



I-90 Snoqualmie Pass East

Temporary Erosion Sediment Control Plan Narrative

I-90 Snowshed to Keechelus Dam Phase 1C – Replace Snowshed and Add Lanes MP 57.34 to 60.23



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TEMPORARY EROSION SEDIMENT CONTROL PLAN NARRATIVE

I-90 Snowshed to Keechelus Dam Phase 1C – Replace Snowshed and Add Lanes MP 57.34 to MP 60.23

Washington State Department of Transportation

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Acronyms and Abbreviations

	A		M
ADT	Average Daily Traffic	MP	Milepost
		MSE	Mechanically Stabilized Earth
	B	MPH	Miles Per Hour
BMPs	Best Management Practices		
BR.	Bridge (as part of bridge names)		N
		NHS	National Highway System
	C	NPDES	National Pollutant Discharge Elimination System
CR.	Creek (as part of bridge names)		
CDF	Controlled Density Fill		P
		Phase 1C	I-90 Snoqualmie Pass East Project-Phase 1C
	E		
EB	Eastbound		R
ESC	Erosion and Sediment Control	Repl. Snowshed	Lake Keechelus Snowshed Repl.
ECL	Environmental Compliance Lead	SCMW	Slide Curve Median Wall
Existing Snowshed	Lake Keechelus Snowshed		S
		SCB	Slide Curve Bridge
	H	SCMW	Slide Curve Median Wall
HVF	High Visibility Fence	SP	Special Provision
HVSF	High Visibility Silt Fence	SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
HMA	Hot Mixed Asphalt	Std. Plan	Standard Plan
HECP Type 1 Mulch	Hydraulically Applied Erosion Control Product, Type 1 Mulch	SS	Standard Specifications
	I		T
I-90	Interstate 90	TESC	Temporary Erosion and Sediment Control
			U
	L	USBR	United States Bureau of Reclamation
LE	Lane Eastbound Centerline Alignment - Final	USFS	United States Forest Service
LW	Lane Westbound Centerline Alignment - Final		
			W
		WSDOT	Washington State Dept. of Transportation
		WB	Westbound

1 **TESC Planning**

2 Washington State Department of Transportation's (WSDOT) Temporary Erosion and Sediment Control
3 (TESC) plan consists of a Narrative and Plan Sheets. These describe the Temporary Best Management
4 Practices (BMPs) selected for preventing erosion and trapping sediment. In general, the Plan Sheets
5 provide details on BMP placement for each stage of design, while the Narrative explains activities for all
6 stages leading up to the final design. The purpose of TESC planning is to clearly establish when, where,
7 and how specific BMPs will be implemented to prevent erosion and the transport of sediment from a
8 construction site. Due to the unpredictable nature of weather and construction conditions, an erosion
9 control plan must be flexible and open to modifications or additions during construction.

10
11 WSDOT prepares an initial erosion control plan for all projects involving soil disturbances. These plans
12 are prepared in advance to satisfy permit requirements for project approval. Important TESC planning
13 details cannot be included in the initial plan because the Contractor frequently determines construction
14 dates, methods and schedules. The Contractor has the option to accept the WSDOT TESC Plan or to
15 modify the TESC Plan so that it is compatible with their construction plans. The Contractor shall prepare
16 TESC plan modifications for presentation at the Preconstruction Meeting. Any plan revisions must be
17 approved by the Engineer. Modifications should describe:

- 18
- 19 • How the construction schedule will minimize site exposure to erosion.
- 20 • How TESC BMP installation will correspond with the construction schedule.
- 21 • How and where the proposed erosion and sediment control measures will stabilize disturbed soils,
22 divert or store flows, and retain sediments throughout each phase of construction.
- 23 • How and when the TESC measures will be replaced or converted into permanent stormwater
24 management BMPs.
- 25 • The schedule and procedures for monitoring and maintaining the erosion and sediment control
26 measures.
- 27

28 The I-90 Snoqualmie Pass East - Phase 1C Project, herein referred to as the Project, consists of
29 construction of Lake Keechelus Snowshed Repl. (Replacement Snowshed), Slide Curve Bridge (SCB),
30 Resort Creek Bridges, lane construction, adding one lane to each the eastbound (EB) and westbound
31 (WB) I-90 freeway from the Snowshed vicinity (milepost (MP) 57.34) to east of Resort Creek (MP 60.23),
32 and other work. The Project falls within Kittitas County and Wenatchee National Forest. This portion of
33 I-90 is a multi-lane freeway on the National Highway System (NHS). The posted speed limit varies as
34 necessary during adverse weather conditions. The maximum posted speed limit is 65 miles per hour
35 (mph) for cars and 60 mph for trucks. The Average Daily Traffic (ADT) is 28,100 per the 2008
36 Transportation Discipline Report with 23% trucks. I-90 is classified as a rural interstate with mountainous
37 terrain.
38

39 **Purpose of Narrative**

40
41 There are four primary uses of this Narrative:

- 42
- 43 1. The WSDOT design offices will use the results to complete the contract Special Provisions (SP),
44 ensuring that all identified risks are addressed with enforceable contract language. It also serves as a

1 reference for designers when preparing the TESC Plan Sheets, ensuring consistency between the
2 Narrative and Sheets.

- 3 2. The Narrative allows WSDOT regional environmental offices to provide feedback to the design office
4 prior to awarding the contract.
- 5
6 3. The Narrative allows WSDOT to meet its internal policy as well as construction permit requirements
7 by having a printed copy of the TESC Plan, consisting of the TESC Plan Sheets and TESC Narrative,
8 on the construction site for resource agency review.
- 9
10 4. The Contractor shall use the Narrative as guidance in developing any modifications to the TESC Plan,
11 and the Contractor shall either adopt the Narrative or a modified version of the Narrative as part of
12 the TESC Plan for the Project.
- 13

14 **Risk Analysis and BMP Selection**

15 The Narrative addresses 12 TESC Elements. In each of the sections below, the erosion/sediment control
16 risks for the Elements are discussed in detail. Appropriate BMPs are identified and the Standard
17 Specification (SS) references are provided. If a General SP is necessary to more thoroughly address the
18 risk, the reference is listed with the SS. When the risk is unique and no contractual method exists for
19 addressing it, a SP must be prepared. A reference to the SP is also listed at the end of each Element
20 section.

21 **Construction Activities/Locations**

22 The Project will have the following distinct areas requiring TESC attention and can be found on Plan
23 Sheets TD1 through TD46 (Temporary Drainage/ TESC Plan Sheets for Stages 1-5) and TEC1 through
24 TEC5 (TESC for Mitigation and Staging/Stockpile Sites):

25 **Replacement Snowshed (Lane Westbound Centerline Alignment-Final (LW) 26 1352+50 to LW 1363+50)**

27 The Lake Keechelus Snowshed (existing Snowshed) will be removed and replaced with a 133 ft wide and
28 1100 ft long Replacement Snowshed that will cover the six lanes of traffic. Lakeside, the Replacement
29 Snowshed is supported by shafts and columns (Pier 2) which extend into Keechelus Lake. Along the
30 hillside, the Snowshed is supported by an abutment wall (Pier 1). Portals at either end of the Snowshed
31 will minimize the risk of avalanche snow and debris falling on the freeway.

32 The EB lanes will be supported by Wall 3, a geosynthetic wall constructed to the inside of Pier 2. During
33 excavation of the Pier 2 work bench, Wall 4, a temporary soil nail wall, will be constructed to support the
34 detour traffic lanes. To facilitate construction of Pier 1 and various Snowshed operational facilities, rock
35 excavation along the hillside will be completed and stabilized. In addition to Wall 3, Pier 1, Pier 2, and
36 the Snowshed superstructure, the following retaining walls associated with Snowshed will be constructed:
37 Wall 1, Wall 2, Walls 9A thru 9D, and Wall 10. See the Replacement Snowshed plan sheets for the
38 location and proposed construction of each wall.

39 **Snow Nets**

40 Snow Nets will be installed from LW 1342+88 to LW 1344+14 left, from LW 1371+45 to LW 1372+80
41 left, and from LW 1394+60 to 1402+27 left. Motorized vehicles are not permitted to access the Snow Net
42 sites. Some clearing of dead/hazard trees will be required during fence construction.

