### Division 1 - General Requirements

<table>
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<tr>
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<th>Item</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>LS</td>
<td></td>
<td>Mobility</td>
<td>LS</td>
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<tr>
<td>2</td>
<td>1</td>
<td>LS</td>
<td></td>
<td>Temporary Traffic Control</td>
<td>LS</td>
<td>LS</td>
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<tr>
<td>3</td>
<td>1,460</td>
<td>HR</td>
<td>6880</td>
<td>Flags</td>
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<td>4</td>
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<td>6913</td>
<td>Portable Temporary Traffic Control Signal</td>
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### Division 2 - Earthwork

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<tr>
<td>5</td>
<td>7.9</td>
<td>ACRE</td>
<td>0025</td>
<td>Clearing and grubbing</td>
<td>7.8</td>
<td>0.1</td>
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<tr>
<td>6</td>
<td>1</td>
<td>LS</td>
<td></td>
<td>Remove and replace light pole</td>
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<tr>
<td>7</td>
<td>1</td>
<td>LS</td>
<td></td>
<td>Remove and replace ground mounted conduit</td>
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<tr>
<td>8</td>
<td>1,070</td>
<td>CY</td>
<td></td>
<td>Rock pile to be removed</td>
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<tr>
<td>9</td>
<td>2</td>
<td>TON</td>
<td></td>
<td>Gravel removal</td>
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<td>10</td>
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<td>Level removal</td>
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<tr>
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<tr>
<td>15</td>
<td>1,400</td>
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<td>5767</td>
<td>HMA CL. 1/2 IN. PS 64-22</td>
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<tr>
<td>16</td>
<td>500</td>
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<td>HMA SAWDUST</td>
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<tr>
<td>17</td>
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<td>SF</td>
<td>5711</td>
<td>Planning Instruction Pavement</td>
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### Division 6 - Structures

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<tr>
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<td>LS</td>
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<td>Decorator Jam</td>
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<tr>
<td>19</td>
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<td>LS</td>
<td></td>
<td>Left bank roughness</td>
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<tr>
<td>20</td>
<td>3</td>
<td>EA</td>
<td></td>
<td>Topsoiled Habitat Jam</td>
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<td>21</td>
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<td>EA</td>
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<td>Hauled Habitat Jam</td>
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<td>Nesting Snag Conaper</td>
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<tr>
<td>23</td>
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<td>Nesting Snag Deciduous</td>
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<td>24</td>
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<td>Floating Snag Conaper</td>
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<td>Floating Snag Deciduous</td>
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<td>26</td>
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<td>Slash Pile</td>
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<td>EA</td>
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<td>Salvaged Trees</td>
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### Division 7 - Drainage and Storm Sewers

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<tr>
<td>28</td>
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<td>EA</td>
<td>3061</td>
<td>Catch Basin</td>
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<td>29</td>
<td>175</td>
<td>LF</td>
<td>0140</td>
<td>Schedule a Storm Sewer Pipe - 12 Inch Dia.</td>
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<td>30</td>
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<td>Scheduling or Extra Excavation Class B</td>
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<td>In-Line Skid Flow Prender</td>
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<td>908</td>
<td>LF</td>
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<td>Force Main</td>
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<td>33</td>
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<td>Roadside Bioretention Ditch</td>
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### Division 8 - Miscellaneous Construction

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<td>LS</td>
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<td>Temporary River Isolation System</td>
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<td>36</td>
<td>1</td>
<td>LS</td>
<td></td>
<td>Temporary Side Channel Isolation System</td>
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<td>37</td>
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<td>LS</td>
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<td>Permanent Signs</td>
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### Summary of Quantities

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<tr>
<td>38</td>
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<td>6884</td>
<td>BPM Type 2</td>
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<tr>
<td>39</td>
<td>4,100</td>
<td>LF</td>
<td>6807</td>
<td>Plastic Line</td>
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<tr>
<td>40</td>
<td>300</td>
<td>LF</td>
<td>6906</td>
<td>Path Line</td>
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<td>41</td>
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<td>EA</td>
<td>6802</td>
<td>Painted Access Parking Space Symbol</td>
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<tr>
<td>42</td>
<td>4</td>
<td>EA</td>
<td>3060</td>
<td>Adjust Manhole</td>
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<tr>
<td>43</td>
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<td>EA</td>
<td>3100</td>
<td>Adjust Catch Basin</td>
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<tr>
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<td>EA</td>
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<td>Manhole Support, Type 1</td>
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<tr>
<td>45</td>
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<td>AL</td>
<td></td>
<td>Minor Work Allowance</td>
<td>AL</td>
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</tr>
</tbody>
</table>

