OR SWALES/DITCHES AS SHOWN IN THE TESC PLANS FIRST. ALL SURFACE FLOWS FROM DISTURBED AREAS SHALL BE CONVEYED THROUGH THESE TRAPPING DEVICES, BEFORE BEING ALLOWED TO DISCHARGE OFFSITE.
- ONSITE MATERIALS IN ADDITION TO THOSE INSTALLED SHALL CONSIST OF (PER ACRE OF PROJECT AREA) 100 L.F. OF SILT FENCE, SANDBAGS, PEAGRAVEL FILLED (25), QUARRY SPALLS (1 TON), 40 STRAW BALES, 100 S.Y. OF CLEAR PLASTIC COVER AND OTHER MATERIALS AS DIRECTED BY THE ENGINEER.

**IN-WATER WORK SITE SPECIFIC CRITERIA**

- ALL WORK BELOW MHHW (ELEVATION 8.93) SHALL BE COMPLETED DURING AN IN-WATER WORK WINDOW OF AUGUST 1 TO FEBRUARY 15.
- THE RIVER SHALL BE MONITORED FOR TURBIDITY AND pH DURING IN-WATER WORK ACTIVITIES AND SHALL NOT VIOLATE STATE AND FEDERAL STANDARDS. TURBIDITY SHALL BE MONITORED AT THE EDGE OF THE MIXING ZONE (300 FEET DOWNSTREAM) DURING IN-WATER WORK ACTIVITIES.
- EQUIPMENT THAT IS USED FOR IN-WATER WORK WILL BE CLEANED PRIOR TO OPERATIONS BELOW THE MHHW. EXTERNAL OIL AND GREASE WILL BE REMOVED, ALONG WITH DIRT AND MUD. NO UNTREATED WASH AND RINSE WATER SHALL BE DISCHARGED INTO LOCAL WATERS. ALL CONSTRUCTION EQUIPMENT WORKING IN THE WATER OR ON TEMPORARY TRESTLES SHALL USE VEGETABLE BASED HYDRAULIC FLUID.
- DRIP PANS WILL BE FITTED WITH ABSORBENT PADS AND PLACED UNDER ALL EQUIPMENT BEING FUELED.
- ALL VEHICLES OPERATING WITHIN 150 FEET OF THE RIVER SHALL BE INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE DESIGNATED VEHICLE STAGING AREA. ANY LEAKS DETECTED WILL BE REPAIRED BEFORE THE VEHICLE RESUMES OPERATION. WHEN NOT IN USE, VEHICLES SHALL BE STORED IN THE VEHICLE STAGING AREA.
- ALL EQUIPMENT SHALL BE EQUIPPED WITH SOUND ATTENUATION DEVICES AND MUFFLERS IN GOOD WORKING CONDITION AND ALL ENGINES SHALL BE SHUT OFF WHEN NOT IN USE.
- PILE DRIVING BY IMPACT METHODS FOR EXTENDED DURATIONS (2 HOURS MAX.) WILL NOT BE ALLOWED BETWEEN NOVEMBER 15 AND FEBRUARY 15.
- ALL IMPACT PILE DRIVING WILL BE DONE USING A NOISE ATTENUATION DEVICE (CONFINED BUBBLE CURTAIN, TEMPORARY NOISE ATTENUATION PILE, OR FUNCTIONALLY APPROVED EQUIVALENT).
- A VIBRATORY HAMMER SHALL BE USED TO INSTALL PILES TO THE EXTENT FEASIBLE.
- TEMPORARY PILES AND SHEET PILES WILL BE REMOVED. IF PILES BREAK OFF DURING EXTRACTION, OR REMOVAL CANNOT BE ACHIEVED, PILES SHALL BE CUT OFF AT THE MUD LINE OR TOP OF SAND BLANKET.
- EXISTING CREOSOTE-TREATED TIMBER PILES ASSOCIATED WITH THE EXISTING BRIDGE PIER PROTECTION SYSTEM SHALL BE REMOVED. THE PILES AND ANY OTHER TREATED WOOD WASTE PRODUCED BY THE PROJECT SHALL BE TRANSPORTED IN AN APPROPRIATE VEHICLE TO CONTAIN AND DISPOSE OF MATERIAL AT AN APPROPRIATE PERMITTED DISPOSAL SITE.

**COFFER DAM SPECIAL CONSIDERATIONS**

- SEE DEMOLITION AND CONSTRUCTION SEQUENCING PLANS FOR COFFER DAM SIZE, LOCATION, MATERIALS, AND CONSTRUCTION METHODS ETC.
- THE COFFER DAM SHALL BE SEALED AND PARTIALLY DEWATERED PRIOR TO EXCAVATION ACTIVITIES.
- DEWATER FROM WITHIN THE CAISSON SHALL BE PUMPED INTO A HOLDING TANK. PRIOR TO RELEASE, DEWATER SHALL BE TESTED AND TREATED IF NECESSARY TO APPROPRIATE THRESHOLDS ACCORDING TO STATE SURFACE WATER QUALITY CRITERIA, OR ALLOWABLE LIMITS DESCRIBED IN CONTRACTOR OBTAINED WASTEWATER DISCHARGE PERMITS.
- CONSTRUCTION OF THE TWO PERMANENT CAISSON FOUNDATIONS WILL REQUIRE CAREFUL EXCAVATION, HANDLING, STORAGE, TESTING, TREATMENT, TRANSPORT, AND DISPOSAL OF NATIVE SUBSTRATES, AS WELL AS ANY WATER THAT IS IN CONTACT WITH THE SUBSTRATES, KNOWN OR SUSPECTED OF CONTAMINATION.

FIELD BOOK:				
SURVEYED:				
SURVEY BASE MAP:				
DESIGN ENTERED:	L. JOHNSON			
DESIGNED:	E. ANDERS			
CHECKED:	JIM RHODES			
SUPERVISOR:	SALIMA NAGJI			
	NUM.	REVISION	BY	DATE



FED. AID No.	
PROJECT No.	300197
SURVEY No.	32-24-4-22
MAINTENANCE DIVISION No.	

**95% SUBMITTAL  
NOT FOR  
CONSTRUCTION**

**KING COUNTY DEPT. OF TRANSPORTATION**  
HAROLD TANGUCHI, DIRECTOR  
**SOUTH PARK BRIDGE #3179  
REPLACEMENT**  
EROSION CONTROL PLAN - GENERAL - 1

EC01  
SHEET OF SHEETS  
**316-63 ( )**

**STORMWATER POLLUTION PREVENTION PLAN NOTES (SWPPP)  
IN COMPLIANCE WITH THE STORMWATER MANAGEMENT MANUAL FOR PUGET SOUND (2005)**

**MINIMUM REQUIREMENTS (1-10)**

**MINIMUM REQUIREMENT #1 – PREPARATION OF STORMWATER SITE PLANS**

THIS PROJECT REQUIRES THE PREPARATION OF A STORMWATER SITE PLAN BECAUSE IT EXCEEDS THE THRESHOLD IN SECTION 2.4 OF VOLUME I OF THE SMMPS. THE "REDEVELOPMENT" THRESHOLD REQUIREMENTS TRIGGERING COMPLIANCE WITH MINIMUM REQUIREMENTS #1-#10 INCLUDE:  
> ADDING 5,000 SQUARE FEET OR MORE OF NEW IMPERVIOUS SURFACES:

THIS STORMWATER SITE PLAN WAS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 3 IN VOLUME II OF THE SMMPS.

**MINIMUM REQUIREMENT #2 – CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

ELEMENT REQUIREMENTS	BEST MANAGEMENT PRACTICES
ELEMENT #1 "DELINEATE CLEARING AND GRADING LIMITS"	(PRESERVE NATURAL VEGETATION, BUFFER ZONES, HIGH VISIBILITY FENCE) – SURVEY AND STAKE ALL "CUT AND FILL" SLOPES AND EASEMENTS. INDIVIDUAL TREES TO BE PRESERVED WITHIN THE CONSTRUCTION AREA SHALL BE MARKED AND PROTECTED FROM CONSTRUCTION WITH FENCING AS SHOWN.
ELEMENT #2 "ESTABLISH CONSTRUCTION ACCESS"	(STABILIZE CONSTRUCTION ENTRANCE, CONSTRUCTION ROAD STABILIZATION) – CONSTRUCTION VEHICLE ACCESS AND EXIT TO STAGING AREAS, STOCKPILING AND GRADED AREAS, SHALL BE IMPLEMENTED AND LIMITED TO DEFINED ACCESS POINTS TO ACCOMMODATE LARGE EQUIPMENT MANEUVERING. ACCESS POINTS SHALL TYPICALLY BE STABILIZED AND MAINTAINED WITH QUARRY SPALLS OR CRUSHED ROCK TO MINIMIZE THE TRANSPORT OF SEDIMENT ONTO PAVED SURFACES. WHEEL WASH OR TIRE BATHS SHOULD BE LOCATED ON SITE AS FEASIBLE AND APPLICABLE. SEDIMENT SHALL BE REMOVED FROM ROADWAYS BY SHOVELING AND PICKUP SWEEPING AND DEPOSITED IN A SEDIMENT DISPOSAL AREA. CONSTRUCTION ACCESS RESTORATION SHALL BE RETURNED TO ORIGINAL GRADE AND EQUAL TO OR BETTER THAN ITS PRE-CONSTRUCTION STATE.
ELEMENT #3 "CONTROL FLOW RATES"	(SEDIMENT TRAP, CHECK DAMS, INTERCEPTOR DIKE AND SWALE) – DOWNSTREAM PROPERTIES AND WATERWAYS SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN VOLUME, VELOCITY, AND PEAK FLOWS FROM CONSTRUCTION SITE STORMWATER RUNOFF. TEMPORARY STORMWATER FACILITIES SHALL BE BUILT AND OPERATIONAL AS PART OF THE FIRST STAGE OF GRADING OPERATIONS. DISCHARGE SHALL NOT EXCEED THE INFLOW RATE OF THE TRAPS AND SWALES.
ELEMENT #4 "INSTALL SEDIMENT CONTROLS"	(BRUSH BARRIER, GRAVEL FILTER BERM, COMPOST BERM, SILT FENCE, VEGETATED STRIP, STRAW WATTLES, COIR LOGS, SEDIMENT TRAP, SEDIMENT POND) – PRIOR TO THE RELEASE OF STORMWATER FROM DISTURBED AREAS, IT SHALL PASS THROUGH A SEDIMENT POND, TRAP, BIOSWALE, SEDIMENT BAG, OR OTHER APPROPRIATE SEDIMENT REMOVAL BMP. SEDIMENT SHALL BE REMOVED FROM SEDIMENT CONTROL BMP'S ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL.
ELEMENT #5 "STABILIZE SOILS"	(TEMPORARY AND PERMANENT SEEDING, STRAW, WOOD STRAW, AND WOOD CHIP MULCHING, EROSION CONTROL BLANKETS, MATTING AND NETS, PLASTIC COVERING, SODDING, TOPSOILING, COMPOST, PAM'S, SURFACE ROUGHENING, GRADIENT TERRACES, DUST CONTROL) – BETWEEN OCTOBER 1 AND APRIL 30, SOILS (INCLUDING STOCKPILES) SHALL REMAIN EXPOSED MORE THAN 2 DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 7 DAYS. SELECTED SOIL STABILIZATION MEASURES SHALL BE IMPLEMENTED MAINTAINED AND APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, EXPOSURE AND ORIENTATION, DURATION OF USE AND IMPACTS TO WATER QUALITY AND GROUND WATER.
ELEMENT #6 "PROTECT SLOPES"	(TEMPORARY AND PERMANENT SEEDING, PRESERVE VEGETATION, PHASED GRADING, SURFACE ROUGHENING, EROSION CONTROL BLANKETS, MATTING AND NETS, PLASTIC COVERING, GRADIENT TERRACES, INTERCEPTOR DIKE AND SWALE, GRASS LINED CHANNELS, PIPE SLOPE DRAINS, SUBSURFACE DRAINS, LEVEL SPREADER, CHECK DAMS, TRIANGULAR SILT DIKE) – PHASE GRADING TO MINIMIZE EXPOSED CUT AND FILL SLOPES, REDUCE RUNOFF VELOCITIES BY TERRACING CUT SLOPES AND DIVERSIONS AND SURFACE ROUGHEN. USE AND MAINTAIN APPROPRIATE "COVER MEASURES" TO PROTECT SLOPES FROM EROSION AND AS A DUST CONTROL. DIVERT UPSLOPE DRAINAGE AT TOP OF SLOPES AWAY FROM GRADING OPERATIONS. SEGREGATE OFF-SITE STORMWATER FROM ON-SITE STORMWATER, BYPASS AND DISSIPATE AS NEEDED.
ELEMENT #7 "PROTECT DRAIN INLETS"	(STORMDRAIN INLET PROTECTION, INTERCEPTOR DIKE AND SWALE) – ALL OPERABLE INLETS SHALL BE PROTECTED AND MAINTAINED WITH A SEDIMENT FILTER DEVICE. SEDIMENT AND STREET WASH WATER SHALL NOT ENTER STORM DRAIN INLETS WITHOUT PRIOR TREATMENT UNLESS THE STORM DRAIN DISCHARGES TO A SEDIMENT TREATMENT FACILITY (DETENTION POND, BIOSWALE, ETC... PRIOR TO RELEASE TO WATERS OF THE STATE. WHENEVER FEASIBLE, DIVERT STORMWATER RUNOFF AWAY FROM INLETS TO SWALES, DITCHES, TRAPS, ETC...).
ELEMENT #8 "STABILIZE CHANNELS AND OUTLETS"	(CHANNEL LINING, OUTLET PROTECTION, EROSION CONTROL BLANKETS, MATTING AND NETS, SODDING AND/OR PERMANENT SEEDING) – TEMPORARY ON-SITE CONVEYANCE CHANNELS SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED TO PREVENT EROSION FROM THE EXPECTED 2-YEAR, 24-HOUR FREQUENCY STORM. STABILIZATION INCLUDING ARMORING MATERIAL ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAMBANKS, SLOPES AND DOWNSTREAM REACHES SHALL BE PROVIDED AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