1 **Slide Curve Bridge (SCB) (Lane Eastbound Centerline Alignment – Final (LE)**
2 **1372+06 to LE 1383+58)**

3 SCB will carry the LE roadway over the Keechelus Lake shoreline where unstable geotechnical
4 conditions exist. SCB will be approximately 1160 ft long and 56 ft wide. SCB will have eight spans
5 supported by nine piers constructed within Keechelus Lake. During excavation of the work bench, Walls
6 7, 7A, and 7B will be constructed to support detour traffic lanes. In addition to these walls and SCB, the
7 following retaining walls associated with SCB will be constructed: Wall 5, Wall 6, Wall 8, and Wall 23.
8 See the Retaining Wall plan sheets for the location and proposed construction of each wall.
9

10 **Wall 8 (LW 1375+85 to LW 1423+00)**

11 Wall 8, a structural earth wall, will retain the LW roadway embankment and traffic lanes where the LW
12 and LE alignments vertically deviate. Wall 8 is approximately 4715 ft long and 67 ft high at its highest
13 point. From approximately LW 1386+00 to LW 1419+00, Wall 8 will be founded on bedrock. The
14 remainder of the wall will be founded on a concrete leveling pad. The major construction activities
15 associated with Wall 8 include rock/foundation excavation, structural earth wall erection, and placing
16 shotcrete on the wall face.
17

18 **Wall 24 (LW 1349+00 to LW 1351+06)**

19 Wall 24, a soil nail wall, will retain the rock cut slopes and overburden along the outside of LW roadway.
20 Wall 24 is approximately 206 ft long and 43 ft high at its highest point. The major construction activities
21 associated with Wall 24 include rock excavation, various rock slope stabilization countermeasures (see
22 **Rock Slope Stabilization**), soil nail wall erection, and placing shotcrete wall facing.
23

24 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

25 Rock slope stabilization includes rock scaling, rock cuts, overburden excavation. Rock slope stabilization
26 countermeasures will be implemented throughout the project limits. The countermeasures include rock
27 dowels, rock bolts, and, where needed, cable net slope protection. Existing rock slopes will be stabilized
28 using methods such as rock bolting, cable net slope protection, and/or shotcrete. See plan sheets RK1
29 through RK20 for detailed information about rock excavation and rock slope stabilization.
30

31 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),**
32 **and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80**
33 **to LE 1427+60)**

34 Resort Creek Br. WB and Resort Creek Br. EB are each single span and approximately 140 ft long. The
35 bridges will be built on shafts. Resort Creek will be re-channelized to flow under the new bridges. The
36 creek re-channelization includes construction of a berm with embedded habitat structures. The existing
37 channel will be filled with 1 ft of topsoil. The existing 7 ft culvert will be extended through the proposed
38 LE embankment and lined with a 5 ft diameter pipe. The annular space between the two pipes will be
39 filled with Controlled Density Fill (CDF).
40

41 **Unnamed Creek at MP 59.7 Bridges EB and WB**

42 Two existing, 10 ft wide by 4 ft tall, box culverts (AE 112+60 and AW 113+20) convey the Unnamed
43 Creek at MP 59.7 through the I-90 roadway embankment. A concrete slab, founded on abutment walls
44 and shafts, will carry the LE outside shoulder over the EB culvert's outfall apron. Walls 19 and 20,
45 gravity block walls, will retain the LE roadway embankment. A concrete slab, founded on abutment walls
46 and micropiles, will carry the detour roadway over the WB culvert's outfall apron. Walls 21 and 22, also
47 gravity block walls, will retain the detour roadway embankment. There will be no in-water work at these
48 locations.

1
2 **EB I-90 (LE 1334+83 to AE 124+80)**

3 Construction of the LE roadway will remove and replace the existing pavement, add a third travel lane,
4 incorporate enclosed and surface drainage, intermittently cut into the existing side slopes, and
5 intermittently fill into Lake Keechelus. For most of the project, there will not be a separated median. As
6 I-90 approaches Resort Creek from the west, a grassed median will be graded. The LE alignment will tie
7 into the existing EB roadway east of Resort Creek.
8

9 **WB I-90 (LW 1335+90 to AW 126+00)**

10 Construction of the LW roadway will remove and replace the existing pavement, add a third travel lane,
11 incorporate enclosed and surface drainage, stabilize rock slopes, intermittently cut into the rock slopes,
12 and intermittently place fill along the hillside slopes.
13

14 **Staging, Stockpile, and Mitigation Sites**

15 TESC BMPs shall be repaired, replaced and/or removed as needed during each construction season and in
16 preparation for the winter shutdown. The majority of these sites also have small creeks, wetlands and
17 ditches that drain into adjacent creeks or Keechelus Lake. Careful placement and maintenance of BMPs
18 will ensure that sediment or other contaminants do not enter these small watercourses.
19

20 **Crystal Springs Sno-Park**

21 The Crystal Springs Sno-park is located south of the Stampede Pass Interchange on USFS Road 54. This
22 site has 33.3 acres designated for stockpiling and processing material. The site is heavily used during the
23 winter by snowmobilers and dog mushers and shall be stabilized for winter use.
24

25 **Material Balance Site (LW 1410+89 to 1420+56)**

26 The Material Balance Site area is approximately 2.4 acres and can be used for stockpiling or wasting
27 material. The Contractor may use this as a staging area as well.
28

29 **Price Creek Sno-Park**

30 There is a combined area of 2.46 acres available at the Price Creek Sno-Park. The areas are paved and
31 not ideal for stockpiling material. The Price Creek Sno-Park may be used as a staging facility.
32

33 **Townsend Creek Mitigation Site**

34 To mitigate for wetland impacts, the Townsend Creek Mitigation Site will be cleared, excavated, graded,
35 amended with compost, and mulched. Habitat structures including brush piles and Large Woody Material
36 (LWM) will be added to the site as well. In addition, an existing culvert, 8 ft wide by 8 ft tall, conveying
37 Townsend Creek beneath an abandoned roadway, will be removed. This segment of Townsend Creek will
38 be re-graded and habitat structures will be added to the creek channel. This site is entirely within
39 environmentally sensitive areas and special care is needed to avoid and minimize impacts to vegetation
40 outside the site boundaries. Protection of water quality to adjoining wetlands will also be important to
41 manage.
42

43 **Sunset Highway Mitigation Site**

44 The existing concrete panels remaining from the old Sunset Highway will be removed. Unsuitable
45 materials will be excavated and backfilled with topsoil. In addition, LWM will be placed with the site.
46 The remaining roadway embankment will be decompacted and the area mulched. This site is entirely
47 within environmentally sensitive areas and special care is needed to avoid and minimize impacts to
48 vegetation outside the site boundaries. Protection of water quality to adjoining wetlands will also be
49 important to manage.

1
2 **Upper Resort Creek Mitigation Site**

3 The existing concrete, double barreled, culvert will be removed and replaced with a three sided
4 culvert. The existing channel upstream and downstream of the culvert will be re-graded to ensure the
5 culvert is no longer a fish barrier. Access to and from the site will require clearing and grubbing, grading,
6 and gravel roadway construction.
7

8 **Detour Alignment Construction**

9 The Project has been designed to be built in five stages lasting six years. Temporary drainage structures
10 and TESC BMPs left in place through the winter shall be maintained by the Contractor. Additional TESC
11 supplies shall be stored at an approved location for possible emergency use “(see “Additional BMPs and
12 Equipment” in Special Provision “Erosion Control and Water Pollution Control”).
13

14 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

15 It was estimated that Stage 1 will take at least two years. The DW11 and DE11 alignments will be used
16 during Stage 1. The work associated with DW11 and DE11 includes planning 0.30 ft of existing
17 bituminous pavement and underlying materials of the existing shoulders (median and outside), building
18 temporary drainage, resurfacing the shoulders with 0.30 ft of Hot Mixed Asphalt (HMA), and overlaying
19 the shoulders and lanes, from DE11 21+32 to DE11 79+91 and DW11 21+50 to DW11 79+50, with 0.25
20 ft of HMA.
21

22 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

23 The DW12 and DE12 alignments will be used during Stage 2. The work associated with the DW12 and
24 DE12 includes planning 0.15 ft of existing bituminous pavement and underlying material of the existing
25 shoulders, widening the roadway embankment, building temporary drainage, and resurfacing with 0.15 ft
26 of HMA.
27

28 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

29 The DW13 and DE13 alignments will be used during Stage 3 and intermittently through Stage 4. The
30 work associated with the DW13 and DE13 includes roadway excavation, embankment compaction,
31 building temporary drainage, placing crushed surfacing base course (CSBC), and laying a 0.50 ft lift of
32 HMA.
33

34 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

35 The DW14 and DE14 alignments will be used during Stage 4. The work associated with the DW14 and
36 DE14 includes adjusting traffic barrier and modifying temporary pavement markings. The DW14 and
37 DE14 alignments tie into the DW13 and DE13 alignments, respectively. It is not anticipated that earth
38 disturbing activities will be required to construct the DW14 and DE14 alignments.
39

40 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

41 The DW15 and DE 15 alignments will be used during Stage 5. The work associated with the DW15 and
42 DE15 includes roadway excavation, embankment compaction, placing CSBC, and laying a 6 inch lift of
43 HMA.
44

45 **TESC Element 1: Mark Clearing Limits**

46 In general, the purpose of marking the clearing limits with High Visibility Fence (HVF) or High Visibility
47 Silt Fence (HVSF) is to protect wetlands, waters of the State, and other environmentally sensitive areas.
48 These limits generally follow the temporary and permanent cut and fill lines of the detours and permanent

1 roadway embankments. Keechelus Lake and associated wetlands border the Project to the south.
2 Wetlands and upland forested areas border the Project to the north. Resort Creek, Unnamed Creek at MP
3 59.7, and Townsend Creek are conveyed under the I-90 freeway. The staging and stockpile sites are
4 bounded by wetlands, various minor creeks, and forested lands. Extra care and additional measures need
5 to be taken to protect these sensitive areas during construction activities and winter shutdown. Correct
6 placement of HVF and HVSF shall be monitored throughout each construction stage and detour
7 alignment.