---

**Know What's Beneath. Call Before You Dig.**

**Utilities and Locations are Approximate.**

**Department of Natural Resources and Parks**

**Executive Director:**

**Division of Field & Natural Resources Division**

**Porter Reach Restoration Project**

**Summary of Quantities**

<table>
<thead>
<tr>
<th>SHEET</th>
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<tbody>
<tr>
<td>SHEETS</td>
<td>32</td>
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**2012-15**
CONSTRUCTION GENERAL NOTES:

1. Soil test boring locations are indicated on plans. Boring logs are included in the contract documents.
2. Refueling of equipment shall only occur in accordance with the spill prevention plan (SPP), pre-approved submittal. Contractor shall maintain a hazardous material spill prevention cleanup kit on-site at all times per the pre-approved SPP.
3. Storing during non-work periods and refueling of equipment shall only occur within the staging area as shown on the plans.
4. All equipment operating below dam and within 50 ft of river shall use hydraulic fluid per the HPA permit.
5. All locations of existing utilities shown have been obtained from available records and should therefore be considered approximate. Only and not necessarily complete. It is the sole responsibility of the Contractor to independently verify the accuracy of all utility locations shown and to further discover and avoid any other utilities not shown which may be affected by the implementation of this Plan. Additional PotHoling Information is included in the contract.
6. The Contractor shall contact the underlying utilities location service at least 48 hours prior to construction. The Owner shall be contacted immediately if a conflict exists.
7. Contractor shall clear all disturbed areas a minimum of 18-inches except for protection embankment, backwater channel, left bank roughening, and boat launch staging area.

CONSTRUCTION SEQUENCE NOTES:

1. Post sign within project area with name and phone number of project C.E.O.
2. Owner to survey and stake project features. Contractor shall project stakes throughout construction. Any stakes disturbed during construction shall be replaced by contractor with PLS surveyor at no additional cost to the project.
3. Only trees within working areas can be tipped and redistributed within project site as shown on plans. All other trees to remain in existing condition.
4. Install TEG measures and temporary construction access.
5. Clear vegetation and grub as necessary to complete work.
6. All disturbed areas on private properties to be restored to in kind pre-reconstruction conditions.
7. Maintain TEG measures in accordance with the project specifications.

IN WATER WORK:

1. Construct all in water work (leves, facerock removal, gabion protection, left bank roughening, and backwater channel) within 10 feet windows indicated in permits.
2. In water work shall not begin until temporary river isolation systems are in place and approved by project representative.
3. Contractor shall notify owner 2 days prior to installing the temporary river isolation / in water work to allow de-fishing by owner.
4. Install temporary river isolation per pre-approved submittal.

King County
Department of Natural Resources and Parks
Water and Land Resource Division
Environmental Monitoring and Assessment
Natural Resources and Ecological Restoration
King County Rural and Ecological Restoration and Engineering Services Unit
Chris True, Director

PORTER REACH RESTORATION PROJECT
NOTES

Call before you dig.
Underground utility locations are apprised.

4/16

Sheets

Sheet 4

2012-15
NOTES:

1. PLANS CONTAIN DATA COMPILED FROM VARIOUS SOURCES, INCLUDING:
   - NOVEMBER 2013 SURVEY WITH WATERSCAPE SCIENCES LTD.
   - SURVEY RECORDS OF SURVEY BASEMAP SURVEY NO. P00012380 ON 8/3/11
   - SURVEY DELIVERY 1 - APRIL 29, 2010 FROM WATERSCAPE SCIENCES LTD.
   - SURVEY RECORDS OF SURVEY BASEMAP SURVEY NO. P00012380 ON 8/3/11
   - SURVEY DELIVERY 1 - APRIL 29, 2010 FROM WATERSCAPE SCIENCES LTD.