ELEMENT REQUIREMENTS	BEST MANAGEMENT PRACTICES
ELEMENT #9 "CONTROL POLLUTANTS"	(CONCRETE HANDLING, SAWCUTTING AND SURFACE POLLUTION PREVENTION, PAINT AND/OR LEAD REMOVAL, FUGITIVE DUST CONTROL) – ALL POLLUTANTS INCLUDING WASTE MATERIALS, DEMOLITION DEBRIS, WHEEL WASH WATER, SHALL BE HANDLED AND DISPOSED OF IN A MANNER TO PREVENT STORMWATER CONTAMINATION. COVER, CONTAINMENT AND PROTECTION FROM VANDALISM AND SPILLS SHALL BE PROVIDED FOR ALL EQUIPMENT, CHEMICALS, LIQUID, PETROLEUM AND INERT WASTES. ADEQUATE BMP'S SHALL BE IMPLEMENTED FOR PH MODIFYING SOURCES TO ENSURE STORMWATER DISCHARGES DO NOT CAUSE A VIOLATION OF THE WATER QUALITY STANDARD FOR PH. THESE SOURCES INCLUDE BULK CEMENT, KILN DUSTS, FLY ASH, NEW CONCRETE WASHING AND CURING, CONCRETE GRINDING AND SAW CUTTING WASTE STREAMS, CONCRETE PUMPING AND MIXER WASHOUT, ETC... A CONTAINMENT TARP AS SPECIFIED SHALL BE USED TO ISOLATE RUNOFF FROM WET OR CURING CONCRETE.
ELEMENT #10 "CONTROL DEWATERING"	(SEDIMENT TRAP, SEDIMENT BAG, SANITARY SEWER DISCHARGE W/ DISTRICT APPROVAL, TRANSPORT OFF SITE, VEGETATED FILTER STRIP, INFILTRATION) – FOUNDATION, VAULT, PILING, TRENCH DEWATERING, AND WHEEL WASH WATER SHALL BE DISCHARGED INTO A CONTROLLED CONVEYANCE SYSTEM PRIOR TO DISCHARGE TO A SEDIMENT POND. CLEAN NON-TURBID DEWATERING WATER SUCH AS WELL-POINT SOURCE GROUNDWATER, MAY BE DISCHARGED TO VEGETATED FILTER STRIPS OR TRIBUTARIES, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. CLEAN WATERS, SHOULD NOT BE ROUTED THROUGH STORMWATER SEDIMENT POND. ACCEPTABLE DISPOSAL OPTIONS INCLUDE INFILTRATION, OFFSITE TRANSPORT, SANITARY SEWER DISCHARGE WITH DISTRICT APPROVAL, SEDIMENTATION BAG WITH OUTFALL TO VEGETATED DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING. ONSITE CHEMICAL TREATMENT OR OTHER SUITABLE TECHNOLOGIES AS D.O.E. APPROVED.
ELEMENT #11 "MAINTAIN BMP'S"	TEMPORARY AND PERMANENT TESC AND POLLUTANT BMP'S SHALL BE INSTALLED PER THE PROJECT PLANS, SPECIFICATIONS, AND CONTRACT AGENCY DIRECTION. THEY SHALL BE "MAINTAINED AND REPAIRED" AS NECESSARY TO ENSURE THEIR CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. SEDIMENT CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER A RUNOFF PRODUCING STORM EVENT DURING THE DRY SEASON AND DAILY DURING THE WET SEASON. BMP'S SHALL ONLY BE REMOVED 30 DAYS AFTER THE FINAL SITE STABILIZATION IS ACHIEVED AS DIRECTED BY THE CONTRACTING AGENCY. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL RESULTING FROM THE REMOVAL OF BMP'S OR VEGETATION SHALL BE PERMANENTLY STABILIZED. A PROJECT RECORD OR LOG SHALL BE KEPT OF ALL BMP MEASURES IMPLEMENTED WITH DATES OF INSTALLATION, MAINTENANCE, STORM EVENTS, REQUIRED WATER QUALITY SAMPLING, REPAIR AND ACTION TAKEN TO PREVENT AND/OR CORRECT IMPACTS. FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 7 DAYS. SELECTED SOIL STABILIZATION MEASURES SHALL BE IMPLEMENTED MAINTAINED AND APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, EXPOSURE AND ORIENTATION, DURATION OF USE AND IMPACTS TO WATER QUALITY AND GROUND WATER.
ELEMENT #12 "MANAGE THE PROJECT"	(PHASE CONSTRUCTION, SEASONAL WORK LIMITATIONS) – CONSTRUCTION SHALL BE PHASED WHERE FEASIBLE TO THE MAXIMUM EXTENT PRACTICAL, THE TRANSPORT OF SEDIMENT FROM CLEARING AND GRUBBING AND GRADING OPERATIONS. STABILIZATION AND MAINTENANCE SHALL BE AN INTEGRAL PART OF EACH CONSTRUCTION PHASE. THE CONTRACTING AGENCY MAY IMPOSE SEASONAL LIMITATIONS DURING THE WET SEASON (OCTOBER 1 – APRIL 30) ON CLEARING, GRUBBING, AND GRADING OPERATIONS BASED ON SOILS, SLOPES, VEGETATIVE COVER, WEATHER, ETC... TO PREVENT THE TRANSPORT OF SEDIMENT FROM THE CONSTRUCTION SITE TO RECEIVING WATERS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL DESIGNATE THEIR CERTIFIED EROSION AND SEDIMENT CONTROL PROFESSIONAL(S) WHOM SHALL BE ON-SITE OR, ON CALL AT ALL TIMES WITH AUTHORITY TO TAKE QUICK ACTION TO CORRECT AND/OR IMPLEMENT EFFECTIVE BMP'S. WHENEVER INSPECTION, MONITORING AND SAMPLING REVEALS THAT BMP'S IDENTIFIED IN THE SWPPP ARE INADEQUATE, DUE TO THE ACTUAL OR POTENTIAL DISCHARGE OF SIGNIFICANT AMOUNTS OF ANY POLLUTANT, THE SWPPP SHALL BE MODIFIED AS DIRECTED BY THE CONTRACTING AGENCY. THE SWPPP SHALL BE RETAINED ON-SITE AND MODIFIED AND DOCUMENTED WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE PROJECT DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE OF ANY BMP.

FIELD BOOK: _____				
SURVEYED: _____				
SURVEY BASE MAP: _____				
DESIGN ENTERED: L. JOHNSON				
DESIGNED: E. ANDERS				
CHECKED: JIM RHODES				
SUPERVISOR: SALIMA NAGJI				
	NUM.	REVISION	BY	DATE



FED. AID No. \_\_\_\_\_  
PROJECT No. 300197  
SURVEY No. 32-24-4-22  
MAINTENANCE DIVISION No. \_\_\_\_\_

**95% SUBMITTAL  
NOT FOR  
CONSTRUCTION**

**KING COUNTY DEPT. OF TRANSPORTATION**  
HAROLD TANIGUCHI, DIRECTOR  
**SOUTH PARK BRIDGE #3179  
REPLACEMENT**

EROSION CONTROL PLAN – GENERAL – 2



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**MINIMUM REQUIREMENTS (CONTINUED)**

**MINIMUM REQUIREMENT #3 – SOURCE CONTROL OF POLLUTION**

ALL KNOWN, AVAILABLE AND REASONABLE TECHNOLOGIES (AKART) FOR SOURCE CONTROL OF BMP'S SHALL BE APPLIED THROUGHOUT CONSTRUCTION. SOURCE CONTROL BMP'S (I.E. PRESERVING NATURAL VEGETATION, STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SEEDING, ETC...) WERE DESIGNED IN ACCORDANCE WITH THIS MANUAL AND SHALL BE MAINTAINED WITH THE INTENT THEREIN. THE PRIMARY INTENTION OF THE SOURCE CONTROL BMP'S IS TO PREVENT STORMWATER FROM COMING INTO CONTACT WITH POLLUTANTS. WHEN PROPERLY INSTALLED AND MAINTAINED, THEY ARE AN EFFECTIVE METHOD IN REDUCING POLLUTANTS IN STORMWATER AND SHALL BE INSTALLED IN THE INITIAL PHASE OF CONSTRUCTION TO COINCIDE WITH THE RELATED CONSTRUCTION ACTIVITIES.

**MINIMUM REQUIREMENT #4 – PRESERVATION OF NATURAL DRAINAGE SYSTEMS**

NATURAL DRAINAGE PATTERNS WILL BE MAINTAINED AND DISCHARGES FROM THE PROJECT SITE ARE TO OCCUR AT THE NATURAL DRAINAGE LOCATION TO THE MAXIMUM EXTENT PRACTICAL. THE METHOD OF RUNOFF DISCHARGED FROM THE PROJECT SITE SHALL NOT CAUSE A SIGNIFICANT ADVERSE IMPACT TO DOWNSTREAM RECEIVING WATERS AND DOWNSTREAM GRADIENT PROPERTIES. ALL OUTFALLS SHALL BE PROPERLY PROVIDED WITH ENERGY DISSIPATION AS DESCRIBED IN THE PLANS. THE PRIMARY OBJECTIVE IS TO PRESERVE AND UTILIZE THE NATURAL DRAINAGE SYSTEMS TO THE FULLEST EXTENT POSSIBLE TO PREVENT EROSION AT AND DOWNSTREAM OF THE DISCHARGE LOCATION.

**MINIMUM REQUIREMENT #5 – ON-SITE STORMWATER MANAGEMENT**

THIS PROJECT WILL EMPLOY ON-SITE STORMWATER MANAGEMENT BMP'S TO INFILTRATE RUNOFF TO DITCHES AND/OR SWALES, DISPERSE CONCENTRATED FLOWS TO DITCHES AND SEDIMENT TRAPS AND RETAIN STORMWATER FOR POLLUTANT SETTLING ON-SITE TO THE MAXIMUM EXTENT FEASIBLE WITHOUT CAUSING FLOODING OR EROSION IMPACTS. THE PRIMARY INTENT OF THIS REQUIREMENT IS TO "REDUCE THE AMOUNT OF DISRUPTION IN THE NATURAL HYDROLOGIC CHARACTERISTICS OF THE PROJECT SITE."

**MINIMUM REQUIREMENT #6 – RUNOFF TREATMENT**

THIS PROJECT REQUIRES THE CONSTRUCTION OF A PERMANENT STORMWATER FACILITY (I.E. WATER QUALITY WET VAULT, RAIN GARDEN, BIOFILTRATION SWALE) BECAUSE IT MEETS ONE OR BOTH OF THE FOLLOWING THRESHOLDS:

- 5,000 SQUARE FEET OR MORE OF POLLUTION GENERATING IMPERVIOUS SURFACES (PGIS) IN A THRESHOLD DISCHARGE AREA OF THE PROJECT;
- A TOTAL OF 3/4 ACRES OR MORE OF PGIS IN A THRESHOLD DISCHARGE AREA AND FROM WHICH THERE IS A SURFACE DISCHARGE IN A NATURAL OR MAN-MADE CONVEYANCE SYSTEM FROM THE SITE.

THE PERMANENT WATER QUALITY STORMWATER FACILITIES (INCLUDED IN THE PLANS SET) ARE INTENDED TO COMPLY WITH THE TREATMENT SIZING REQUIREMENT OF THE 6-MONTH, 24-HOUR STORM EVENT, THE TOTAL SUSPENDED SOLID REMOVAL (TSS), AND APPLICABLE RELEASE RATES OF THE SMMPs.

**MINIMUM REQUIREMENT #7 – FLOW CONTROL**

PROJECTS MUST PROVIDE FLOW CONTROL TO REDUCE THE IMPACTS OF INCREASED STORMWATER RUNOFF FROM NEW IMPERVIOUS SURFACES AND LAND COVER CONVERSIONS. FLOW CONTROL RATES FOR STORMWATER FACILITIES ON KING COUNTY PROJECTS ARE DESIGNED TO COMPLY WITH STORMWATER DISCHARGES THAT MATCH DEVELOPED DISCHARGE DURATIONS TO PRE-DEVELOPED DURATIONS FOR THE RANGE OF PRE-DEVELOPED RATES FROM 50% OF THE 2-YEAR PEAK FLOW UP TO THE FULL 50-YEAR PEAK FLOW. ADDITIONALLY, FLOW CONTROL BMP'S ARE SELECTED, DESIGNED, AND MAINTAINED IN ACCORDANCE WITH THE CURRENT KING COUNTY SURFACE WATER MANAGEMENT MANUAL APPROVED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY. NOTE: THIS PROJECT IS FLOW CONTROL EXEMPT DUE TO THE PROXIMITY OF THE PROJECT TO A WATER OF THE STATE.

**MINIMUM REQUIREMENT #8 – WETLANDS PROTECTION**

THIS REQUIREMENT ONLY APPLIES TO PROJECTS WHOSE STORMWATER DISCHARGES INTO A WETLAND EITHER DIRECTLY OR INDIRECTLY THROUGH A CONVEYANCE SYSTEM. THERE ARE NO WETLANDS ON THIS PROJECT.

**MINIMUM REQUIREMENT #9 – BASIN/WATERSHED PLANNING**

THE PRIMARY OBJECTIVE IS TO PROMOTE WATERSHED-BASED PLANNING AS A MEANS TO DEVELOP AND IMPLEMENT COMPREHENSIVE WATER QUALITY PROTECTION MEASURES. PRIMARY OBJECTIVES OF BASIN PLANNING ARE TO REDUCE POLLUTANT LOADS AND HYDROLOGIC IMPACTS TO SURFACE AND GROUNDWATERS.

**MINIMUM REQUIREMENT #10 – OPERATIONS AND MAINTENANCE**

THE PRIMARY OBJECTIVE IS TO ENSURE THAT STORMWATER CONTROL FACILITIES ARE ADEQUATELY MAINTAINED AND OPERATED PROPERLY. KING COUNTY DEPARTMENT OF TRANSPORTATION – ROAD SERVICES DIVISION DEVELOPED A BEST MANAGEMENT PRACTICE MAINTENANCE MANUAL FOR IMPLEMENTING SCHEDULED MAINTENANCE OPERATIONS OF ITS STORMWATER FACILITIES IN CONCERT WITH THE RECOMMENDATION FOR TREATMENT AND MAINTENANCE IN VOLUME V OF THE SMMPs TO ENSURE THEIR CONTINUED PROPER OPERATION.