8 Mark Clearing Limits:

- 9
- 10 • Prior to disturbing existing ground with construction equipment. Boundaries of clearing limits
11 associated with site access and construction shall be clearly marked and fenced to prevent ground
12 disturbance outside the construction limits.
 - 13 • Around existing vegetation to be protected throughout the life of the contract, as ordered by the
14 Engineer.
 - 15 • Along wetland buffer zones, streams, and other sensitive areas identified by the Engineer. These
16 areas shall not be used as sediment filters. Stormwater BMPs shall not be placed within
17 environmentally sensitive areas or where disturbance of mature vegetation is required to construct
18 the BMP.
- 19

20 Where wetlands or sensitive buffer areas are present in the temporary impact areas, the clearing
21 limits will be the staked construction limits. In non-wetland or non-sensitive buffer areas, the
22 clearing limits will be staked 15 feet out from the staked construction limits. The Engineer will
23 stake the locations where HVF and HVSF will be placed.

24
25 The Contractor shall not begin clearing and grubbing until work is ready to commence in the cleared area,
26 minimizing the amount of time bare soil is exposed to weather conditions.

27
28 Prior to shutting down for the winter, the Engineer may order reinforcement or removal of HVF, HVSF
29 and other TESC BMPs to prevent snow damage.

31 **Construction Activities/Locations**

32 The following sites and activities include clearing areas that will be marked to prevent impacts to
33 environmentally sensitive areas:

34 **Replacement Snowshed (LW 1352+50 to LW 1363+50)**

35 This site will require access to an excavated work bench from the EB lanes of I-90 and back onto I-90
36 from LE 1346+00 to LE 1365+60. The work bench will be used during Stages 1 and 2, and it will remain
37 in place during the winter months. HVF shall be set once in its final location when the Keechelus Lake
38 water surface elevation has dropped sufficiently. The HVF shall be reset each season the Contractor will
39 be actively working along the work bench. The clearing limits for the Replacement Snowshed backwall
40 and rock cutting areas shall be marked beyond the cut/fill line with HVF.

41 **Snow Nets**

42
43 The construction limits of the avalanche fencing will be delineated using HVF. If alternate methods of
44 accessing the avalanche fencing locations are selected, the construction limit delineation will need to be
45 revisited.

1 **SCB (LE 1372+06 to LE 1383+58)**

2 This site will require an excavated work bench from the EB lanes of I-90 and back onto I-90 from
3 LE1369+00 to LE 1387+50. The work bench will be used during Stages 1 and 2, and it will remain in
4 place during the winter months. HVF shall be set once in its final location when the Keechelus Lake
5 water surface elevation has dropped sufficiently. The HVF shall be reset each season the Contractor will
6 be actively working along the work bench.
7

8 **Wall 8 (LW 1375+85 to LW 1423+00)**

9 Rock cuts and MSE wall construction will occur between LE 1375+85 and 1423+00. HVF shall be
10 placed 15 feet offset from the cut/fill line or as staked by the Engineer. The HVF will not be necessary at
11 the road elevation.
12

13 **Wall 24 (LW 1349+00 to LW 1351+06)**

14 HVF shall be placed 15 feet offset from the cut/fill line or as staked by the Engineer. The HVF will not be
15 necessary at the road elevation.
16

17 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

18 The upper limits of the rock slope stabilization operations shall be delineated with HVF. The HVF will be
19 offset 15 ft from the cut/fill lines.
20

21 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),
22 and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80
23 to LE 1427+60)**

24 The Resort Cr. Br. WB will be constructed during Stages 2 and 3. Access to the WB bridge will be from
25 the existing WB lanes. The construction zone, including the upstream and downstream re-channelization
26 limits, will be delineated using HVSF placed at the cut/fill or as staked by the Engineer.
27

28 The Resort Cr. Br. EB will be constructed during Stage 1, Seasons 1 and 2. Access to the EB Bridge will
29 be from the proposed LE roadway embankment. The construction zone will be delineated using HVF
30 placed at the cut/fill lines or as staked by the Engineer.
31

32 The culvert lining and extension will be constructed during Stage 1, Season 1. Access to the culvert will
33 be from the existing WB lanes (CW5242+00). HVSF shall be placed 15 ft offset from the existing toe of
34 slope, or as shown on the plans, along the access road and around upstream end of the culvert. The
35 downstream end of the culvert extension falls within the construction limits of the proposed LE roadway
36 embankment, and those construction limits will delineated with HVF.
37

38 **Unnamed Creek at MP 59.7 Bridges EB and WB**

39 The work zones and access points at the EB and WB culvert outfalls at Unnamed Creek at MP 59.7 will
40 be marked with HVF at the cut/fill lines or as staked by the Engineer.
41

42 **EB I-90 (LE 1334+83 to AE 124+80)**

43 HVF or HVSF, as shown in the plans, shall be placed at a 15 ft offset from the cut/fill lines along the lake
44 shore except through sensitive areas identified in the plans. When a cut/fill line falls within a sensitive
45 area, the HVF or HVSF shall be placed at the cut/fill lines or as staked by the Engineer. The HVF or
46 HVSF may need to be relocated as lake elevations fluctuate.
47
48

1 **WB I-90 (LW 1335+95 to AW 138+55)**

2 HVF or HVSF, as shown in the plans, shall be placed at a 15 ft offset from the final cut/fill lines along the
3 hillside slopes except through sensitive areas identified in the plans. When a cut/fill line falls within a
4 sensitive area, the HVF or HVSF shall be placed at the cut/fill lines or as staked by the Engineer. The
5 HVF or HVSF may need to be relocated as lake elevations fluctuate
6

7 **Staging, Stockpiling, and Mitigation Sites**

8
9 **Crystal Springs Sno-Park**

10 Clearing limits and existing sensitive areas at the Crystal Springs Sno-Park work area shall be marked
11 with HVF or HVSF, as staked by the Engineer.
12

13 **Material Balance Site (LW 1410+89 to 1420+56)**

14 Clearing limits at the Material Balance Site shall be marked as part of the WB I-90 construction zone.
15

16 **Price Creek Sno-Park**

17 The HVF shall be used just beyond the existing shoulders at the Price Creek Sno-Park staging facility.
18 The HVSF shall be placed between the staging area and lower vegetated areas.
19

20 **Townsend Creek Mitigation Site**

21 Clearing limits at the Townsend Creek Mitigation Site shall be marked with HVF. The HVF and HVSF
22 shall be placed at the cut/fill lines or as staked by the Engineer. Additional markings may be required for
23 wetlands adjacent to the mitigation site.
24

25 **Sunset Highway Mitigation Site**

26 Clearing limits at the Sunset Highway Mitigation Site shall be marked with HVF. The HVF and HVSF
27 shall be placed at the cut/fill lines or as staked by the Engineer.
28

29 **Upper Resort Creek Mitigation Site**

30 Clearing limits at the Upper Resort Creek Site and access road shall be marked with HVF. The HVF shall
31 be placed at the cut/fill lines or as staked by the Engineer.
32

33 **Detour Alignment Construction**

34 The EB and WB lanes will have various detour configurations that will require planning and paving
35 throughout the Project. The cut and fill areas required for detour alignment construction shall be
36 delineated with HVF or HVSF, as staked by the Engineer. Additionally, sensitive areas shall be
37 delineated with HVF.
38

39 **BMPs Identified**

40 The following BMPs shall be used to identify clearing limits on the Project site:

- 41 • Vegetation Protection and Restoration, SS 1-07.16(2)
- 42 • HVF, “Delineation of Sensitive Areas” in SP “Prosecution of Work”, SS 1-08.4, Std. Plan I-
43 10.10-00
- 44 • HVSF, “Delineation of Sensitive Areas” in SP “Prosecution of Work”, “Sediment Control Barriers
45 in SP “Erosion Control and Water Pollution Control”, SS 1-08.4, SS 8-01.3(9)A, Std. Plan I-
46 30.10-00
- 47 • SP “Clearing in Temporary Impact Areas”

TESC Element 2: Establish Construction Access

Construction access BMPs shall be provided for access roads, staging sites, and haul routes. All construction access locations must be approved by WSDOT. During the five stages, multiple access points will be used at one time. Access points that are no longer needed shall be completely removed and the access location shall be restored.