2. PROPERTY LINES SHOWN ARE SOURCED FROM KING COUNTY ASSESSOR'S GIS DATABASE AND ARE NOT INTENDED TO IMPLY A LEGAL DESCRIPTION.

3. PROPERTY LINES SHOWN ARE SOURCED FROM KING COUNTY ASSESSOR'S GIS DATABASE AND ARE NOT INTENDED TO IMPLY A LEGAL DESCRIPTION.

VERT. DATUM: NAVD88 GEOID 1114123
PROJECTION: KING COUNTY ASSESSOR'S GIS DATABASE AND RECORDS OF SURVEY

EXISTING PORTER LEVEE

EXISTING MARSH

EXISTING BERM

Sheet 5 of 32
2012-15
CONSTRUCTION NOTES:
1. Clearing and grubbing native vegetation to be spread on-site within project limits. Remove vegetation to be hauled to pre-approved disposal site.
2. All excavated material to be hauled to pre-approved disposal site, except where noted on plans.
3. Install high visibility fence around temporary staging areas and temporary construction access routes.
4. All in-water work to be completed within fish window identified in project permits.
5. Install temporary water isolation system.
6. Before any in-water work call owner 48-hours prior to installation for coordination of fish removal within isolated area.
7. Construct backwater channel last to maintain temporary staging area throughout majority of construction.
EXISTING FARM
TEMPORARY STAGING AREA

VEGETATION NOT TO BE DISTURBED

SIDE CHANNEL DE-WATERING AREA

EXISTING LOVES TO REMAIN

FLOOD PLAN

TEMPORARY WATeR ISOLATION SYSTEM

EXISTING LOVES

SIDE CHANNEL DE-WATERING AREA

APPRIOR. LOCATION FOR TURBIDITY MONITORING 1

APPRIOR. LOCATION FOR TURBIDITY MONITORING 2

COMPPOST SOCK ACROSS DITCH AT ROADWAY WORK LIMITS PER WSDOT STD. PLAN 1:20.40-01

INLET PROTECTION FOR WSDOT STD. PLAN 1:20.40-00

FLOUPLAN TEMPORARY ACCESS ROADS, AND SIDE PROTECTION ENHANCEMENT.

FARM TEMPORARY STAGING AREA

EXISTING LEVEE TO REMAIN

COFFER DAM

INSTALL Silt FENCE

DESIGN WAVE CLEAN WATER INTO EXISTING SIDE CHANNEL

INSTALL Silt FENCE

EXISTING FARM
TEMPORARY STAGING AREA

SEC. 22, T2N.211, R. 5 E, W.M.

RIVER TEMPORARY STAGING AREA

EXISTING VEGETATION NOT TO BE DISTURBED

RIVER TEMPORARY STAGING AREA

SCALE: 1"=60' HORIZ.

FARM TEMPORARY STAGING AREA

SCALE: 1"=60' HORIZ.

NOTE: Call before you dig.

Know what's below,

FLOODPLAIN APPROX. LOCATION FOR TURBIDITY MONITORING 2

FLOODPLAIN TEMPORARY STAGING AREA. INSTALL HIGH VISIBILITY FENCING.

COMPOST Sock ACROSS DITCH AT ROADWAY WORK LIMITS PER WSDOT STD. PLAN 1:30.40-01

INLET PROTECTION FOR WSDOT STD. PLAN 1:30.40-00

DISCHARGE TURBID WATER ONTO EXISTING GROUND

TEMPORARY ACCESS ROAD (TYP)

BOAT LAUNCH TEMPORARY STAGING AREA

TESS NOTES:

1. GRASS SEED PER SECTION 9-14.3(1) TO EXTEND 10- FEET OFF EDGE OF NORTHBOUND PAVEMENT ALONG ALL DISTURBED AREAS UPON COMPLETION OF WORK.