**RECOMMENDED TESC CONSTRUCTION SEQUENCE**

1. PRE-CONSTRUCTION MEETING.
2. INSTALL TRAFFIC CONTROL AND DETOUR SIGNING.
3. FLAG AND/OR FENCE CLEARING LIMITS AND INSTALL PERIMETER PROTECTION FOR INSPECTION BY ENGINEER.
4. POST CONSTRUCTION SIGN WITH NAME AND PHONE NUMBER OF TESC CONTRACTOR.
5. INSTALL INLET PROTECTION AND SILT FENCE WHERE REQUIRED.
6. GRADE AND INSTALL CONSTRUCTION/PARKING ENTRANCE(S) AND STAGING AREAS AS NEEDED.
7. GRADE AND STABILIZE CONSTRUCTION ROADS.
8. CONSTRUCT TEMPORARY AND PERMANENT SURFACE WATER CONTROLS (BERMS, DITCHES, AND STORM SYSTEM) SIMULTANEOUSLY WITH CLEARING AND GRADING. SEED AND INSTALL MATTING TO STABILIZE AS DIRECTED BY ENGINEER.
9. CONSTRUCT TEMPORARY SEDIMENT TRAPS, AND TREATMENT MECHANISM TO ADDRESS SEDIMENT REMOVAL, pH, AND REMOVE WATERBORNE CONTAMINANTS PRIOR TO DISCHARGE.
10. CONSTRUCT THE STORM DRAINAGE INTERCEPTOR AND CONNECT TO THE EXISTING OUTFALL TO ROUTE OFFSITE STORMWATER RUNOFF OUT OF THE PROJECT WORK AREA.
11. ESTABLISH A METHOD TO CONTAIN SOILS AND RUNOFF FROM CONTAMINATED SOILS PRIOR TO GRADING. STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING, AND A STORMWATER RECOLLECTION SYSTEM SHALL BE IN PLACE TO COLLECT THE RUNOFF AND TREATED PRIOR TO DISCHARGE. CONTAMINATED SOILS AND/OR STORMWATER RUNOFF SHALL BE DISPOSED OF IN AN APPROVED FACILITY.
12. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE BMPS ARE ALWAYS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SMMPs. SURFACE ROUGHEN OR TEXTURE ALL "CUT" SLOPES PRIOR TO SOIL PLACEMENT AND SEEDING.
13. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN SEVEN DAYS IN DRY SEASON OR WITHIN TWO DAYS DURING WET SEASON.
14. SEED OR COVER ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
15. THE TEMPORARY TRESTLE SHALL HAVE A SEDIMENT CONTAINMENT SYSTEM IN PLACE PRIOR TO CONSTRUCTION ACTIVITY ON THE TRESTLE. SWEEPING SHALL BE DONE TO KEEP THE TRESTLE CLEAN AND FREE OF ANY DEBRIS.
16. FUELING OF EQUIPMENT IN THE WATER (ON BARGES) SHALL BE CONDUCTED WITH CONTAINMENT SYSTEMS TO PREVENT SPILLING INTO THE RIVER, A SPILL PREVENTION PLAN SHALL BE ESTABLISHED PRIOR TO FUELING ACTIVITIES.
17. ONCE ALL SURFACES HAVE BEEN STABILIZED, REMOVE SEDIMENT TRAPS/SUMPS AND CONSTRUCT PERMANENT RAIN GARDEN AND BIOFILTRATION SWALE. THE UNDERGROUND WET VAULT SHALL BE CLEANED AND CONVERTED FOR USE AS A WATER QUALITY WET VAULT.
18. SET UP BRIDGE DEBRIS CONTAINMENT AND WASH/SWEEP BRIDGE BEFORE DEMOLITION.
19. ESTABLISH A DEBRIS CONTAINMENT SYSTEM PRIOR TO REMOVAL OF THE FENDER SYSTEM AND TEMPORARY TRESTLES. ALL IN-WATER WORK SHALL BE COORDINATED WITH FISH WINDOWS, COAST GUARD REGULATIONS, TIDES, AND RIVER CONDITIONS.
20. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BMPS REMOVED, AS DIRECTED BY THE ENGINEER.

**GENERAL NOTES**

- ① SILT FENCE AND/OR HIGH VISIBILITY FENCE PER DETAIL 4 ON SHEET ED01.
- ② TEMPORARY CONSTRUCTION FENCE.
- ③ CONSTRUCT TEMPORARY CURB.
- ④ BUILD SUMP/SEDIMENT TRAP TO COLLECT RUNOFF AND COVER WITH 8 MIL PLASTIC AND ANCHORED.
- ⑤ INSTALL TEMPORARY SEDIMENT REMOVAL AND WATER QUALITY TREATMENT SYSTEM.
- ⑥ CONSTRUCT INTERCEPTOR DRAINAGE SYSTEM, SEE DRAINAGE PLANS FOR DETAILS.
- ⑦ INSTALL COIR LOG ALONG TOP OF BANK PER DETAIL 2 ON SHEET ED01.
- ⑧ SAND DRAINAGE BLANKET.
- ⑨ AFTER GRADING BANKS, PLACE EROSION CONTROL BLANKET PER DETAIL 1 ON SHEET ED01.
- ⑩ HIGH VISIBILITY FENCE HUNG ON TEMPORARY CONSTRUCTION FENCE.
- ⑪ VAULT AND PIPE SYSTEM PER DRAINAGE PLAN.
- ⑫ GRADE QUARRY SPALL PIT FOR WATER COLLECTION AND REMOVAL PER DETAIL 3 ON SHEET ED02.
- ⑬ AFTER DEMOLITION OF EXISTING BUILDINGS AND BRICK ROAD, PLACE QUARRY SPALLS OVER EXPOSED SOILS. SALVAGE AND STOCKPILE BRICK FOR FUTURE USE.
- ⑭ CONTAMINATED SOILS STOCKPILE AREA. PLASTIC COVERING SHALL BE USED ON ALL EXPOSED SOILS ON STOCKPILES (TYP.). SEE DETAIL 4 ON SHEET ED02.
- ⑮ HIGH SECURITY FENCE AND GATE, SEE FENCING PLANS FOR LOCATION AND DETAILS.
- ⑯ ONCE PIERS HAVE BEEN CONSTRUCTED, REMOVE TOP 1 FOOT OF SPALLS AND CONSTRUCTION GEOTEXTILE FOR SEPARATION, THEN COMPACT SELECT BORROW IN QUARRY SPALL PIT AND GRADE TO DRAIN AWAY FROM PIERS.
- ⑰ PROPOSED DRAINAGE SYSTEM, SEE DRAINAGE PLANS FOR DETAILS AND TRAFFIC CONTROL PLANS FOR WORK ZONE BOUNDARIES.
- ⑱ CONSTRUCT TEMPORARY PIPE FOR OFFSITE DRAINAGE COLLECTION TO BOAT ACCESS ROAD.
- ⑲ CONSTRUCT TEMPORARY SCHEDULE A 8 IN. DIAM. PIPE TO OUTFALL AT SUMP.
- ⑳ REMOVE TEMPORARY CULVERT AND PLUG KNOCKOUT.
- ㉑ PLACE TEMPORARY STRAW BALES AROUND PIPE INLETS FOR INLET PROTECTION.
- ㉒ CONSTRUCT DEBRIS CONTAINMENT SYSTEM.
- ㉓ CONSTRUCT TEMPORARY CONTROL SHEETING FOR SHORELINE RESTORATION. SEE DETAIL 2 ON SHEET ED03
- ㉔ HIGH VISIBILITY FENCE HUNG ON HIGH SECURITY FENCE.

FIELD BOOK:				
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SURVEY BASE MAP:				
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DESIGNED:	E. ANDERS			
CHECKED:	JIM RHODES			
SUPERVISOR:	SALIMA NAGJI			
	NUM.	REVISION	BY	DATE



FED. AID No.	
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SURVEY No.	32-24-4-22
MAINTENANCE DIVISION No.	

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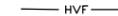
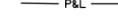
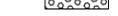
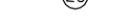
**KING COUNTY DEPT. OF TRANSPORTATION**  
 HAROLD TANGUCHI, DIRECTOR  
**SOUTH PARK BRIDGE #3179  
 REPLACEMENT**  
 EROSION CONTROL PLAN – GENERAL – 3



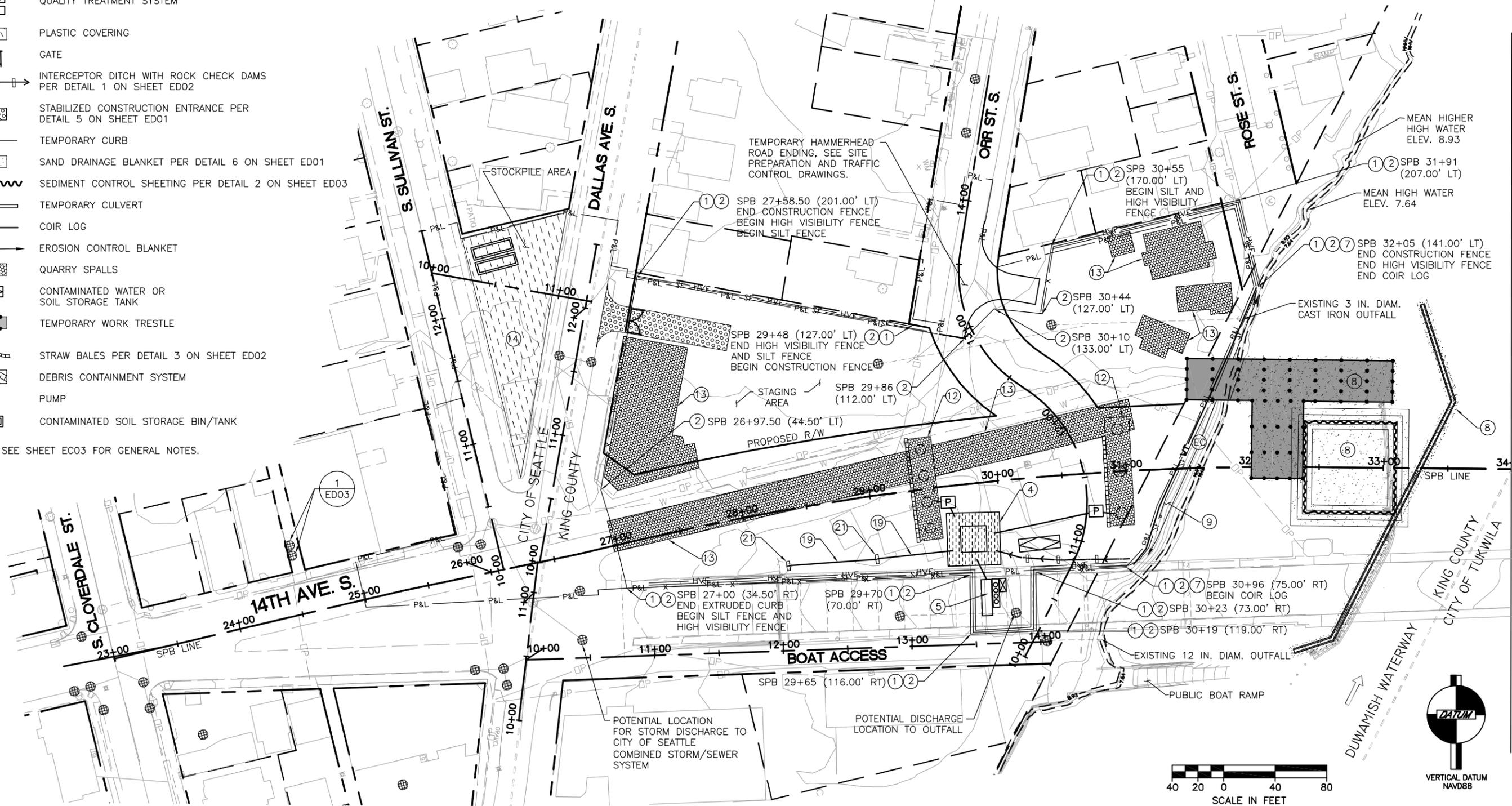
EC03
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<b>316-63 ( )</b>

SEC. 32, T.24 N, R.4 E, W.M.

**LEGEND**

-  SILT FENCE
-  HIGH VISIBILITY FENCE
-  PHASING AND CLEARING/CONSTRUCTION LIMITS (SEE SITE PREP PLANS)
-  TEMPORARY CONSTRUCTION FENCE
-  INLET PROTECTION PER DETAIL 3 ON SHEET ED01
-  SEDIMENT REMOVAL AND WATER QUALITY TREATMENT SYSTEM
-  PLASTIC COVERING
-  GATE
-  INTERCEPTOR DITCH WITH ROCK CHECK DAMS PER DETAIL 1 ON SHEET ED02
-  STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 5 ON SHEET ED01
-  TEMPORARY CURB
-  SAND DRAINAGE BLANKET PER DETAIL 6 ON SHEET ED01
-  SEDIMENT CONTROL SHEETING PER DETAIL 2 ON SHEET ED03
-  TEMPORARY CULVERT
-  COIR LOG
-  EROSION CONTROL BLANKET
-  QUARRY SPALLS
-  CONTAMINATED WATER OR SOIL STORAGE TANK
-  TEMPORARY WORK TRESTLE
-  STRAW BALES PER DETAIL 3 ON SHEET ED02
-  DEBRIS CONTAINMENT SYSTEM
-  PUMP
-  CONTAMINATED SOIL STORAGE BIN/TANK

NOTE: SEE SHEET EC03 FOR GENERAL NOTES.