General TESC requirements for access roads are as follows:

- Temporary access roads for construction shall be located within the footprint of the new roadway. Locations that need to be placed within the boundaries of the lake and below the High Water Line Elevation 2517 ft must have prior approval by WSDOT and controlling agencies.
- Construction entrances/exits shall be sloped downward into the site, when possible, to reduce track-out of sediments onto the roadway.
- A Tire Wash shall be used at all access points where construction vehicles are exiting a site.
- Wash water from each Tire Wash structure shall be contained and disposed of at a WSDOT approved, offsite location. Tire Washes will need to be removed prior to winter shutdown.
- When necessary, silt fences or wattles shall be used to prevent sediment generated by construction access traffic from entering the roadway ditches.
- Access roads, including embankments and roadway ditches, shall be stabilized as described in the Erodible Earth Requirements section of the Erosion Control and Water Pollution Control Special Provision.
- Temporary access roads from I-90 shall be separated from traffic by temporary concrete barrier and clearly defined for construction vehicles only. These access roads will be barricaded when not in use.
- Stabilized access roads shall be inspected regularly and following large storm events.
- Temporary access roads shall be completely removed upon completion of construction activity. Affected areas shall be graded to the final grade as described in the contract plans and specifications or restored to pre-construction contours. See applicable Roadside Restoration, Temporary Drainage/TESC, or Mitigation Site plan sheets for the temporary or permanent BMPs to be applied to the disturbed ground. The Contractor shall submit a Roadside Work Plan to address restoration of disturbed areas, as described in SS 8-02.3(2).
- The Contractor shall remove sediment tracked onto the roadway, as ordered by the Engineer. Care shall be taken to not harm roadside vegetation as a result of cleaning operations. The Contractor shall monitor the roadway access points for sediment tracking and address problem areas promptly.

Construction Access Locations

Each of the following sites and activities require implementation of construction access BMPs for stabilizing each entrance and exit. Sediment tracking shall be minimized and a cleaning procedure shall be in place for soiled pavement. Winterizing each of the access locations with existing and/or additional BMPs will be required to prepare for the next construction season.

Replacement Snowshed (LW 1352+50 to LW 1363+50)

The four major construction elements for the Snowshed and proposed construction access accommodations for each element are described below:

1 **Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/
2 mechanical/electrical rooms, water tank room, backfill, and drainage systems)**

3 The Pier 1 substructure will be constructed during Stage 3. The EB and WB lanes will be shifted towards
4 the lakeside, and access to this area will be along the DW13 alignments.
5

6 **Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)**

7 The Pier 2 substructure will be constructed during Stages 1 and 2. Access to and from the site will be
8 from the DE11 alignment for the AR6 work bench.
9

10 **Superstructure (roof, portals, and Walls 9A thru 9D and 10)**

11 The superstructure will be constructed during Stages 4 and 5. Access will be from the DE14, DW14,
12 DE15, and DW 15 alignments which are centered within the Snowshed.
13

14 **Roadways (existing Snowshed removal, pavement, utilities, and drainage system)**

15 The EB and WB roadways will be constructed during Stage 5. Access for the EB and WB roadway
16 construction will be from the DE15 and DW15 alignments where the lanes are shifted to the north and
17 south, respectively. Traffic will then be shifted to the final LE and LW alignments.
18

19 **Snow Nets**

20 Ground access for vehicles, equipment, and materials to the Snow Nets is prohibited. Pedestrian ground
21 access to the Snow Retention Structure sites is permitted.
22

23 **SCB (LE 1372+06 to LE 1383+58)**

24 The four major construction elements for SCB and the proposed construction access accommodations for
25 each element are described below:
26

27 **Substructure**

28 The substructure will be constructed during Stage 1, Seasons 1 and 2. Access will be from the detour and
29 work bench alignments (DE11 and AR1, respectively).
30

31 **Superstructure**

32 The superstructure will be constructed during Stage 2. Access will be from the detour and work bench
33 alignments (DE11, DE12, and AR1).
34

35 **Roadway**

36 The roadway will be constructed during Stage 2, Season 3. Access will be from the detour and work
37 bench (DE11, DE12, and AR1).
38

39 **Wall 8 (LW 1375+85 to LW 1423+00)**

40 Construction of Wall 8 will begin during Stage 2 and end during Stage 4. Access to Wall 8 will be from
41 the Sunset Highway around the Resort Creek wetlands for one season, during the construction of Resort
42 Cr. Br. WB. Access from Wall 8 will be near the beginning of the DW12/DW13/DW14 Lines.
43

44 **Wall 24 (LW 1349+00 to LW 1351+06)**

45 Construction of Wall 24 will take place during Stage 3. Access to this site will be from the existing
46 DW12 WB detour lanes at DW12 86+00, and access from this site will be near the beginning of the
47 DW13 Line.
48

1 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

2 The initial rock excavation (LW 1406+00 to LW 1411+00) will be completed during Stage 1, Seasons 1
3 and 2. Access to this site will be from the WB lanes. The remaining rock excavation and slope
4 stabilization work (LW 1352+50 to LW 1406+00) will begin in Stage 3 and end during Stage 4. Access to
5 this site will be from the existing DW12 WB detour lanes at DW12 86+00, and access from this site will
6 be near the beginning of the DW13/DW14 Line.
7

8 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),**
9 **and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80**
10 **to LE 1427+60)**

11 The EB Resort Creek Bridge will be built during Stage 1(Seasons 1 and 2). Access to the site will be from
12 the EB lanes at CE 5216+00, and access from the site will along the EB lanes at CE 5258+00. The WB
13 Resort Creek Bridge will be built during Stages 2 and 3. Access to the site will be from the WB detour
14 lanes at DW12 86+00, and access from the site will be near the beginning of the DW12/DW13 Lines. The
15 two work zones associated with the Resort Creek re-channelization are the existing creek crossing with I-
16 90, a 7' culvert, and the proposed creek crossing with I-90, under the two new bridges. Work at the
17 existing crossing will take place during Stage 1, Season 1. The proposed re-channelization will be
18 completed during Stage 3. Access to and from the stream re-channelization will be along the outside
19 shoulder of AW roadway. The Resort Creek Re-Channelization will be constructed simultaneously with
20 the LW/AW roadway. See the WB I-90 (LW 13335+95 to AW 138+55) subsection for additional
21 construction access information.
22

23 **Unnamed Creek at MP 59.7 Bridges EB and WB**

24 The EB Unnamed Creek Bridge at MP 59.7 will be built during Stage 1, Season 1. Access to the site will
25 be from the existing EB lanes at CE 5216+00, and access from the site will be along the EB lanes at CE
26 5258+00. The WB Unnamed Creek Bridge at MP 59.7 will be built during Stage 2. Access to the site
27 will be from the WB detour lanes at DW12 86+00, and access from the site will be near the beginning of
28 the DW12 Line.
29

30 **EB I-90 (LE 1334+83 to AE 124+80)**

31 During Stage 1, Seasons 1 and 2, the work associated with EB I-90 occurs between LE1412+00
32 and AE 124+80. Access to the site will be from the existing EB lanes at CE 5216+00, and access
33 from the site will be along the EB lanes at CE 5258+00. During Stages 2, 3, and 4, no work is
34 planned for the final EB I-90 roadway. During Stage 5, the work associated with EB I-90 occurs
35 between LE 1334+83 and LE 1412+00. Access to the site will be from the existing EB lanes at
36 TE 2000+00, and access from the site will be along the EB lanes at CE 5265.
37

38 **WB I-90 (LW 1335+95 to AW 138+55)**

39 During Stages 1, 2, and 5, no work is planned for the final WB I-90 roadway. During Stage 3, the work
40 associated with WB I-90 occurs between AW 100 and AW 138+55. Access to the site will from the WB
41 detour lanes at DW12 86+00, and access from the site will be near the beginning of the DW12/DW13
42 Lines. During Stage 4, the work associated with WB I-90 occurs between LW 1335+95 and LW
43 1428+91. Access to the site will be from the WB detour lanes at DW12 86+00, and access from the site
44 will be near the beginning of the DW14 Lines.
45
46

1 **Staging, Stockpiling, and Mitigation Sites**
2

3 **Crystal Springs Sno-Park**

4 Access to the Crystal Springs Sno-Park stockpile site will be from USFS Rte. 54.
5

6 **Material Balance Site (LW 1410+89 to 1420+56)**

7 During Stage 1, Season 1, embankment will be placed at the Material Balance Site. Access to the Material
8 Balance Site will be from the existing WB lanes at CW 5243+00, and access from the site will be along
9 the WB lanes at CW 5213+00.
10

11 **Price Creek Sno-Park**

12 The existing paved access locations for the Price Creek Sno-Park will be used during construction, so
13 additional access accommodations are not anticipated.
14