2. GRASS SEED MIX PER SPEC 9-14.2(1) SHALL BE APPLIED TO THE FOLLOWING AREAS UPON COMPLETION OF WORK: NORTH SIDE OF FLOODPLAIN AREA, ACCESS ROAD, BACKWATER CHANNEL, SIDE CHANNELS, FLOODPLAN STAGING AREA, FLOODPLAN TEMPORARY ACCESS ROADS, AND SIDE PROTECTION ENHANCEMENT.
POST SPACING MAY BE INCREASED TO 8' IF WIRE BACKING IS USED
NOTE: FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOUR WHENEVER POSSIBLE

SILT FENCE DETAIL

TEMPORARY WATER ISOLATION
SYSTEM EXAMPLE

HIGH VISIBILITY FENCE DETAIL

PORTER REACH RESTORATION PROJECT
TESC DETAILS

King County
Department of Natural Resources and Parks
Water and Land Resource Division
Ecological Restoration and Engineering

1. POST SHALL HAVE SUFFICIENT STRENGTH AND DURABILITY TO SUPPORT THE FENCE THROUGH THE LIFE OF THE PROJECT.

NOTE: FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOUR WHENEVER POSSIBLE.
GENERAL NOTES:
1. PROVIDE 1.0' MIN BUFFER BETWEEN LANE OF TRAVEL AND BARRIER.
2. PROVIDE SMOOTH TRANSITION BETWEEN EXISTING GRADE AND TEMPORARY LANE OF TRAVEL.
3. CENTERLINE REPRESENTS CONSTRUCTION CENTERLINE ALIGNMENT.

CONSTRUCT TEMP. ASPHALT
3" HMA OVER 4" CSBC MIN.
SEE SPECIAL PROVISION 1-10.3(3)M

PHASE 1
GREEN VALLEY ROAD
STA. 14+16 TO STA. 26+17

MAINTAIN BUSINESS ACCESS THROUGH WORK ZONE

EXISTING BUSINESS SIGN TO REMAIN:
ENSURE SIGN PANEL DOES NOT EXTEND INTO TEMP. TRAVELWAY:

CONSTRUCT TEMP. ASPHALT
3" HMA OVER 4" CSBC MIN.
SEE SPECIAL PROVISION 1-10.3(3)M

LEGEND
O O O
TEMPORARY TRAFFIC DRUM

(1) 0.3(3)M

PORTER REACH RESTORATION PROJECT

TRAFFIC PHASING PLAN – PHASE 1

KING COUNTY PARKS

Get the latest info. Call before you dig.
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)
**SEC. 22, TWN. 21N, R. 5E, W.M.**

**KING COUNTY PARKS**

**GENERAL NOTES:**
1. PROVIDE 1.5' MIN BUFFER BETWEEN LANE OF TRAVEL AND BARRIER.
2. PROVIDE SMOOTH TRANSITION BETWEEN EXISTING GRADE AND TEMPORARY LANE OF TRAVEL.
3. CENTERLINE REPRESENTS CONSTRUCTION CENTERLINE ALIGNMENT.
4. INSTALL TEMPORARY CENTERLINE AND EDGE LINE ALONG PROJECT LENGTH.

---

**LEGEND**

- **TEMPORARY CONC. BARRIER**
- **NORTHBOUND LANE OF TRAVEL**
- **SOUTHBOUND LANE OF TRAVEL**
- **PHASE 2 CONSTRUCTION**

---

**PHASE 2**

**GREEN VALLEY ROAD**

- STA. 184+35 TO STA. 224+10

**EXISTING BUSINESS SIGN TO REMAIN**

ENSURE SIGN PANEL DOES NOT EXTEND INTO TEMP. TRAVELWAY.

**EXISTING GROUND**

**WORK ZONE**

**4' 11" LANE, 11' LANE**

SEE SHEET 14 AND 15

**PHASE 2**

**GREEN VALLEY ROAD**

- STA. 224+10 TO STA. 254+05

---

**SURVEYED:**

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<th>DUE TO</th>
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**PROJECT: KING COUNTY BATTLE**

**DESIGNER:**

C. MORTON

**SHEEL OUT:**

JOHNSON

**ENGINEER:**

FUNDING SOURCE No. 1114125

**PROJECT No. 1114125**

**CONTRACT No. 00118801**

**Website:**

[www.kpff.com](http://www.kpff.com)

**King County**

Department of Natural Resources and Parks

TRAFFIC PHASING PLAN - PHASE 2

**PORTER REACH RESTORATION PROJECT**

**10 OF 32 SHEETS**

**2012-15**
KING COUNTY PARKS

SCALE IN FEET

GENERAL NOTES:
1. PROVIDE 1.0 MIN BUFFER BETWEEN LANE OF TRAVEL AND BARRIER.
2. PROVIDE SMOOTH TRANSITION BETWEEN EXISTING GRADE AND TEMPORARY LANE OF TRAVEL.
3. CENTERLINE REPRESENTS CONSTRUCTION CENTERLINE ALIGNMENT.
4. INSTALL TEMPORARY EDGE LINE ALONG PROJECT LENGTH.
5. TWO WAY TRAFFIC SHALL BE PROVIDED ON WEEKENDS DURING PHASE 3.
6. FLAGGERS WILL BE NEEDED FROM 7:30 AM TO 8:00 PM MONDAY THROUGH FRIDAY DURING PHASE 3.