MATCHLINE SPB STA. 34+00  
SEE SHEET EC05

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EROSION CONTROL PLAN - PHASE 1 - 1



**316-63** ( )

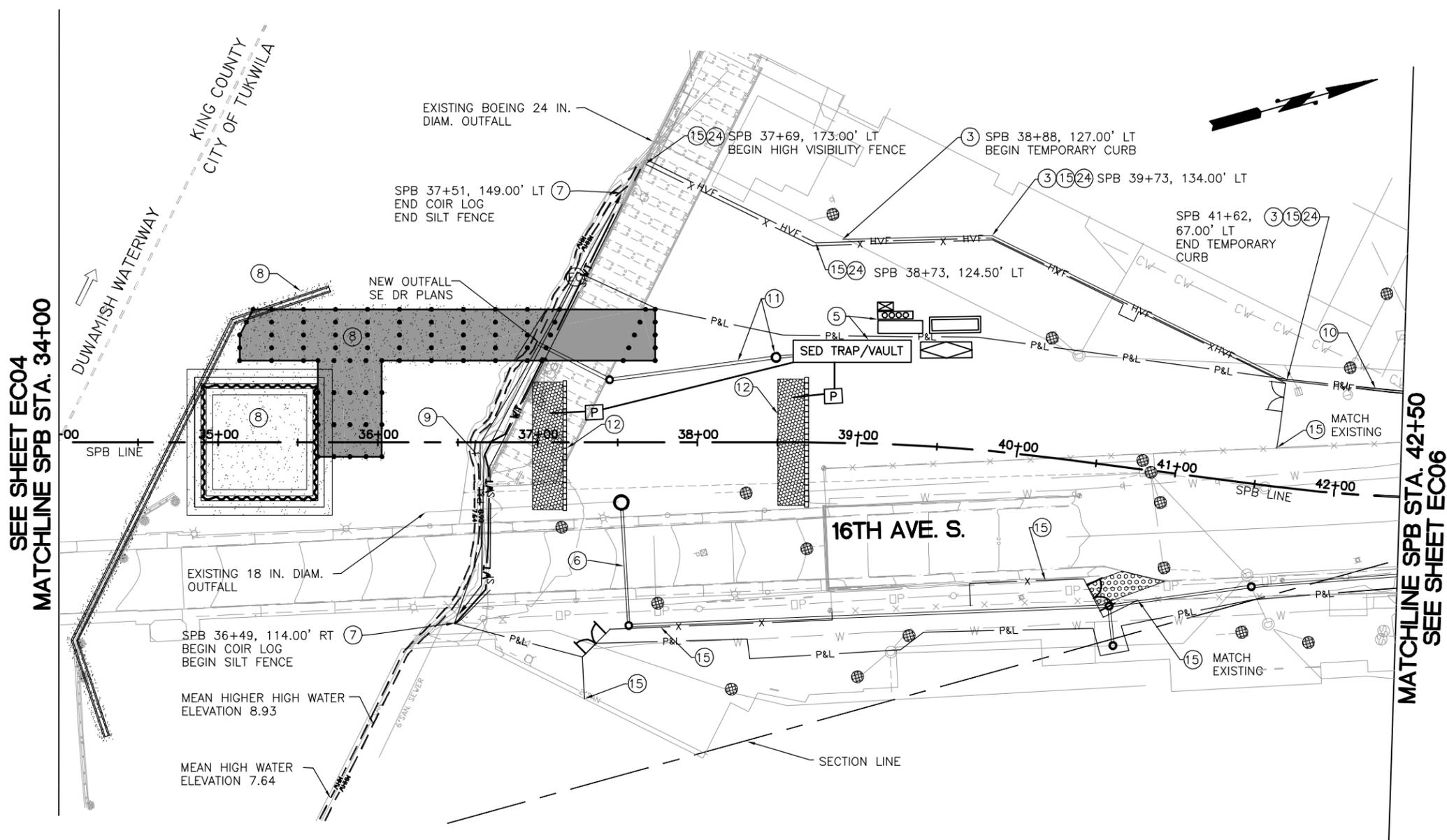
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**LEGEND**

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 EROSION CONTROL PLAN - PHASE 1 - 2



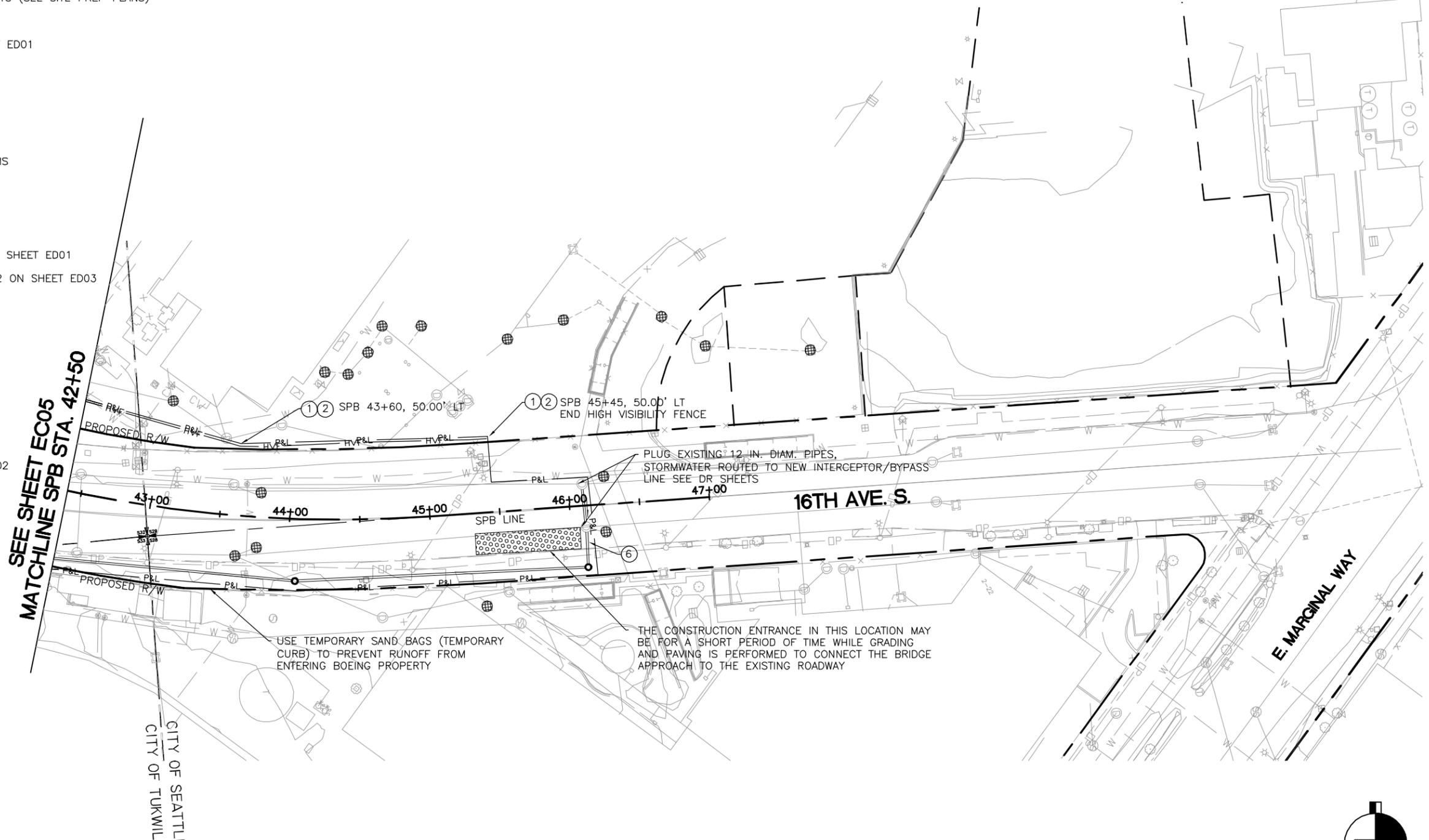
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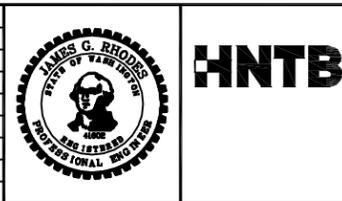
**LEGEND**

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- hvf — HIGH VISIBILITY FENCE
- P&L — PHASING AND CLEARING/CONSTRUCTION LIMITS (SEE SITE PREP PLANS)
- x — TEMPORARY CONSTRUCTION FENCE
- ⊕ INLET PROTECTION PER DETAIL 3 ON SHEET ED01
- ☒ SEDIMENT REMOVAL AND WATER QUALITY TREATMENT SYSTEM
- ▨ PLASTIC COVERING
- ⌒ GATE
- |→|→|→| INTERCEPTOR DITCH WITH ROCK CHECK DAMS PER DETAIL 1 ON SHEET ED02
- ⊠ STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 5 ON SHEET ED01
- TEMPORARY CURB
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EROSION CONTROL PLAN - PHASE 1 - 3

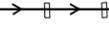
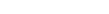
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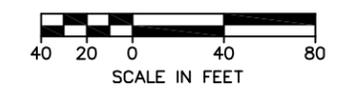
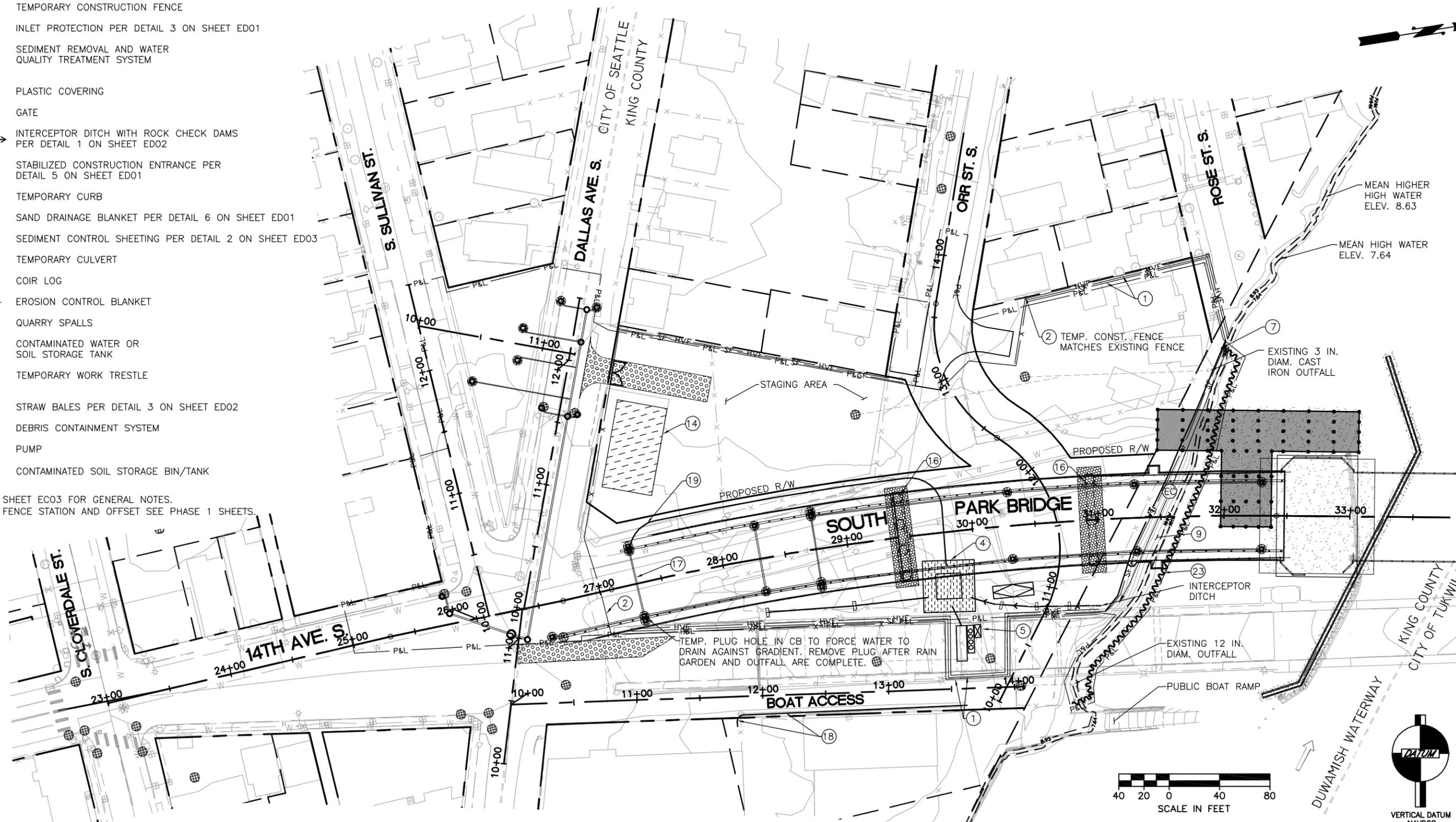
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SEC. 32, T.24 N, R.4 E, W.M.

**LEGEND**

-  SILT FENCE
-  HIGH VISIBILITY FENCE
-  PHASING AND CLEARING/CONSTRUCTION LIMITS (SEE SITE PREP PLANS)
-  TEMPORARY CONSTRUCTION FENCE
-  INLET PROTECTION PER DETAIL 3 ON SHEET ED01
-  SEDIMENT REMOVAL AND WATER QUALITY TREATMENT SYSTEM
-  PLASTIC COVERING
-  GATE
-  INTERCEPTOR DITCH WITH ROCK CHECK DAMS PER DETAIL 1 ON SHEET ED02
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-  CONTAMINATED WATER OR SOIL STORAGE TANK
-  TEMPORARY WORK TRESTLE
-  STRAW BALES PER DETAIL 3 ON SHEET ED02
-  DEBRIS CONTAINMENT SYSTEM
-  PUMP
-  CONTAMINATED SOIL STORAGE BIN/TANK

NOTE: SEE SHEET EC03 FOR GENERAL NOTES.  
FOR FENCE STATION AND OFFSET SEE PHASE 1 SHEETS.