15 **Townsend Creek Mitigation Site**

16 Access to and from the Townsend Creek Mitigation Site will be from the WB I-90 lanes at CW 5287+00.
17

18 **Sunset Highway Mitigation Site**

19 Access to and from the Sunset Highway Mitigation Site will be from the WB I-90 lanes at CW 5314+00.
20

21 **Upper Resort Creek Mitigation Site**

22 The culvert replacement and channel grading at the Upper Resort Creek Mitigation Site will be completed
23 by the end of Stage 1, Season 2. Access to and initially from the site will be from the WB Lanes at CW
24 5243+00 through the Old Sunset Highway around the Resort Creek wetlands. Once the culvert is in place,
25 access from the site will be along the WB lanes at approximately CW 5224+00.
26

27 **Detour Alignment Construction**

28 Access for each of the detour alignments is described in detail below.
29

30 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

31 The DW11 and DE11 alignments will be constructed during Stage 1, Season 1. Access for DW11 and
32 DE11 will be from the existing WB and EB lanes, respectively.
33

34 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

35 The DW12 and DE12 alignments will be constructed during Stage 2. Access for DW12 and DE11 will be
36 from the existing WB and EB lanes, respectively.
37

38 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

39 The DE13 alignment will be constructed during Stage 2. Access to the DE13 will be near the beginning of
40 the DE11 roadway, and access from the DE13 roadway will be at DE12 20+70. The DW13 alignment
41 will be constructed during Stage 3. Access for DW13 will be from the detour WB lanes.
42

43 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

44 The DW14 and DE14 alignments will be constructed during Stage 4. Since the proposed work for the
45 DW14 and DE14 alignments consists of detour channelization and barrier relocation, stabilized
46 construction entrances will not be required for the work on the detour. Access for the DW14 alignment
47 will be from the TW 2004+13, and access from the DE14 alignment will be from TE 2003+00. The TW

1 and TE alignment information is based on the I-90 Hyak to Snowshed Vicinity Phase 1B – Add Lanes
2 and Bridges Project.

4 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

5 The DW15 alignment will be constructed during Stage 4. Access to the site will be from the WB detour
6 lanes at DW12 86+00, and access from the site will be near the beginning of the DW15 Lines. The DE15
7 alignment will be constructed during Stage 5. Access to the site will be from the TE roadway, and access
8 from the site will be at CE 5269+79. The TE alignment information is based on the I-90 Hyak to
9 Snowshed Vicinity Phase 1B – Add Lanes and Bridges Project.

11 **BMPs Identified**

12 The following BMPs shall be implemented to reduce sediment tracking from construction access points:

- 13 • Stabilized Construction Entrance, SS 8-01.3(7), Std. Plan I-80.10-00
- 14 • Quarry Spalls, Std Plan I-80.10-00, SP “Riprap”
- 15 • Street Cleaning, SS 8-01.3(8)
- 16 • Tire Wash, SS 8-01.3(7), SP “Erosion Control and Water Pollution Control”

18 **TESC Element 3: Control Flow Rates**

19
20 The objective of controlling flow rates is to protect downstream properties and waterways from erosion
21 due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the Project site.
22 Due to the site constraints, steep slopes and Keechelus Lake, there are no locations that can serve as a
23 large detention pond area for any of the construction activities. The only natural depression near the
24 Project site is the wetland area near Resort Creek which is unavailable for use as a holding basin or
25 settling pond.

26
27 Construction stormwater discharge shall meet Water Quality Standards for Surface Waters of the State of
28 Washington (Chapter 173-201A WAC) prior to entering water bodies or wetlands. Erosion on the banks
29 of Keechelus Lake is not expected to result from increased flow rates. Flow rate control for the Project is
30 intended to prevent embankment erosion and channel scour. TESC BMPs to control flow rates, such as
31 temporary sediment traps, mulching and check dams within ditches, shall be implemented throughout the
32 five stages of this Project.

33
34 The following management and physical BMPs shall be implemented to control flow rates, thus
35 protecting downstream areas from erosion and sediment deposition and preventing sediment transport:

- 37 • Clean offsite surface water shall be routed through or around the construction site in a lined
38 channel or pipe to prevent erosion, co-mingling, and increased flow of onsite stormwater, as
39 required in SS 8-01.3(1)C, Water Management. This offsite water shall not be combined with
40 onsite stormwater and shall be discharged at its pre-construction outfall point. Existing culverts
41 shall be used to convey offsite runoff through or around the Project when feasible.
- 42 • Check dams shall be installed at regular intervals along existing and newly constructed ditches to
43 reduce the velocity of concentrated flows and trap sediment.
- 44 • Sediment traps or temporary sediment ponds shall be installed where existing ditches convey
45 flow into sensitive areas such as wetlands, streams, and Keechelus Lake. Discharge from the
46 traps or ponds may outfall into the wetlands, streams or Keechelus Lake if it meets water quality
47 standards described in WAC 173-201A. Untreated discharge and sediment shall be removed for

1 treatment at a WSDOT approved site. Sediment shall be removed from the trap when the level of
2 sediment reaches 1-foot.

- 3 • Prior to the winter shutdown (Oct. 1 thru Oct. 15), flow control BMPs shall be reinforced and
4 remain in place throughout the off-seasons. All exposed soils shall be planted, terraced or
5 covered with HECF Type 1 Mulch, mat or other substance which reduces runoff velocity.
6 Ditches and channels may be stabilized with coarse gravel, quarry spalls, or other erosion
7 protection including erosion control blankets, wattles, or check dams as needed.
- 8 • Discharged stormwater shall comply with WAC 173-201A before entering water bodies or
9 wetlands. Turbid water that cannot meet WAC 173-201A with onsite treatment shall be disposed
10 of at an approved offsite location.

11
12 The approximate locations for flow control BMPs, such as sediment traps, ponds and check dams are
13 shown on the Temporary Drainage/TESC Plan Sheets and shall be placed as ordered by the Erosion and
14 Sedimentation Control Lead (ESC) in the field.
15

16 **Construction Activities/Locations**

17 Each of the following sites and activities require flow control measures to avoid increased erosion
18 downstream from the Project site:
19

20 **Replacement Snowshed (LW 1352+50 to LW 1363+50)**

21 The four major construction elements for the Replacement Snowshed and the proposed flow control
22 BMPs for each are described below:
23

24 **Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/ 25 mechanical/electrical rooms, water tank room, backfill, and drainage systems)**

26 During Stages 3 and 4, the Pier 1 substructure will be built up from the foundation through the cross
27 beam. The gravel backfill will be constructed to provide a work platform for placing the Snowshed
28 girders; however, a portion of the retaining wall and the entire crossbeam will be exposed and will create
29 a runoff barrier. As part of the winter shutdown operations, a ditch will be graded in the backfill, behind
30 Pier 1, to convey runoff toward the ends of Pier 1. On either side of Pier 1, enclosed drainage facilities
31 will convey the runoff to Keechelus Lake. Check dams will be placed within the ditch to reduce velocity
32 and peak flow rate. Slope protection will be placed at the outfall pipes to reduce the discharge velocity.
33 See the **Rock Excavation** subsection for a discussion of the TESC BMPs to be incorporated upslope of
34 the Replacement Snowshed.
35

36 **Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)**

37 The soil boring information available for the AR6 work bench describes the material as mostly gravel and
38 sand with 7.8% average fines content; therefore, much of the stormwater and run-on will infiltrate into the
39 work bench. HVSF shall be placed along the outside of the ramp portion of the AR6 work bench, and
40 wattles will be placed along the slope outside of the work bench. The work bench surface shall be
41 reinforced with quarry spalls to aid in slowing surface flows and increasing infiltration.
42

43 **Superstructure (roof, portals, and Walls 9A thru 9D and 10)**

44 After the Replacement Snowshed superstructure is completed, the plenum and remaining backfill will be
45 placed. Runoff generated from the rock slope will be conveyed to Keechelus Lake in a sheet flow
46 condition via the Replacement Snowshed roof. The lakeshore downstream of the Replacement Snowshed
47 will be armored with Select Rock Embankment (SRE) to reduce velocity and prevent erosion as part of
48 the permanent stormwater BMPs.