TEN/PORARY TRAFFIC SIGNAL AT NIGHT, FLAGGER DURING DAY

PLACE BARRIERS AT NIGHT, MAINTAIN ACCESS WITH FLAGGER DURING DAY

EXISTING BUSINESS SIGN TO REMAIN, ENSURE SIGN PANEL DOES NOT EXTEND INTO TEMP. TRAVELWAY.

PHASE 3
GREEN VALLEY ROAD
STA. 15+35 TO STA. 22+10

LEGEND

TEMPORARY CONC. BARRIER
LANE OF TRAVEL
PHASE 3 CONSTRUCTION

PHASE 3
GREEN VALLEY ROAD
STA. 22+10 TO STA. 25+00
**SEC. 22, TWN. 21N, R. 5E, W.M.**

**GENERAL NOTES:**

1. PROVIDE 0.5' MIN BUFFER BETWEEN LANE OF TRAVEL AND RAIL.
2. PROVIDE SMOOTH TRANSITION BETWEEN EXISTING GRADE AND TEMPORARY LANE OF TRAVEL.
3. CENTERLINE REPRESENTS CONSTRUCTION CENTERLINE ALIGNMENT.
4. INSTALL TEMPORARY CENTERLINE AND EDGE LINE ALONG PROJECT LENGTH.

**LEGEND**

- Tempoary Concrete Barrier
- Northbound Lane of Travel
- Southbound Lane of Travel
- Phase 4 Construction

**KNOWN UTILITY LOCATIONS ARE APPROX**

- King County Parks
- King County Drainage
- Water and Land Resources Division
- Ecological Restoration and Engineering Services Unit

**GENERAL NOTES:**

1. PROVIDE 1.0' MIN BUFFER BETWEEN LANE OF TRAVEL AND RAIL.
2. PROVIDE SMOOTH TRANSITION BETWEEN EXISTING GRADE AND TEMPORARY LANE OF TRAVEL.
3. CENTERLINE REPRESENTS CONSTRUCTION CENTERLINE ALIGNMENT.
4. INSTALL TEMPORARY CENTERLINE AND EDGE LINE ALONG PROJECT LENGTH.

**NOTE:**

- Know what's below, call before you dig.

**SURVEYOR:**

- NAME:
- ADDRESS:
- INCHES
- SIGNATURE: S. MORTON

**APPROVED:**

- NAME: L. WHEELE
- ADDRESS:

**SCALE:**

- FOOT

**FUNDING SOURCE:**

- PROJECT No. 114123
- CONTRACT No. 00118301

**PROJECT:**

- PORTER REACH RESTORATION PROJECT
- TRAFFIC PHASING PLAN - PHASE 4

**SHEET:**

- 12 OF 32 SHEETS

**DRAWN:**

- NAME: J. JOHNSON
- DATE:

**2012-15**
GVR PROTECTION NOTES:

1. Construction work below EL. 76 within side channel along SE Green Valley Road embankment shall be done within fish window identified in Project permits.

2. All work shall be done after approved side channel dewatering system is installed and operational.

NOTES:

1. Construction work below EL. 76 within side channel along SE Green Valley Road embankment shall be done within fish window identified in Project permits.