MATCHLINE SPB STA. 34+00  
SEE SHEET EC08

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**SOUTH PARK BRIDGE #3179  
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EROSION CONTROL PLAN - PHASE 2 - 1

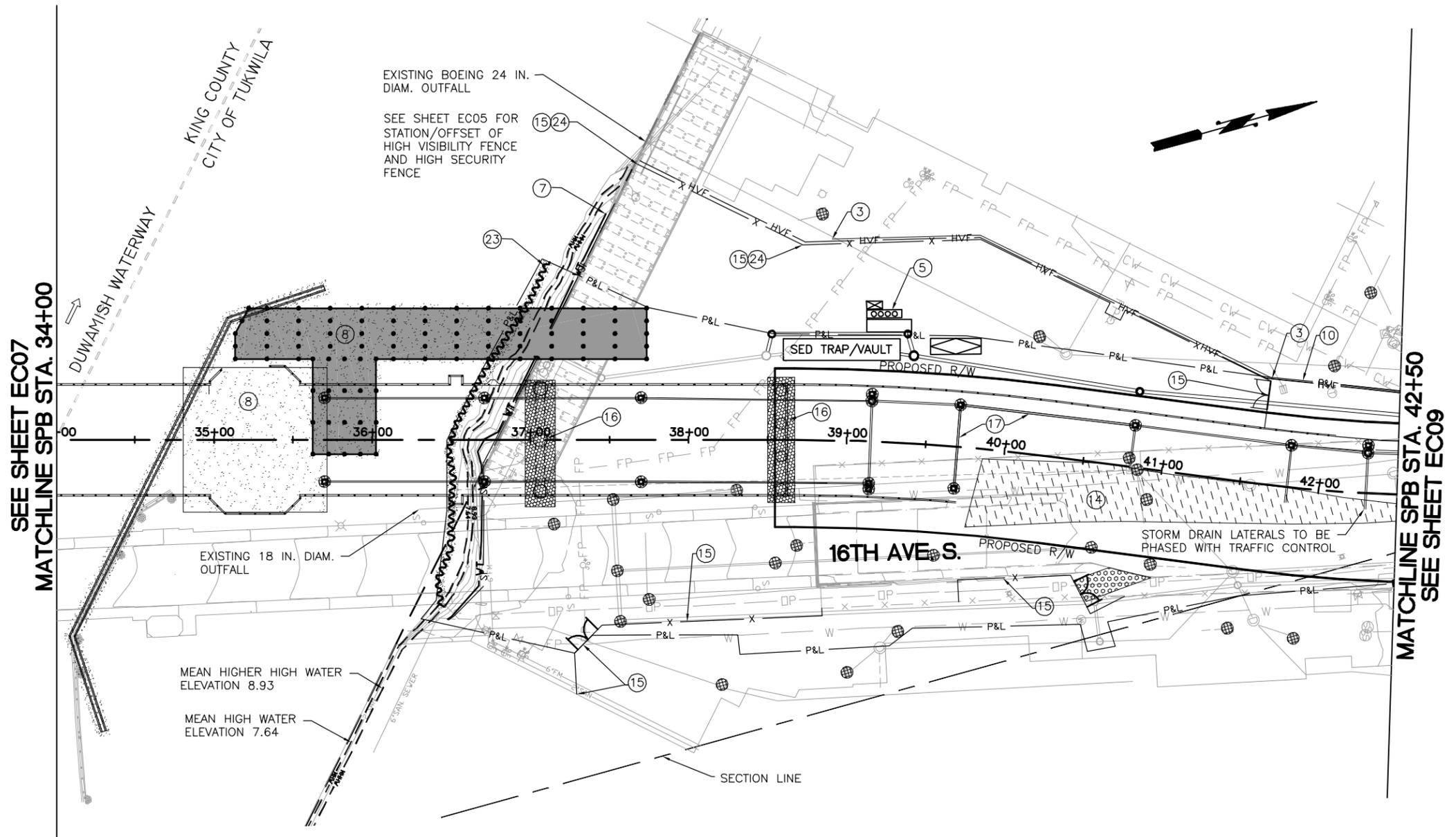
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SEC. 32, T.24 N, R.4 E, W.M.

**LEGEND**

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- HVF — HIGH VISIBILITY FENCE
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EC08  
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 OF  
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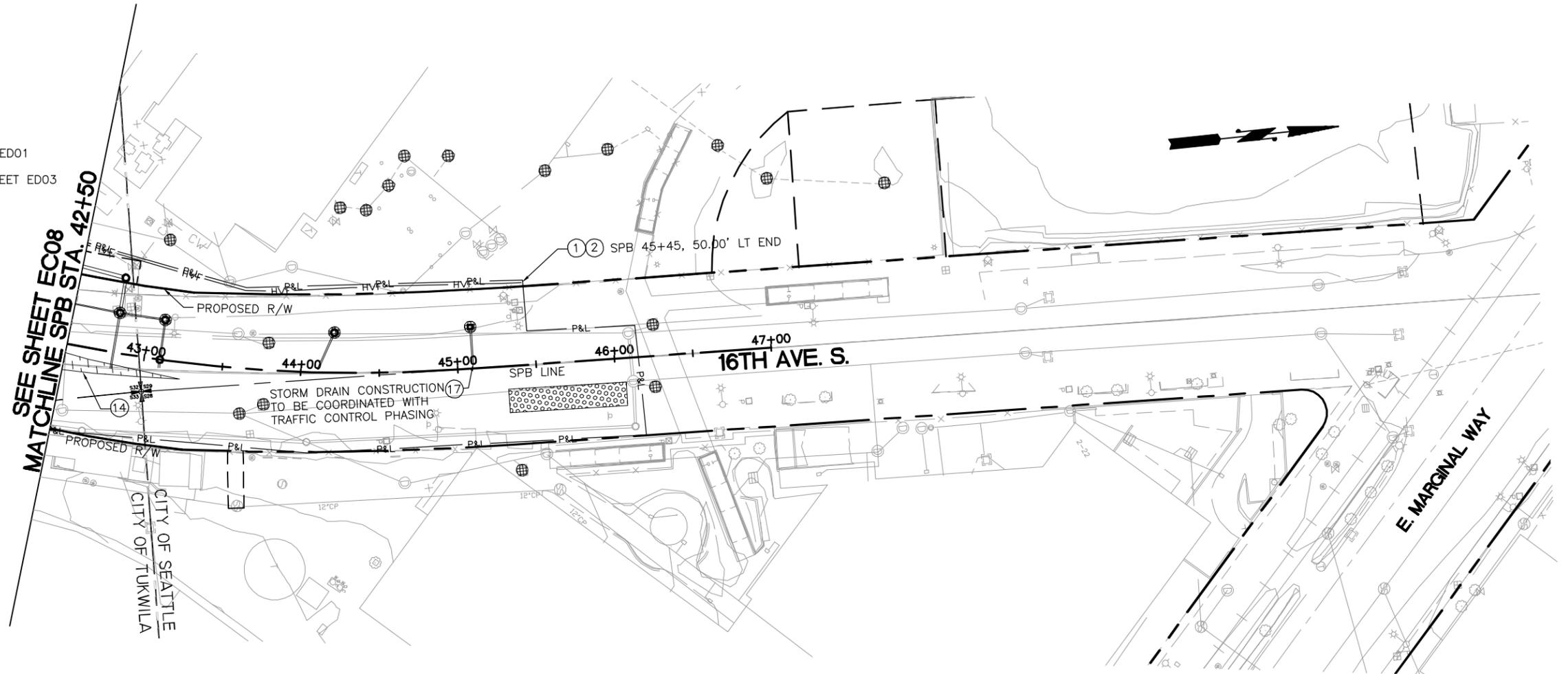
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- ▨ QUARRY SPALLS
- ▨ CONTAMINATED WATER OR SOIL STORAGE TANK
- ▨ TEMPORARY WORK TRESTLE
- ▨ STRAW BALES PER DETAIL 3 ON SHEET ED02
- ▨ DEBRIS CONTAINMENT SYSTEM
- ⊠ PUMP
- ▨ CONTAMINATED SOIL STORAGE BIN/TANK

NOTE: SEE SHEET EC03 FOR GENERAL NOTES.



FIELD BOOK:				
SURVEYED:				
SURVEY BASE MAP:				
DESIGN ENTERED:	L. JOHNSON			
DESIGNED:	E. ANDERS			
CHECKED:	JIM RHODES			
SUPERVISOR:	SALIMA NAGJI			
	NUM.	REVISION	BY	DATE



FED. AID No. \_\_\_\_\_  
 PROJECT No. 300197  
 SURVEY No. 32-24-4-22  
 MAINTENANCE DIVISION No. \_\_\_\_\_

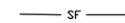
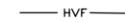
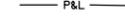
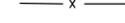
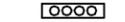
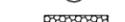
**95% SUBMITTAL  
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 CONSTRUCTION**

KING COUNTY DEPT. OF TRANSPORTATION  
 HAROLD TANIGUCHI, DIRECTOR  
**SOUTH PARK BRIDGE #3179  
 REPLACEMENT**  
 EROSION CONTROL PLAN - PHASE 2 - 3

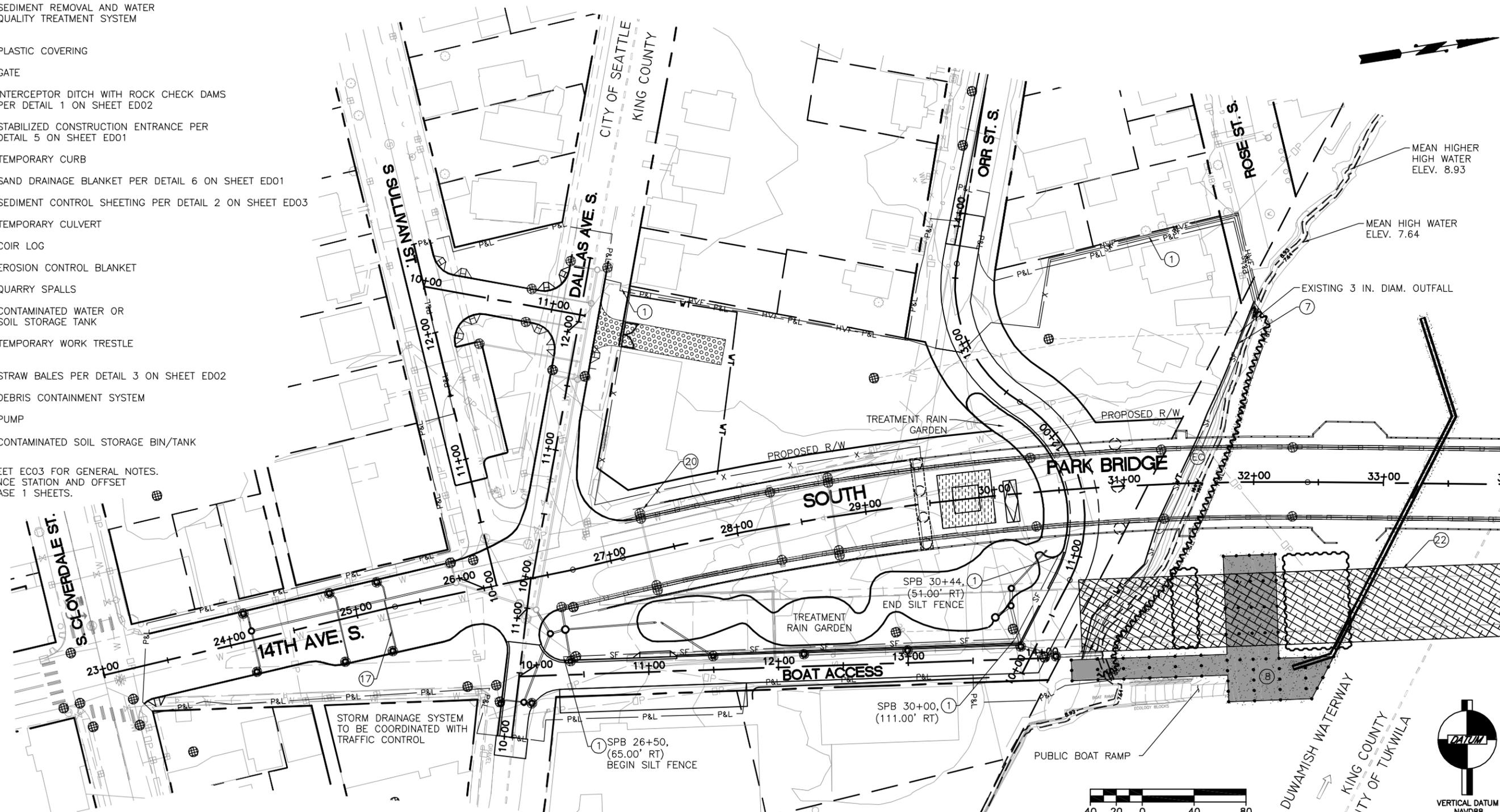
EC09  
 SHEET OF SHEETS  
**316-63 ( )**

SEC. 32, T.24 N, R.4 E, W.M.

**LEGEND**

-  SILT FENCE
-  HIGH VISIBILITY FENCE
-  PHASING AND CLEARING/CONSTRUCTION LIMITS (SEE SITE PREP PLANS)
-  TEMPORARY CONSTRUCTION FENCE
-  INLET PROTECTION PER DETAIL 3 ON SHEET ED01
-  SEDIMENT REMOVAL AND WATER QUALITY TREATMENT SYSTEM
-  PLASTIC COVERING
-  GATE
-  INTERCEPTOR DITCH WITH ROCK CHECK DAMS PER DETAIL 1 ON SHEET ED02
-  STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 5 ON SHEET ED01
-  TEMPORARY CURB
-  SAND DRAINAGE BLANKET PER DETAIL 6 ON SHEET ED01
-  SEDIMENT CONTROL SHEETING PER DETAIL 2 ON SHEET ED03
-  TEMPORARY CULVERT
-  COIR LOG
-  EROSION CONTROL BLANKET
-  QUARRY SPALLS
-  CONTAMINATED WATER OR SOIL STORAGE TANK
-  TEMPORARY WORK TRESTLE
-  STRAW BALES PER DETAIL 3 ON SHEET ED02
-  DEBRIS CONTAINMENT SYSTEM
-  PUMP
-  CONTAMINATED SOIL STORAGE BIN/TANK

NOTE: SEE SHEET EC03 FOR GENERAL NOTES.  
FOR FENCE STATION AND OFFSET  
SEE PHASE 1 SHEETS.