1
2 **Roadways (existing Snowshed removal, pavement, utilities, and drainage system)**

3 Once the Replacement Snowshed substructure and superstructure are completed, stormwater runoff
4 tracked into the Replacement Snowshed will be conveyed to the lake through permanent enclosed
5 drainage systems. At the outfall locations, riprap armoring, in addition to the SRE, shall be placed to
6 dissipate runoff velocity for the stormwater has been discharged from the pipes.
7

8 **Snow Nets**

9 The proposed construction methods for installing the snow nets will not impact the flow, velocity, or
10 volume of runoff generated in their vicinity. Flow control BMPs are not necessary at this time, however,
11 they should be re-evaluated if there are modifications to the proposed construction methods for the snow
12 nets.
13

14 **SCB (LE 1372+06 to LE 1383+58)**

15 The soil boring information available for the AR1 work bench describes the material as mostly gravel and
16 sand with 7.8% average fines content; therefore, much of the stormwater runoff will infiltrate into the
17 work bench. HVSF shall be placed along the outside of the ramp portions of the AR1 work bench, and
18 wattles shall be placed along the slope outside of the work bench. The ramp and work bench surface shall
19 be reinforced with quarry spalls to aid in slowing stormwater surface flows and increasing infiltration.
20

21 During Stage 3, traffic will be detoured onto the SCB. Stormwater runoff will sheet flow across the
22 bridge deck to the EB bridge barrier. The collected runoff will be conveyed to catch basins on either end
23 of the bridge. At the outfalls of the catch basins, riprap will be placed to reduce discharge velocity and
24 flow.
25

26 **Wall 8 (LW 1375+85 to LW 1423+00)**

27 As Wall 8 is built, the backfill will be placed so that stormwater runoff drains toward the hillside rock
28 excavations. A construction ditch will be kept along the rock excavation and raised periodically to follow
29 the elevation of the gravel backfill for the wall. Check dams and sediment traps will be incorporated into
30 the construction ditch to reduce runoff velocity and flow. The gravel backfill is porous and allows
31 stormwater to infiltrate, thus reducing the volume of runoff in the construction ditch. Wall underdrains
32 will be placed at the back of the reinforcement for the structural earth wall. The underdrains will outfall
33 directly or indirectly to Lake Keechelus. The groundwater and surface runoff should be closely monitored
34 to determine if additional TESC BMPs are necessary.
35

36 **Wall 24 (LW 1349+00 to LW 1351+06)**

37 The construction work associated with Wall 24 will not increase the volume of offsite stormwater runoff
38 discharging to the outside WB ditch; however, the velocity and flow of runoff will be increased due to the
39 removal of vegetation, overburden, and the steepening of side slopes. The existing and final outside ditch
40 along the WB lanes below Wall 24 have been/will be excavated from the existing rock slopes and are
41 partially filled with rock fall debris. The composition of the ditches is resistant to the erosive effects
42 caused by high volume, high velocity water flow. Check dams shall be placed within the ditch, but their
43 primary purpose will be to remove sediment from the stormwater. A secondary benefit will be the
44 reduction in flow velocity within the ditch. Runoff volume, flow, and velocity will have minimal impacts
45 along the rock slope stabilization, however the site should be monitored during construction incase
46 unforeseen conditions are discovered during construction.
47
48

1 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

2 The rock excavation operation will not increase the volume of offsite stormwater runoff discharging to
3 the outside WB ditch; however, the velocity and flow of runoff will be increased due to the removal of
4 vegetation, overburden, and the steepening of side slopes. The existing and temporary outside ditches
5 along the WB lanes have been/will be excavated from the existing rock slopes and are partially filled with
6 rock fall debris. The composition of the ditches is resistant to the erosive effects caused by high volume,
7 high velocity water flow. Check dams shall be placed within the ditch, but their primary purpose will be
8 to remove sediment from the stormwater. A secondary benefit will be the reduction in flow velocity
9 within the ditch. Runoff volume, flow, and velocity will have minimal impacts along the rock slope
10 stabilization, however the site should be monitored during construction in case unforeseen conditions are
11 discovered during construction.
12

13 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),
14 and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80
15 to LE 1427+60)**

16 TESC BMPs for addressing stormwater runoff as part of the EB and WB Resort Creek Bridges are
17 captured in the discussion of the EB and WB I-90 roadway construction sites.
18

19 During the lining and extension of the existing Resort Creek Culvert and the construction of the proposed
20 Resort Creek re-channelization, the existing stream will be dammed and diverted through a temporary
21 culvert that will discharge into the Resort Creek East (RCE) Wetland. The same diversion is used during
22 Stage 1, Season 1 and Stage 3. The diverted stream will then be conveyed to Keechelus Lake through the
23 existing culvert at AW 102+17. The Resort Creek stream diversion shall only be allowed between August
24 1st and September 30th and upon the Engineer's approval of the Contractor's stream diversion plan. Slope
25 protection at the outfall of the temporary culvert will be required to disperse flow, reduce the stream
26 velocity, and reduce the flow rate. The slope protection details shall be included in the Contractor's
27 stream diversion plan.
28

29 In the final configuration of the existing Resort Creek culvert, the outfall will discharge onto the proposed
30 LE outside fill slope. The slope will be permanently protected with Rock for Erosion and Sour Protection,
31 Class C. The previously described stream diversion will not increase velocity, flow, or volume through
32 the existing culvert crossing.
33

34 As Resort Creek is re-channeled, check dams, sediment traps, and silt fence will be used to reduce the
35 velocity and flow of stormwater runoff within the channel. Wattles placed around the work zone will
36 reduce the volume of runoff entering work zone. Once the channel grading and streambed sediment
37 placement have been completed, the Resort Creek flows will be slowly introduced to the new channel as
38 outlined in the Contractor's stream diversion plan approved by the Engineer. If the diverted flows erode
39 the new streambed or flow subsurface, the Contractor shall immediately divert Resort Creek back to the
40 temporary stream diversion culvert. Additional streambed boulders, cobbles, and/or sediment shall be
41 added at the direction of the Engineer. The introduction process shall repeat until the flow criteria has
42 been met as outlined in the Special Provision for Stream Diversion.
43

44 **Unnamed Creek at MP 59.7 Bridges EB and WB**

45 The existing flows of the Unnamed Creek at MP 59.7 will not be affected by the proposed work. Wattles
46 will be placed around the work to control runoff velocity and flow. Once bridge work has been
47 completed, the final embankment slopes will be covered with Hydraulically Applied Erosion Control
48 Products (HECPs) and seeded.
49

1 **EB I-90 (LE 1334+83 to AE 124+80)**

2 From LE 1334+83 to LE 1412+00, the proposed EB embankment slopes tie-in with the existing EB
3 embankment. From LE 1412+00 to AE 124+80, the proposed EB embankment will fill into Keechelus
4 Lake. During embankment construction, HVSF or wattles, as called for in the plans, will be placed along
5 the side slopes to control flow and velocity. Once the proposed embankment has been placed, SRE
6 armoring and HECP with seeding will be placed where shown on the plans. Ditches, built as part of the
7 EB roadway, will include check dams during construction to reduce velocity and flow until the permanent
8 stormwater BMPs are in place. Slope protection will be constructed at each temporary/proposed culvert
9 outfall to reduce velocity and flow down the existing/temporary side slopes.

10
11 **WB I-90 (LW 1335+95 to AW 138+55)**

12 For most of the WB roadway, stormwater runoff flows to the median enclosed drainage or sheet flows to
13 the outside ditches. From LW 1423+00 to AW 138+55, the WB roadway shares a median ditch with the
14 EB roadways. Check dams will be placed within the ditches during construction to reduce the velocity
15 and flow of the stormwater runoff. See the **Rock Excavation** subsection in TESC Element 3 for
16 additional discussion regarding flow control for the WB outside ditch. Slope protection will be
17 constructed at each temporary/proposed culvert outfall to reduce velocity and flow down the side slopes.
18 HECP with seeding will be placed where shown on the plans in the temporary and final configurations.

19
20 **Staging, Stockpile, and Mitigation Sites:**

21
22 **Crystal Springs Sno-Park**

23 Throughout the Phase 1C Construction, the stock pile areas of Crystal Springs Sno-Park will vary
24 significantly in grade. At times, there will be long, steep slopes with exposed erodible soils. Wattles shall
25 be placed along fill and cut slopes at 5 ft contours. The side slopes and wattles shall also have HECP
26 Type 1 Mulch applied for exposed soils as specified in SS 8-01.3(1). Check dams shall be placed in
27 ditches until the permanent BMPs are in place to reduce velocity and flows.

28
29 If the Contractor chooses to process material at this site, process water or any water coming in contact
30 with the process water shall be contained and shall not be permitted to contribute to the volume of the
31 stormwater runoff.

32
33 **Material Balance Site (LW 1410+89 to 1420+56)**

34 Throughout the Phase 1C Construction, the Material Balance Site will vary significantly in grade. At
35 times, there will be long, steep slopes with exposed erodible soils. Wattles shall be placed along fill and
36 cut slopes at 5 ft contours. The side slopes and wattles shall also have HECP applied for exposed soils as
37 specified in SS 8-01.3.

38
39 **Price Creek Sno-Park**

40 The proposed use for the Price Creek Sno-Park has no affect on flow rates, so additional flow control will
41 not be necessary. If the scope of use for this site changes, the proposed TESC BMPs shall be re-evaluated
42 by the Contractor and submitted to the Engineer for approval. No work at the site shall begin until the
43 Engineer approves the revised scope of use and TESC plans.

44
45 **Townsend Creek Mitigation Site**

46 The Townsend Creek mitigation site consists of two grading areas. The first grading area is east of
47 Townsend Creek and will construct a small basin. The side slopes of the basin vary between 5:1 and 4:1.