2. All work shall be done after approved side channel dewatering system is installed and operational.

King County
King County Department of Natural Resources and Parks
Water and Land Resources Division
Rural and Regional Services Section
Ecological Restoration and Engineering Services Unit
Christine True, Director

PORTER REACH RESTORATION PROJECT
GREEN VALLEY ROAD PROTECTION PLAN
2012-15
GVR Rock Revetment Detail

STA 14+00 TO 15+35

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>DBH (IN.)</th>
<th>LENGTH (LF)</th>
<th>TOTAL QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFLECTOR JAM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOG WITH ROOTWAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>25</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
1. INSTALLATION OF THE GVR PROTECTION SHALL BE DONE FROM THE NORTHBOUND LANE OF SE GREEN VALLEY ROAD.
2. EXCAVATE AND INSTALL GEOTEXTILE FOR SEPARATION AND HEAVY LODGE RIP RAP FOR THE ELEVATIONS AND SLOPE LIMITS SHOWN ON THE PLANS.
3. GRADE AT UNIFORM SLOPE FROM EDGES OF BENCH TO EL 72 AND CONTINUE TO CATCH POINT INHERENT OF SITES OF BURIED ROCK, OR MATCH EXISTING GRADE AT 2:1 SLOPE IF EXISTING GRADE IS BELOW EL 72.

PORTER REACH RESTORATION PROJECT
GREEN VALLEY ROAD PROTECTION
SECTIONS AND DETAILS

King County Department of Natural Resources and Parks
Alfred St. and Resources Division
Ecological Restoration
and Engineering Services Unit

Chesney, T. Engineer

2012-15
**LEFT BANK ROUGHENING - PLAN**

- **SCALE**: 1"=30' HORIZ.

**NOTES:**
1. LOGS TO BE SECURED TO BOULDER PER BOULDER ANCHOR DETAIL.
2. TYPING OF BOULDER ANCHOR FOR EACH ASSEMBLY INCLUDES LIFTING CURVED ANCHOR ATTACHED TO BOULDER FOR A MAX 20 SECONDS.

**BOULDER ANCHOR DETAIL**

- **ANCHOR DEPTH SPECIFIED BY CONTRACTOR**
- **MIN. 6 TON BOULDER (AVERAGE 3' DIA.)**
- **SIDE CHANNEL, LEFT BANK**
- **LARGE CONIFER STEMS WITH ROOTWADS**

**LEFT BANK ROUGHENING SCHEDULE**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>DBH (IN)</th>
<th>LENGTH (LF)</th>
<th>QUANTITY (PER LOG)</th>
<th>QUANTITY (TOTAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG W/ROOTWAD</td>
<td>18-24</td>
<td>1</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>5&quot; DIA. BOULDER</td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
<td>40</td>
</tr>
</tbody>
</table>

**LEFT BANK ROUGHENING TYPICAL DETAIL PLAN**

- **SCALE**: 1"=5' HORIZ., 1"=5' VERT.

**LEFT BANK ROUGHENING TYPICAL DETAIL SECTION**

- **SCALE**: 1"=5' HORIZ., 1"=5' VERT.

**EXISTING SIDE CHANNEL**

- **SIDE CHANNEL 10-12" DIA. STEEL SPIKE WITH 2 FLAT WASHERS EVERY 6'**
- **WRAP CHAIN TWICE TIGHTLY AROUND LOG**

**BOULDER ANCHOR DETAIL**

- **EDGEP AVEMENT**
- **EDGE OF PAVEMENT**
- **5" DIA. BOULDER**
- **ROOTWAD**

**LEFT BANK ROUGHENING PLAN AND DETAILS**

**PROJECT NO.**: 114125

**FUNDING SOURCE No.**: 201183B17

**CONTRACT No.**: 20113126

**PORTER REACH RESTORATION PROJECT**

**SHEETS**: 16 OF 32
ROADWAY SECTION NOTES:
- 3 in. min. compacted depth HMA class II, pg 64-22
- Crushed surfacing base course depth varies
- 2 in. min. compacted depth HMA class II, pg 64-22
- 3 in. min. compacted depth HMA class II, pg 64-22
- 6 in. min. crushed surfacing base course

ROADWAY SECTION A

ROADWAY SECTION B

ROADWAY SECTION C
**Porter Reach Restoration Project**

**Force Main Plan and Details**

**Section:**
- **Existing Rips and Riprap:**
  - Minimum of 12" quarry spalls on all sides of pipe behind existing rip rap and headwall.
- **Dual Wall Fabricated Reducer:**
  - 12" x 6"
  - Thrust block width: 19.8" radius
- **Gravel Backfill for Pipe Zone Bedding:**
  - Specification: 7-09.3(4)
- **Force Main Outlet Section:**
  - Crushed riprap for pipe zone bedding.
  - Specification: 7-09.3(4)

**Notes:**
1. Support and bed pipe with existing levee face rock a minimum 18" depth, chink with quarry spalls around pipe.
2. Trim pipe end to match face of slope.
3. Pipe bedding shall be contained 6" behind the levee face rock.