MATCHLINE SPB STA. 34+00  
SEE SHEET EC11

FIELD BOOK:				
SURVEYED:				
SURVEY BASE MAP:				
DESIGN ENTERED:	L. JOHNSON			
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CHECKED:	JIM RHODES			
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FED. AID No. \_\_\_\_\_  
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**SOUTH PARK BRIDGE #3179  
REPLACEMENT**  
EROSION CONTROL PLAN - PHASE 3 - 1



EC10  
SHEET  
OF  
SHEETS

316-63 ( )

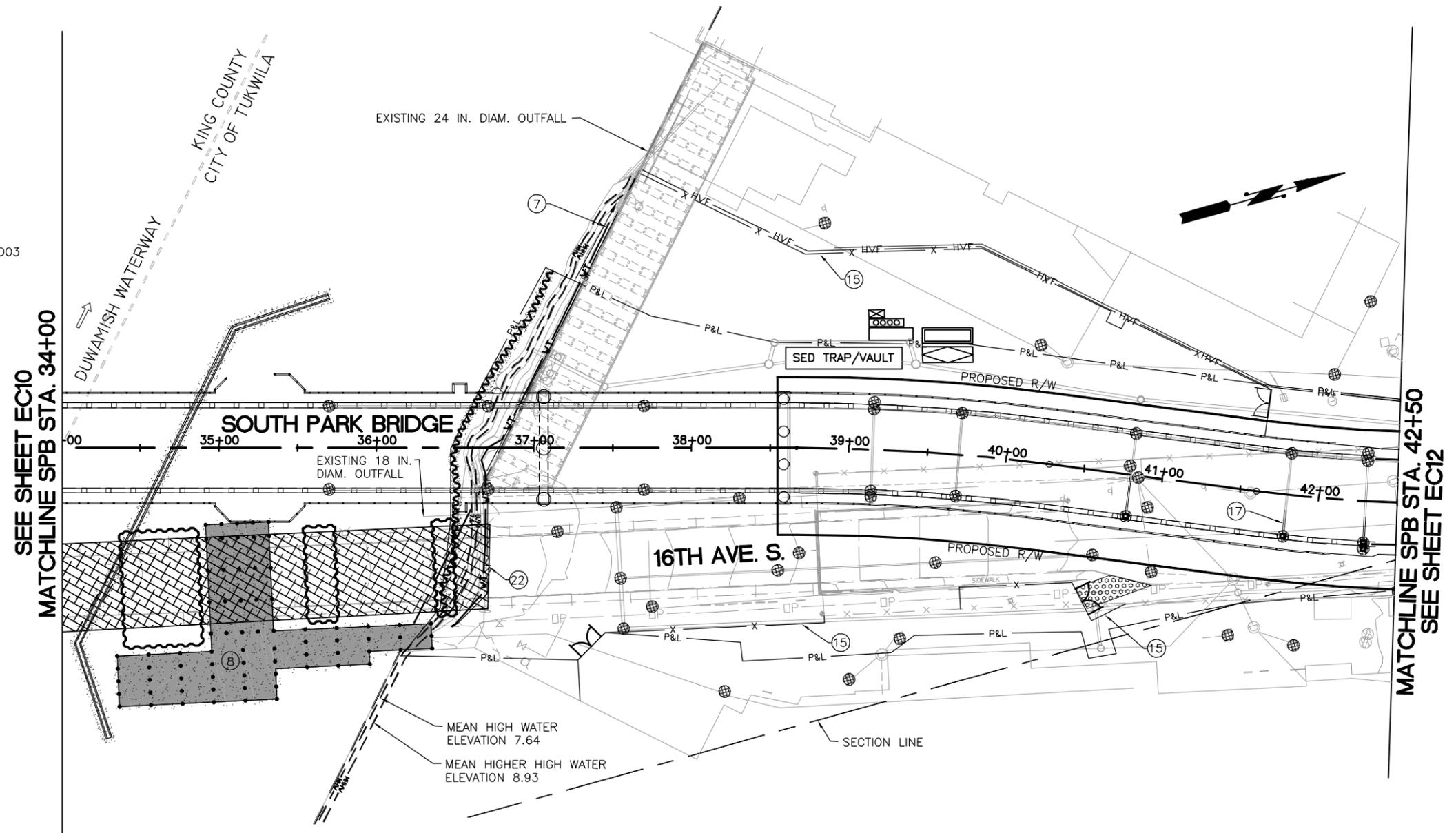


SEC. 32, T.24 N, R.4 E, W.M.

**LEGEND**

- SF — SILT FENCE
- HVF — HIGH VISIBILITY FENCE
- P&L — PHASING AND CLEARING/CONSTRUCTION LIMITS (SEE SITE PREP PLANS)
- x — TEMPORARY CONSTRUCTION FENCE
- ⊗ INLET PROTECTION PER DETAIL 3 ON SHEET ED01
- ☒ SEDIMENT REMOVAL AND WATER QUALITY TREATMENT SYSTEM
- ▨ PLASTIC COVERING
- ⌒ GATE
- ⊕ INTERCEPTOR DITCH WITH ROCK CHECK DAMS PER DETAIL 1 ON SHEET ED02
- ⊙ STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 5 ON SHEET ED01
- TEMPORARY CURB
- ▨ SAND DRAINAGE BLANKET PER DETAIL 6 ON SHEET ED01
- ⌚ SEDIMENT CONTROL SHEETING PER DETAIL 2 ON SHEET ED03
- TEMPORARY CULVERT
- vt — COIR LOG
- ⊖ EROSION CONTROL BLANKET
- ▨ QUARRY SPALLS
- ▨ CONTAMINATED WATER OR SOIL STORAGE TANK
- TEMPORARY WORK TRESTLE
- ▨ STRAW BALES PER DETAIL 3 ON SHEET ED02
- ▨ DEBRIS CONTAINMENT SYSTEM
- ⊖ PUMP
- ▨ CONTAMINATED SOIL STORAGE BIN/TANK

NOTE: SEE SHEET EC03 FOR GENERAL NOTES.



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**SOUTH PARK BRIDGE #3179  
 REPLACEMENT**

EROSION CONTROL PLAN - PHASE 3 - 2



EC11  
 SHEET  
 OF  
 SHEETS

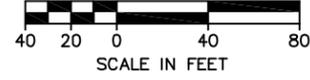
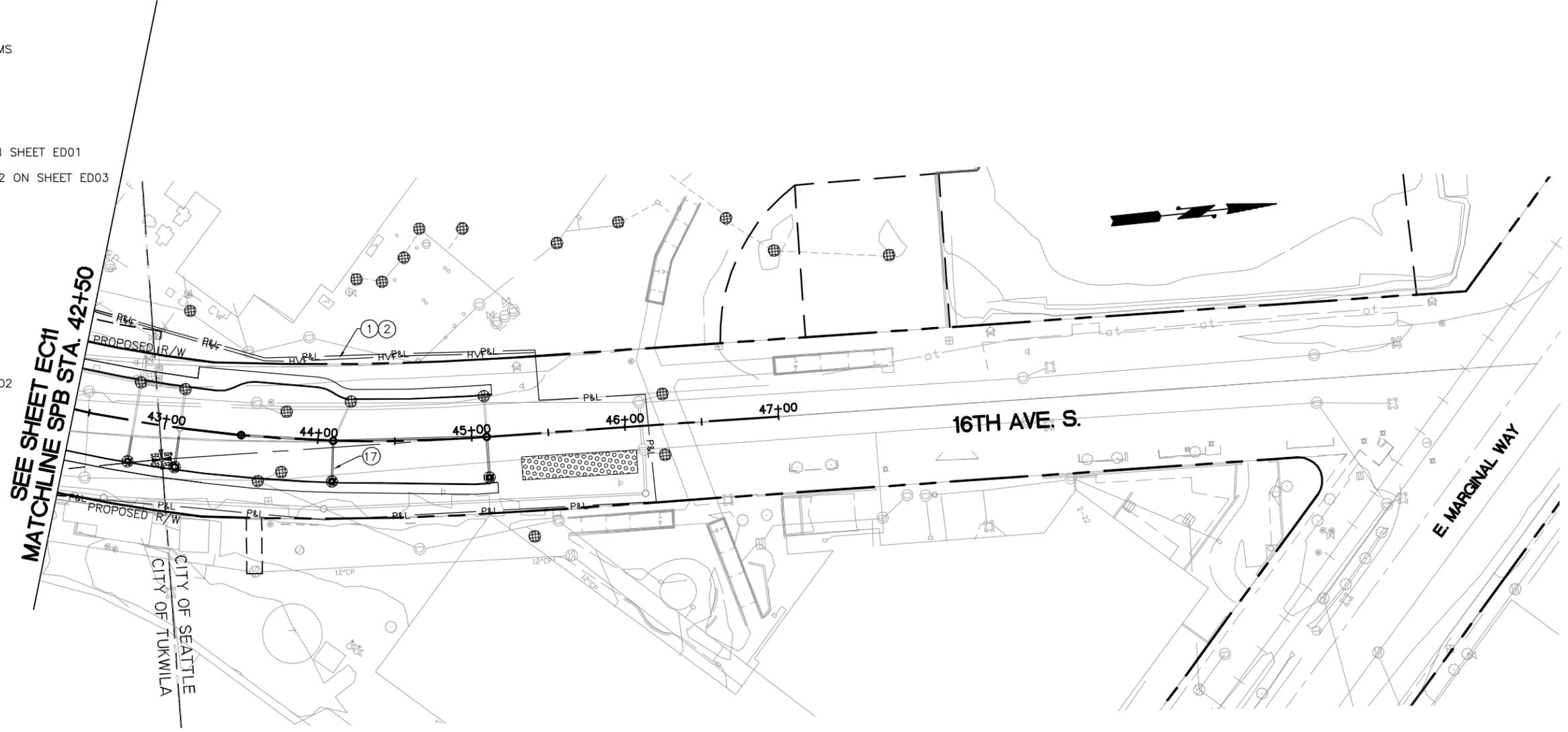
316-63 ( )

SEC. 28,29,32,33, T.24 N, R.4 E, W.M.

**LEGEND**

- SF — SILT FENCE
- HVF — HIGH VISIBILITY FENCE
- P&L — PHASING AND CLEARING/CONSTRUCTION LIMITS (SEE SITE PREP PLANS)
- x — TEMPORARY CONSTRUCTION FENCE
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- ▨ PLASTIC COVERING
- ⌒ GATE
- |→|→|→| INTERCEPTOR DITCH WITH ROCK CHECK DAMS PER DETAIL 1 ON SHEET ED02
- ⊞ STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 5 ON SHEET ED01
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- ⌚ SEDIMENT CONTROL SHEETING PER DETAIL 2 ON SHEET ED03
- TEMPORARY CULVERT
- vt — COIR LOG
- ← EC → EROSION CONTROL BLANKET
- ▨ QUARRY SPALLS
- ☒ CONTAMINATED WATER OR SOIL STORAGE TANK
- TEMPORARY WORK TRESTLE
- STRAW BALES PER DETAIL 3 ON SHEET ED02
- ▨ DEBRIS CONTAINMENT SYSTEM
- P PUMP
- ☒ CONTAMINATED SOIL STORAGE BIN/TANK

NOTE: SEE SHEET EC03 FOR GENERAL NOTES. FOR FENCE STATION AND OFFSET SEE PHASE 1 SHEETS.



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NUM.	REVISION
BY	DATE



**HNTB**

FED. AID No. \_\_\_\_\_  
 PROJECT No. 300197  
 SURVEY No. 32-24-4-22  
 MAINTENANCE DIVISION No. \_\_\_\_\_

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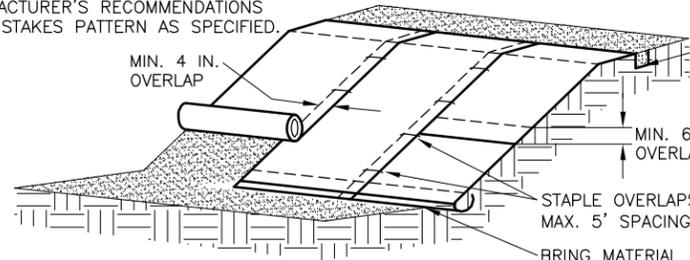
KING COUNTY DEPT. OF TRANSPORTATION  
 HAROLD TANIGUCHI, DIRECTOR  
**SOUTH PARK BRIDGE #3179  
 REPLACEMENT**  
 EROSION CONTROL PLAN - PHASE 3 - 3



EC12  
 SHEET  
 OF  
 SHEETS

**316-63 ( )**

SLOPE SURFACE SHALL BE SMOOTH BEFORE PLACEMENT FOR PROPER SOIL CONTACT STAPLING PATTERN AS PER MANUFACTURER'S RECOMMENDATIONS WOOD STAKES PATTERN AS SPECIFIED.



DO NOT STRETCH COCONUT FIBER MATTING TIGHT - ALLOW THE ROLLS TO MOLD TO ANY IRREGULARITIES

FOR SLOPES LESS THAN 3H:1V, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS WITH THE OVERLAP DOWNSLOPE AND DOWNSTREAM. ANCHORING SHALL BE SIMILAR.

SEED, FERTILIZE, AND MULCH BEFORE MATTING INSTALLATION. PLANTING OF SHRUBS, TREES, ETC. SHOULD OCCUR AFTER INSTALLATION.

IF THERE IS A BERM AT THE TOP OF THE SLOPE, ANCHOR UPSLOPE OF THE BERM

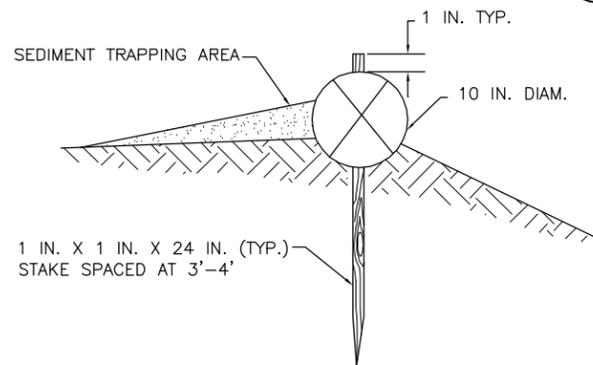
ANCHOR IN 6 IN. x 6 IN. MIN. TRENCH AND STAPLE AT 12 IN. INTERVALS WITH 2 IN. x 2 IN. x 12 IN. WOOD STAKES

MIN. 6 IN. OVERLAP

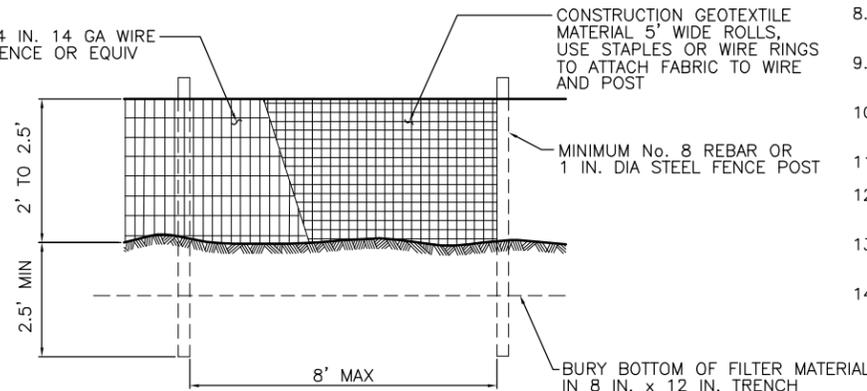
STAPLE OVERLAPS MAX. 5' SPACING

BRING MATERIAL DOWN TO A LEVEL AREA, TURN THE END UNDER 4 IN. TO FORM A CUFF AND STAPLE AT 12 IN. INTERVALS. INSTALL AS (18 IN. HT x 24 IN. WIDE) COIR WRAP AT TOE OF SLOPE ONLY AS DIRECTED BY ENGINEER.