1 Wattles shall be placed at every 5 ft contour down the proposed side slopes. HECP shall be placed as
2 soon as grading work is complete, and it shall be seeded during the seeding window.
3

4 The second grading area is associated with the Townsend Creek grading and culvert removal. To
5 complete the culvert removal and grading, Townsend Creek will be diverted around the work zone
6 utilizing a flexible pipe. At the outfall of the pipe, riprap will be placed to reduce the velocity and flow of
7 creek as it returns to the existing Townsend Creek channel. See the Stream Diversion Special Provision
8 for additional information. The side slopes in the vicinity of the creek vary between 5:1 and 4:1. Wattles
9 shall be placed at every 5 ft contour down the proposed side slopes. HECP shall be placed as soon as
10 grading work is complete, and it shall be seeded during the seeding window. The wattles, HECP, and
11 seeding will reduce runoff velocities, flow rates, and volume of runoff generated.
12

13 **Sunset Highway Mitigation Site**

14 Work at the Sunset Highway Mitigation Site will be performed during the dry season. If a rain event
15 occurs, wattles shall be used to create steps and slow rate of flow after fallen trees have been removed
16 from the site. Wood strand mulch shall be placed over topsoil immediately after the site is re-graded.
17 After placing the wood strand mulch, LWM shall be replaced to provide steps for flow control.
18

19 **Upper Resort Creek Mitigation Site**

20 See the **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38), and**
21 **Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80 to LE 1427+60)**
22 subsection for information about the temporary flow control BMPs to be used at the proposed stream
23 diversion that will be implemented during the Sunset Highway culvert replacement. See the same
24 subsection for information about the introduction of Resort Creek to its reconfigured channel. Wattles
25 placed around the work zone will reduce the volume of runoff entering work zone.
26

27 **Detour Alignment Construction**

28 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

29 The DW11 and DE11 detour construction does not extend beyond the existing paved shoulders. The
30 existing runoff characteristics will not be impacted by the proposed work. If the proposed staging plans
31 are modified, flow control should be re-evaluated. Temporary and permanent culverts and drain pipes
32 shall have slope protection added at their outfalls to reduce velocity and flow.
33
34

35 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

36 The DW12 and DE12 detour construction extends beyond the existing paved shoulders, creates temporary
37 ditches, and increases the paved contributing runoff areas. HVSF, wattles, and check dams shall be
38 included to reduce the velocity and flow of stormwater runoff. HECP and seeding shall be included to
39 promote infiltration which reduces volume and filtration which reduces velocity and flow of stormwater
40 runoff. Temporary and permanent culverts and drain pipes shall have slope protection added at their
41 outfalls to reduce velocity and flow.
42

43 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

44 The DW13 and DE13 detour construction extends beyond the existing paved shoulders and increases the
45 paved contributing runoff areas. Wattles shall be included along the side slopes to reduce velocity and
46 flow of stormwater runoff. HECP and seeding shall be included to promote infiltration which reduces
47 volume and filtration which reduces velocity and flow of stormwater runoff. Temporary and permanent
48 culverts and drain pipes shall have slope protection added at their outfalls to reduce velocity and flow.
49

1 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

2 Since the proposed work for the DW14 and DE14 detours is limited to lane and traffic barrier shifts, flow
3 control BMPs related to DW14 and DE14 construction will not be required. If the proposed staging plans
4 are modified, flow control should be re-evaluated.
5

6 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

7 The DW15 and DE15 detour construction extends beyond the existing paved shoulders, creates temporary
8 ditches, and increases the paved contributing runoff areas. HVSF, wattles, and check dams shall be
9 included to reduce the velocity and flow of stormwater runoff. HECF shall be included to promote
10 infiltration which reduces volume and filtration which reduces velocity and flow of stormwater runoff.
11 Permanent culverts and drain pipes shall have slope protection added at their outfalls to reduce velocity
12 and flow.
13

14 **BMPs Identified**

15 The following BMPs shall be implemented for flow control at the Project site:

- 16 • Water Management, SS 8-01.3(1)C
- 17 • Check Dams, SS 8-01.3(6), Std. Plan I-50.10-00 and I-50.20-00
- 18 • Temporary Sediment Trap, “Detention/Retention Pond Construction” in SP “Erosion Control and
19 Water Pollution Control”, Std. Plan I-80.10-00, Detail Sheet TDD3
- 20 • HECF Type 1 Mulch, SP “Erosion Control And Water Pollution Control”, SS 8-01.3(2)D, SS 9-
21 14.4(2) as revised in the Amendments to the SS”
- 22 • Wattles, SS 8-01.3(10), Std. Plan I-30.30-00
- 23 • Temporary Ditches/Swales
- 24 • Gravel Filter, Wood Chip or Compost Berm, SS 8-01.3(9)B, Std. Plan I-80.10-00
- 25 • Quarry Spall, SS 8-15.3(6), 9-13.6
- 26 • Erosion Control Blanket, SS 8-01.3(3)
27

28 **TESC Element 4: Install Sediment Controls**

29
30 The objective of installing sediment controls is to protect properties and waterways downstream from
31 sediment pollution and erosion due to turbid runoff discharge. Due to the site constrains, steep slopes and
32 Keechelus Lake, there are no locations that can serve as a large sediment pond for any construction
33 activities.
34

35 The following management and physical BMPs shall be implemented to control sediment, thus protecting
36 downstream areas from erosion, sediment deposition, and sediment transport:
37

- 38 • Discharged stormwater shall comply with WAC 173+201A before entering water bodies or
39 wetlands. Turbid water originating within the construction site that cannot meet the WAC
40 standards with onsite treatment shall be removed from the site and discharged to an approved
41 offsite location.
- 42 • Sediment control BMPs shall be installed prior to soil-disturbing activities and modified as
43 necessary to maximize their effectiveness.
- 44 • Over excavation shall be prevented and natural vegetation shall be preserved to the maximum
45 extent possible.

- 1 • Turbid runoff shall pass through appropriate sediment removal BMPs prior to leaving the
2 construction site.
- 3 • All existing, temporary, or permanent catch basins or drop inlets shall be protected from silt and
4 debris until the inlet is removed or abandoned or until the areas contributing to the inlet have been
5 stabilized with permanent BMPs. Inlet protection shall be a below grate device that must be
6 maintained as described in SS 8-01.3(9)D Inlet Protection. Inlet protection shall be removed as
7 part of the winter shutdown operations and re-installed prior to the start of construction in the
8 following season.
- 9 • Sediment traps or temporary sediment ponds shall be installed where existing ditches convey
10 flow into sensitive areas such as wetlands, streams, and Keechelus Lake. Discharge from the traps
11 or ponds may outfall into the wetlands, streams or Keechelus Lake if it meets water quality
12 standards described in WAC 173-201A. Untreated discharge shall be removed by a tanker truck
13 for treatment at a WSDOT approved site. Sediment shall be removed from the trap when the level
14 of sediment reaches 1-foot.
- 15 • Offsite tracking of sediments shall be prevented using a high performance Tire Wash in
16 construction access locations. Sediments on the roadway shall be removed at least once daily with
17 a dustless sweeper.
- 18 • The Contractor shall stabilize all silt deposits or remove them from the Project site.
- 19 • Due to the constrained work areas in most locations, preventing offsite water from entering the
20 work area will be a high priority for aiding the control of sediment transport, flow control, and
21 work site erosion.
- 22 • Prior to winter shutdown (Oct. 1 thru Oct. 15), collected sediment shall be removed and disposed
23 of offsite. All exposed soils shall be seeded, terraced or covered with HECP Type 1 mulch, mat or
24 other substance which reduces runoff velocity. Ditches and channels may be stabilized with
25 coarse gravel, quarry spalls, or other erosion protection including jute mat, wattles, or check dams
26 as needed.
- 27

28 **Construction Activities/Locations**

29 The following activities and locations require sediment control measures during soil disturbing activities:

30 **Replacement Snowshed (LW 1352+50 to LW 1363+50)**

31 The installation of sediment control BMPs described below is based on the assumed construction
32 sequencing described in TESC Element 3: Control Flow Rates. If the Contractor chooses to modify the
33 proposed construction sequencing, the installation of sediment controls shall be re-evaluated. The four
34 major construction elements for the Replacement Snowshed and the proposed sediment control BMPs for
35 each are described below:
36

37 **Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/ 38 mechanical/electrical rooms, water tank room, backfill, and drainage systems)**

39 The activities that will require sediment control include existing snowshed demolition, rock excavation,
40 and construction of Pier 1 and backfill. During demolition of the existing Snowshed, the Contractor shall
41 ensure that debris and sediment generated from his operations, including offsite runoff, do not enter the
42 enclosed drainage facilities.
43

44 During the rock excavation, the ditches on either side of the Replacement Snowshed shall be lined with
45 waddles and check dams to reduce flow and allow time for sediment to settle out of the runoff.
46
47