**Diagram Details:**
- **Gravel Backfill for Pipe Zone Bedding:** Specification: 7-09.3(4)
- **Plumbing:**
  - 12" single wall HDPE pipe
  - 6" dia. PE pressure pipe
  - 6" dia. PE pressure pipe

**Existing Material Backfill with Salvaged Riprap:**
- **Reducer:**
  - 12" x 6'
  - 90° swept bend
  - Specifications: 8-30.3(10)
  - Thrust block width: 19.8" radius
- **Pipe Outlet Notes:**
  - Support and bed pipe with existing levee face rock a minimum 18" depth, chink with quarry spalls around pipe.
  - Trim pipe end to match face of slope.
  - Pipe bedding shall be contained 6" behind the levee face rock.

**Scale:**
- 1:480 HORIZ.
- 1:10 VERT.

**Surveyed:**
- D. Wiard
- M. Clark
- T. Gray

**Drawn:**
- D. Wiard
- M. Clark
- T. Gray

**Checked:**
- W. Steed

**Approved:**
- W.E. Mansfield, P.E.

**Drawing No.:**
- 1114-125

**Prepared:**
- Pennington & Leach, Inc.

**Contract No.:**
- 501183517

**Client:**
- King County

**Department:**
- Department of Natural Resources and Parks

**Water and Land Resources Division
Rural and Regional Services Section
Ecological Restoration and Engineering Division

**Scale:**
- 1:480 HORIZ.
- 1:10 VERT.

**Notes:**
- Scale in feet
- 2012-15
ALL FACE ROCK TO BE REMOVED TO EL 78'.

EXISTING LEVEE PROFILE
SCALE: 1"=30' HORIZ. 1"=5' VERT.

EXISTING LEVEE CROSS SECTIONS
SCALE: 1"=30' HORIZ. 1"=5' VERT.

NOTES:
1. TREES ALONG TOP OF LEVEE TO BE OWNED FOR A 15-FOOT WIDE TEMPORARY ACCESS ROAD WILL BE FLAGGED BY OWNERS. TREES NOT FLAGGED WILL REMAIN INTACT AND ERECTED PROTECTED FROM COMPACTION BY CONSTRUCTION EQUIPMENT.
2. CONTRACTOR SHALL REMOVE SALVAGED RIP RAP THROUGHOUT BREACHED SECTIONS.
3. DOWNSIDE EDGE OF LEVEE TO REMAIN SHALL BE PROTECTED WITH SALVAGED ROCK REMOVED FROM THE LEVEE FACE AS SHOWN ON THE PLANS.
4. SALVAGED ROCK TO BE USED FOR DEFLECTOR JAM OR Hauled TO APPROVED DISPOSAL SITE.
5. SCARIFY FINAL GRADE OF LOWERED LEVEE TO A MINIMUM DEPTH OF 24 INCHES.

PROJECT NO. 114123

DESIGNED: CAROLYN BUTCHART, P.E.
CAD: J. SMITH, CARDNO

APPROVED: WILL MANFIELD, P.E.

T. HURLEY, ESL, O. LATTIEDE, PHD.
T. HURLEY, ESL, O. LATTIEDE, PHD.
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T. HURLEY, ESL, O. LATTIEDE, PHD.
NOTES:
1. MAINTAIN 10-FOOT TOP OF CREST TEMPORARY SEPARATION BERM BETWEEN NEW BACKWATER CHANNEL AND EXISTING SIDE CHANNEL UNTIL ALL BACKWATER CHANNEL EXCAVATION AND INSTALLATION OF BURIED HABITAT JAMS ARE COMPLETED. OWNER TO APPROVE BACKWATER CHANNEL WORK BEFORE SEPARATION BERM IS REMOVED AND NEW BACKWATER CHANNEL IS TIED INTO EXISTING SIDE CHANNEL.