**EROSION CONTROL BLANKET** 1  
NTS

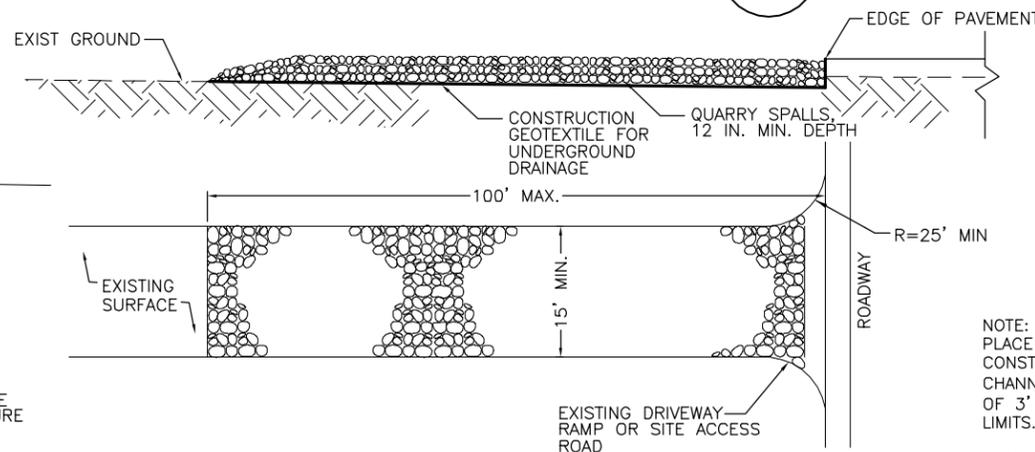


2 IN. x 4 IN. 14 GA WIRE FABRIC FENCE OR EQUIV



**SILT FENCE ELEVATION**

**SILT FENCE AND HIGH VISIBILITY FENCE** 4  
NTS

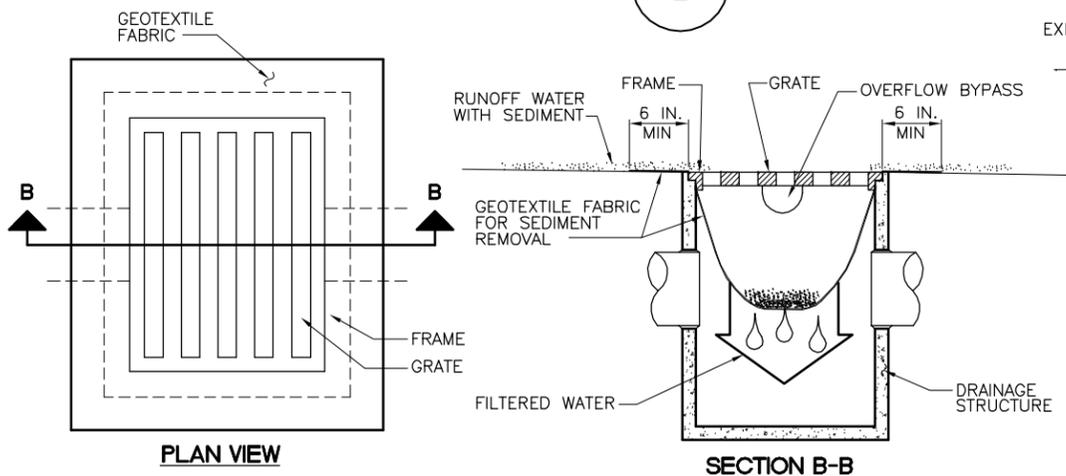


**STABILIZED CONSTRUCTION ENTRANCE** 5  
NTS

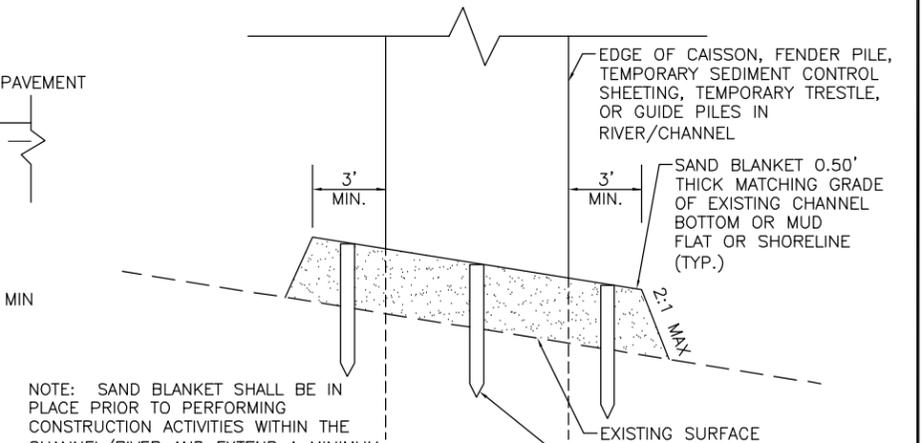
**SILT FENCE NOTES:**

1. THE FILTER FABRIC (CONSTRUCTION GEOTEXTILE FOR TEMPORARY SILT FENCE) SHALL BE PURCHASED IN A CONTINUOUS ROLL, 60 INCHES WIDE, CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, THE FILTER FABRIC SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCHES OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST.
2. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 8.0' APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 2.5 FEET.
3. A TRENCH SHALL BE EXCAVATED A MINIMUM OF 8 INCHES WIDE BY 12 INCHES DEEP, UPSLOPE AND ADJACENT TO THE POST TO ALLOW THE FILTER FABRIC TO BE BURIED.
4. THE 2" X 4" X 14 GAUGE WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES, OR HOG RINGS. THE WIRE MESH SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 2.5 FEET ABOVE THE ORIGINAL GROUND SURFACE.
5. THE FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 2.3 FEET OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 2.5 FEET ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO TREES.
6. THE TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL OR WITH GRAVEL BACKFILL FOR DRYWELLS.
7. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. IN ORDER OF PRECEDENCE, PER SECTION 1-04.2, SILT FENCE SHALL CONFORM TO THIS DETAIL AND NOTES AND THEN TO SECTION 2-12, WSDOT STANDARD SPECIFICATIONS.
10. SILT FENCE PERFORMANCE AND LOCATIONS SHALL BE EVALUATED AND ADJUSTED AS DIRECTED OR APPROVED BY THE ENGINEER, AND WHERE APPLICABLE BY THE PERMITTING AUTHORITY.
11. SILT FENCE SHALL BE INSTALLED TO FOLLOW CONTOURS, WHERE FEASIBLE.
12. ANY DEVIATION OR CHANGE TO THIS PLAN DETAIL MUST BE APPROVED BY THE ENGINEER, AND WHERE APPLICABLE BY AN INSPECTOR FOR THE PERMITTING AUTHORITY.
13. THE CONTRACTOR SHALL MAINTAIN A COPY OF THE MANUFACTURER'S SPECIFICATIONS FOR FILTER FABRIC ON SITE.
14. MAINTENANCE STANDARDS:
  - A. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY, INCLUDING REPLACEMENT AND/OR RESTAKING.
  - B. IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT TRAP POND OR SUMP.
  - C. THE UPHILL SIDE OF THE FENCE SHALL BE CHECKED FOR SIGNS OF THE SILT FENCE CLOGGING, ACTING AS A BARRIER TO FLOW, AND CAUSING CHANNELIZATION OF FLOWS PARALLEL TO THE FENCE. IF SUCH CHANNELIZATION OCCURS, THE CONTRACTOR SHALL REPLACE THE FENCE OR REMOVE THE TRAPPED SEDIMENT.
  - D. SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN THE SEDIMENT IS 0.5 FT. HIGH.
  - E. IF THE FILTER FABRIC HAS DETERIORATED DUE TO ULTRAVIOLET BREAKDOWN, IT SHALL BE REPLACED.

**COIR LOG** 2  
NTS



**INLET PROTECTION** 3  
NTS



NOTE: SAND BLANKET SHALL BE IN PLACE PRIOR TO PERFORMING CONSTRUCTION ACTIVITIES WITHIN THE CHANNEL/RIVER AND EXTEND A MINIMUM OF 3' BEYOND CONSTRUCTION WORK LIMITS.

EXACT LOCATION AND EXTENSE OF SAND PLANKET TO BE DETERMINED BY CONTRACTOR.

**SAND DRAINAGE BLANKET** 6  
NTS

STAKES 2' LONG EXTENDING 0.50' ABOVE EXISTING GRADE INSTALLED PRIOR TO SAND BLANKET COVERING. INSTALL 20' X 20' O.C. AFTER INSTALLING SAND BLANKET THE STAKES SHALL BE CHECKED FOR COVER.

FIELD BOOK:				
SURVEYED:				
SURVEY BASE MAP:				
DESIGN ENTERED:	R. JOHNSON			
DESIGNED:	E. ANDERS			
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SUPERVISOR:	SALIMA NAGJI			
	NUM.	REVISION	BY	DATE



FED. AID No. \_\_\_\_\_  
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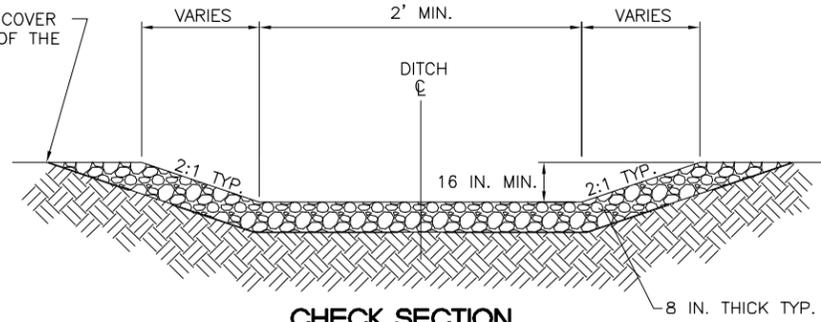
**95% SUBMITTAL  
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HAROLD TANIGUCHI, DIRECTOR  
**SOUTH PARK BRIDGE #3179  
REPLACEMENT**