SCALE: 1"=40' HORIZ. 1"=5' VERT.
1. Logs on any layers can be placed between standing trees.

2. Min. 4 trees >8" dia. per jam, in direct contact with Layer 1 logs.

### EXPOSED HABITAT JAM LOG SCHEDULE

<table>
<thead>
<tr>
<th>Layer</th>
<th>Material</th>
<th>Dia. (IN)</th>
<th>Length (LF)</th>
<th>Total Quantity (Each Jam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LOG W/ROOTWAD</td>
<td>24</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>LOG W/ROOTWAD</td>
<td>10-15</td>
<td>30-40</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>LOG W/O ROOTWAD</td>
<td>10-15</td>
<td>30-40</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>LOG W/ROOTWAD</td>
<td>14-20</td>
<td>30-40</td>
<td>8</td>
</tr>
</tbody>
</table>

**Notes:**

- Logs on any layers can be placed between standing trees.
- Min. 4 trees >8" dia. per jam, in direct contact with Layer 1 logs.
**Buried Habitat Jam Log Schedule**

<table>
<thead>
<tr>
<th>Layer</th>
<th>Material</th>
<th>DBH (in)</th>
<th>Length (ft)</th>
<th>Total Quantity (each jam)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Log W/RootWad</td>
<td>24</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Log W/RootWad</td>
<td>10-15</td>
<td>30-40</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Log W/RootWad</td>
<td>24</td>
<td>50</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes**

1. Bottom of Layer 1 to be approximately 8-ft below existing grade at rootwad end.
2. Cover completed jam with min. 1 ft native material to match existing grade.

---

**Porter Reach Restoration Project**

**Buried Habitat Jam Layering Plan and Section**

---

**Know what's below. Call before you dig.**

**Underground utility locations are approximate.**

---

**Funding Source:**

- **Owner:** King County
- **Contract No.:** 00118017
- **Design:** T. Harly, LEED, L. Lavender, P.E.
- **Survey:** D. Womski
- **Design:** C. Shindo, PEG
- **Survey:** R. Clark
- **Review:** T. James

---

**Project No.:** 1114123

---

**Scale:** 1" = 5' HORIZ. 1" = 5' VERT.
NOTES:
1. SALVAGED TREES MEETING SECTION 9-09.1(C) CAN BE USED FOR NESTING OR FORAGING SNAGS. OTHER IMPORT PER SECTION 9-09.1(A).
2. SLASH PILES TO BE MIN. 20-FT DIA. BY MIN. 8-FT HIGH.
3. ADDITIONAL SLASH SHALL BE SCATTERED AROUND THE SNAG NO HIGHER THAN 4' EXTENDING WITHIN 10-FT RADIUS AROUND SNAGS.
4. SALVAGED TREES LARGER THAN SLASH DIMENSIONS SHALL BE PLACED ON THE LANDWARD SIDE OF THE LEVEE REMOVAL TOE OF THE GREEN VALLEY ROAD PROTECTION, AND PERIMETER OF THE BRICKMANER DRAINAGE. SALVAGED TREES TO BE PLACED IN GROUPS OF 5 OR FEWER AGAINST THE SOUTHEAST-FACING SIDE OF TWO OR MORE EXISTING LIVE STANDING TREES WITH A DBH OF 8 INCHES OR GREATER.

**NESTING SNAG SCHEDULE**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>MIN. DBH (IN.)</th>
<th>MIN. LENGTH (LF)</th>
<th>QUANTITY (PER CLUSTER)</th>
<th>QUANTITY (TOTAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONIFER SNAG W/ OR W/O ROOTWADS</td>
<td>16</td>
<td>30</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>DECIDUOUS SNAG W/ ROOTWADS</td>
<td>16</td>
<td>30</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

**FORAGING SNAG SCHEDULE**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>MIN. DBH (IN.)</th>
<th>MIN. LENGTH (LF)</th>
<th>QUANTITY (PER CLUSTER)</th>
<th>QUANTITY (TOTAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONIFER SNAG W/ OR W/O ROOTWADS</td>
<td>8</td>
<td>15</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>DECIDUOUS SNAG W/ ROOTWADS</td>
<td>8</td>
<td>15</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>
RIVER TEMPORARY STAGING AREA
SEE INSET MAP ON THIS SHEET.