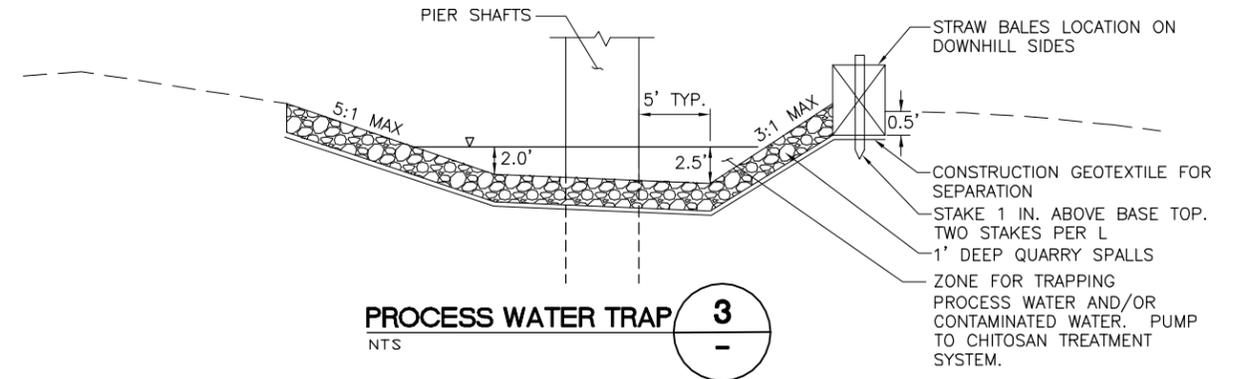


ED01  
SHEET  
OF  
SHEETS

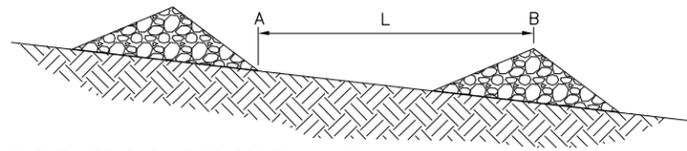
ROCK MUST COMPLETELY COVER THE BOTTOM AND SIDES OF THE DITCH



**CHECK SECTION**  
NTS



**PROCESS WATER TRAP 3**  
NTS

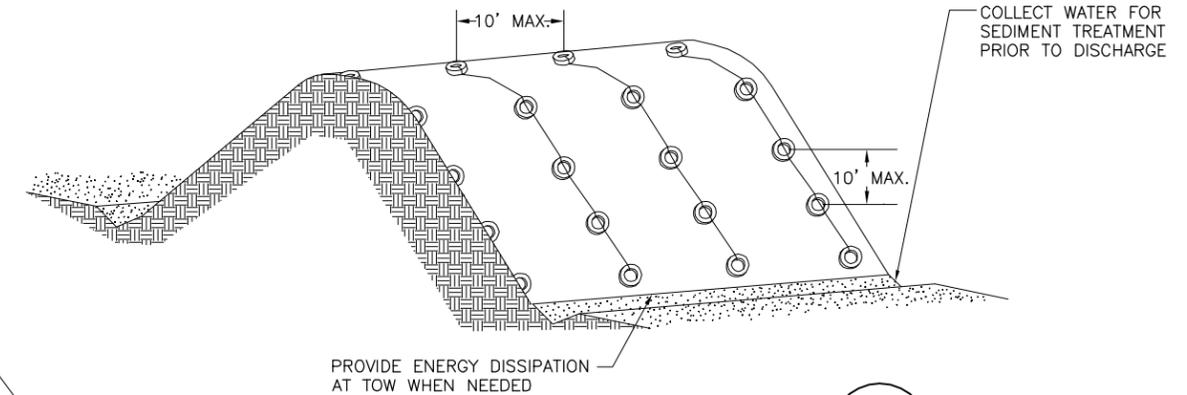


L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

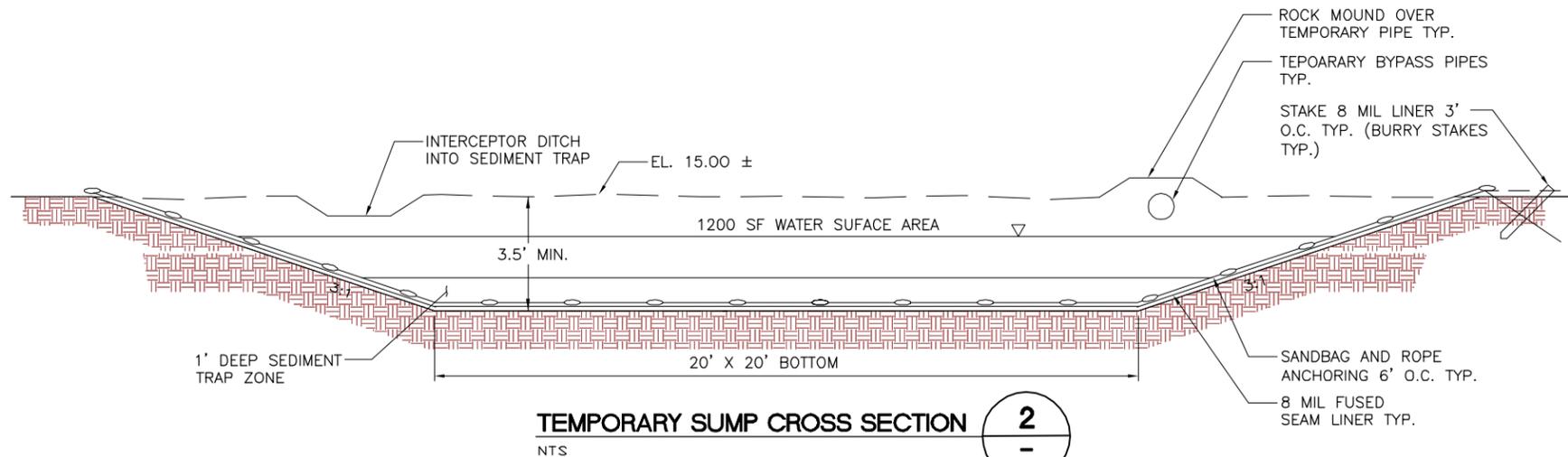
**ROCK CHECK DAM SPACING 1**  
NTS

TIRES, SANDBAGS, OR EQUIVALENT MAY BE USED TO WEIGHT PLASTIC

SEAMS BETWEEN SHEETS MUST OVERLAP A MINIMUM OF 12 IN. AND BE WEIGHTED OR TAPED



**PLASTIC COVER FOR STOCKPILE 4**  
NTS



**TEMPORARY SUMP CROSS SECTION 2**  
NTS

FIELD BOOK:				
SURVEYED:				
SURVEY BASE MAP:				
DESIGN ENTERED:	R. JOHNSON			
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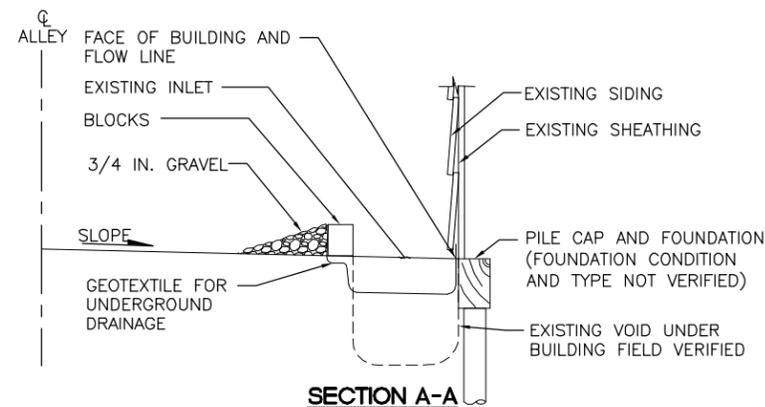
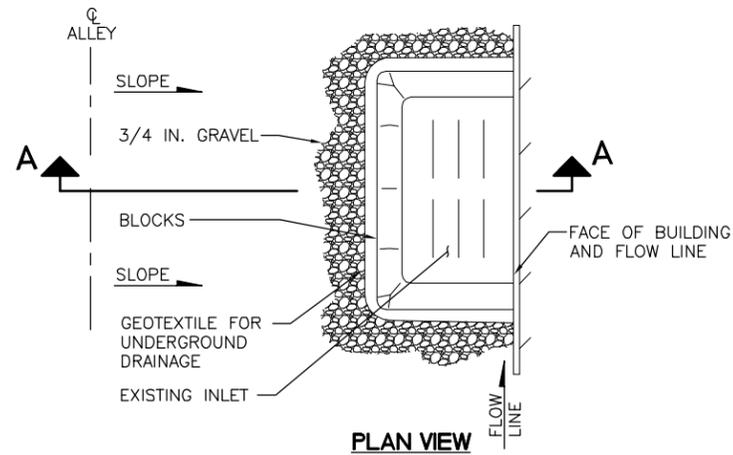
EROSION CONTROL DETAILS - 2



ED02

SHEET  
OF  
SHEETS

**316-63** ( )



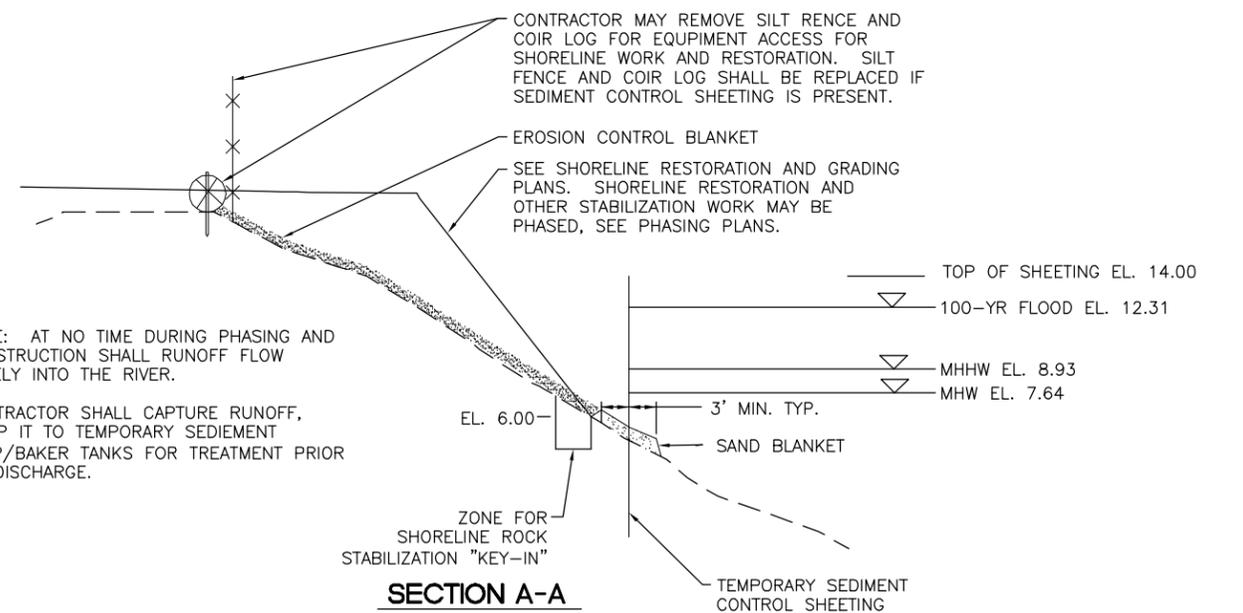
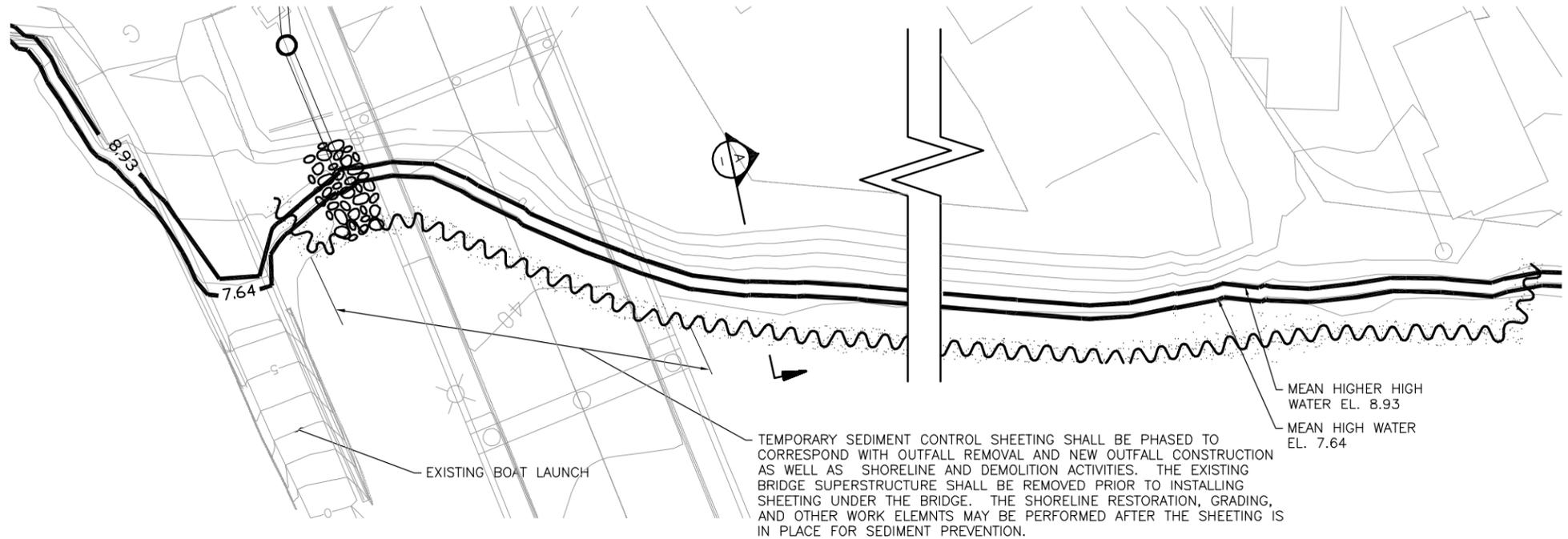
**NOTES:**

1. USE BLOCK AND GRAVEL TYPE SEDIMENT BARRIER WHEN CURB INLET IS LOCATED IN GENTLY SLOPING SEGMENT, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. BARRIER SHALL ALLOW FOR OVERFLOW FROM SEVERE STORM EVENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

**BLOCK AND GRAVEL CURB INLET PROTECTION**

NTS

1



**SECTION A-A**

**TEMPORARY SEDIMENT CONTROL SHEETING**

NTS

2

FIELD BOOK:				
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EROSION CONTROL DETAILS - 3



ED03

SHEET  
 OF  
 SHEETS

316-63 ( )

<b>BMP Implementation</b>		Completed by: _____	
		Title: _____	
		Date: _____	
Develop a plan for implementing each BMP. Describe the steps necessary to implement the BMP (i.e., any construction or design), the schedule for completing those steps (list dates), and the person(s) responsible for implementation.			
<b>BMPs</b>	<b>Description of Action(s) Required for Implementation</b>	<b>Scheduled Milestone and Completion Date(s)</b>	<b>Person Responsible for Action</b>
<b>Good Housekeeping</b>	1.		
	2.		
	3.		
<b>Preventive Maintenance</b>	1.		
	2.		
	3.		
	4.		
<b>Spill Prevention and Emergency Cleanup</b>	1.		
	2.		
	3.		
<b>Inspections</b>	1.		
	2.		
	3.		

BMPs	Description of Action(s) Required for Implementation	Schedule Milestone and Completion Date(s)	Person Responsible for Action
Source Control BMPs	1.		
	2.		
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		
Treatment BMPs	1.		
	2.		
	3.		
	4.		
Emerging technologies	1.		
	2.		
Flow Control BMPs	3.		
	4.		

Completed by: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

**Material Inventory**

List materials handled, treated, stored, or disposed of at the project site that may potentially be exposed to precipitation or runoff.

Material	Purpose/Location	Quantity (Units)			Likelihood of contact with stormwater If Yes, describe reason	Past Spill or Leak	
		Used	Produced	Stored		Yes	No





<b>Employee Training</b>		Completed by: _____	
		Title: _____	
		Date: _____	
Describe the annual training of employees on the SWPPP, addressing spill response, good housekeeping, and material management practices.			
Training Topics	Brief Description of Training Program/Materials (e.g., film, newsletter course)	Schedule for Training (list dates)	Attendees
1.) LINE WORKERS			
Spill Prevention and Response			
Good Housekeeping			
Material Management Practices			
2.) P2 TEAM:			
SWPPP Implementation			
Monitoring Procedures			

Pollution Prevention Team	Completed by: _____ Title: _____ Date: _____
Responsible Official: _____ Team Leader: _____  Responsibilities: _____ _____ _____	Title: _____ Office Phone: _____ Cell Phone #: _____ Pager #: _____
(1) _____  Responsibilities: _____ _____ _____	Title: _____ Office Phone: _____ Pager #: _____ Cell Phone #: _____
(2) _____  Responsibilities: _____ _____ _____	Title: _____ Office Phone: _____ Pager #: _____ Cell Phone #: _____