1 During Pier 1 and backfill construction, a temporary ditch will be created along the backfill and excavated
2 rock slope. Check dams shall be installed within the temporary ditch to reduce flow and allow time for
3 sediment to settle out of the runoff before leaving the site. Check dams associated with this site should be
4 easily removed and re-installed. This facilitates the movement of construction vehicles and allows time
5 for sediment control BMPs to be re-installed during precipitation events.
6

7 **Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)**

8 The activities that will require sediment control include AR6 work bench and ramp construction, Wall 4
9 construction, shaft drilling and pier construction, and Wall 3 construction and backfill. Prior to beginning
10 any work along the AR6 work bench, floating silt curtain shall be installed as shown in the plans. The
11 floating silt curtain may need to be reset as the lake elevation fluctuate throughout the construction. The
12 floating silt curtain shall be removed prior to the winter shutdown.
13

14 During construction of the AR6 work bench and ramps, the interim bench and ramps should slope away
15 from the lake and towards the fill. The Contractor shall leave a berm along the outside edge bench and
16 ramps. This will minimize the amount of sediment carried to the lake from the work bench. Once the
17 bench is completed, wattles shall be placed along the work bench shoulder hinge which will also
18 minimize the sediment carried to the lake.
19

20 As the work bench is incrementally excavated, Wall 4 will be built from the top of wall down to its final
21 elevation. During Wall 4 construction, all waste, including sediment and slurry, shall be prevented from
22 entering Keechelus Lake, contained, and disposed of offsite.
23

24 During construction of the shafts and shaft caps, ground anchors, and piers and pier caps, all waste,
25 including sediment and slurry, shall be prevented from entering Keechelus Lake, contained, and disposed
26 of offsite. The methods for containment and disposal shall be described as called for in the Contractor's
27 disposal plan. The Shafts Special Provision outlines the parameters for the disposal plan.
28

29 Once the piers and pier caps have been completed, Wall 3 will be built from the work bench to final
30 grade. During construction of Wall 3, all waste, including sediment and shotcrete, shall be prevented
31 from entering Keechelus Lake, contained, and disposed of offsite.
32

33 **Superstructure (roof, portals, and Walls 9A thru 9D and 10)**

34 Construction of the Snowshed superstructure will not require additional sediment controls to those
35 already discussed as part of the Pier 1, Pier 2, and Roadway construction.
36

37 **Roadways (existing Snowshed removal, pavement, utilities, and drainage system)**

38 During construction of the roadways within the Snowshed, the superstructure will be in place. Therefore,
39 the only runoff entering the Snowshed would either be tracked or blown in. No additional sediment
40 control BMPs will be required other than those previously discussed.
41

42 **Snow Nets**

43 The proposed construction methods for installing the Snow Nets will generate minimal, if any, sediment
44 during their construction. Sediment control BMPs are not necessary at this time, however, they should be
45 re-evaluated if there are modifications to the proposed construction methods for the snow nets.
46

47 **SCB (LE 1372+06 to LE 1383+58)**

48 The activities that will require sediment control include AR1 Work Bench construction, construction of
49 Walls 7, 7A, 7B, and 23, and shaft drilling and pier construction. Prior to beginning any work along the

1 AR1 Work Bench, floating silt curtain shall be installed as shown in the plans. The floating silt curtain
2 may need to be reset as the lake elevations fluctuate. The floating silt curtain shall be removed prior to the
3 winter shutdown.
4

5 During construction of the AR1 Work Bench, the interim bench should slope away from the lake and
6 towards the fill, and the Contractor shall leave a berm along the outside edge of the work bench. This will
7 minimize the amount of sediment carried to the lake from the work bench. Once the work bench is
8 completed, wattles shall be placed along the work bench shoulder hinge which will also minimize the
9 sediment carried to the lake.
10

11 As the work bench is incrementally excavated, Walls 7, 7A, 7B, and 23 will be built from the top of wall
12 down to its final elevation. During construction of these walls, all waste including sediment, shotcrete, and
13 slurry, shall be prevented from entering Keechelus Lake, contained, and disposed of offsite.
14

15 During construction of the shafts and shaft caps, ground anchors, and piers and pier caps, all waste,
16 including sediment and slurry, shall be prevented from entering Keechelus Lake, contained, and disposed
17 of offsite. The methods for containment and disposal shall be described as called for in the Contractor's
18 disposal plan. The Shafts Special Provision outlines the parameters for the disposal plan
19

20 Stormwater runoff generated from the bridge deck and roadway pavement will discharge to the nearest
21 catch basins. The catch basins shall include inlet protection until construction is complete.
22

23 **Wall 8 (LW 1375+85 to LW 1423+00)**

24 To begin initial construction of Wall 8, the existing ground and/or rock slopes will need to be excavated
25 as shown in the plans. Runoff from the detour roadways will flow into the Wall 8 construction site.
26 During the excavation operations, low spots will be created and will have the potential to collect runoff.
27 This water will be turbid and will likely need to be pumped and disposed of offsite.
28

29 As the wall backfill is placed and the grade begins to rise, two construction ditches will form. One
30 construction ditch will form at the face of Wall 8, and the other construction ditch will be created along
31 the existing or excavated side slope. The construction ditches associated with Wall 8 shall include check
32 dams which will need to be reset as the elevation of the wall and wall backfill increases. Once the ditches
33 have been graded to their final/winter shutdown elevation and received their final/winter shutdown
34 surface treatment, the check dams may be removed. The underdrain system associated with Wall 8 will
35 discharge into drainage structures or onto the LE outside fill slope.
36

37 **Wall 24 (LW 1349+00 to LW 1351+06)**

38 During Wall 24 construction and rock slope stabilization operations, check dams shall be placed within
39 the existing ditch and shifted as the construction ditches evolve. The side slopes and overburden areas
40 consist of more organic material. Erosion control blanket shall be placed over the disturbed areas. The
41 placement of top soil, HECF Type 1 Mulch, and permanent seeding should be completed once all of the
42 roadway work in the area is complete.
43

44 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

45 During the rock slope stabilization operations, check dams shall be placed within the existing ditch and
46 shifted as the construction ditches evolve. Where the steepened side slopes and overburden areas consist
47 of rock or talus, sediment control BMPs have not been added because the nature of the materials will not
48 generate sediment during a precipitation event. These sites should be monitored in case the proposed
49 construction increases the amount of sediment transport. Where the side slopes and overburden areas

1 consist of more organic material, erosion control blanket shall be placed over the disturbed areas. The
2 placement of top soil, HECF Type 1 Mulch, and permanent seeding should be completed once all of the
3 roadway work in the area is complete.
4

5 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),**
6 **and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80**
7 **to LE 1427+60)**

8 The proposed construction of the WB and EB Resort Creek Bridges and Resort Creek Re-Channelization
9 will take place between Stage 1, Season 1 and Stage 3. Wattles, HVSF, and floating silt curtain shall be
10 placed around the work zone as shown in the plans. Slope armoring, mulching, and other permanent
11 erosion BMPs shall be placed when all other work in the area is complete. The Contractor shall prevent
12 Resort Creek from avulsing into the proposed channel until the streambed material and bridge scour
13 protection is in place. The stream diversion operation shall follow the parameters described in the Stream
14 Diversion Special Provision.
15

16 During construction of the culvert lining and extension for the existing I-90/Resort Creek crossing (Stage
17 1, Season 1), Resort Creek will be diverted as described in the Stream Diversion Special Provision.
18 Sediment will be controlled as described in the **EB I-90 (LE 1334+83 to AE 124+80)** section of TESC
19 Element 4 for the culvert extension.
20

21 **Unnamed Creek at MP 59.7 Bridges EB and WB**

22 The existing flows of the Unnamed Creek at MP 59.7 will not be affected by the proposed work. Wattles
23 will be placed around the work to minimize any potential sediment entering the creek. Once bridge work
24 has been completed, the final embankment slopes will be covered with Hydraulically Applied Erosion
25 Control Products (HECPs) and seeded.
26

27 **EB I-90 (LE 1334+83 to AE 124+80)**

28 As described in TESC Element 3, during EB embankment construction, HVSF or wattles, as called for in
29 the plans, will be placed along the side slopes to prevent sediment from being discharged to Keechelus
30 Lake. Once the proposed embankment has been placed, SRE armoring and HECF Type 1 Mulch with
31 seeding shall be placed where shown on the plans. Ditches, built as part of the EB roadway, shall include
32 check dams during construction to slow down flow and allow sediment to settle out of the runoff. Slope
33 protection will be constructed at each temporary/proposed culvert outfall to eliminate point erosion. Catch
34 basins along the concrete traffic barrier shall have inlet protection installed.
35

36 **WB I-90 (LW 1335+95 to AW 138+55)**

37 The WB outside and median ditches shall include check dams until the permanent stormwater BMPs are
38 in place. The check dams will reduce the velocity and flow of the onsite and offsite stormwater runoff.
39 The reduced flows allow more time for sediment to settle out of the runoff. See the **Rock Excavation**
40 subsection in TESC Element 4 for additional discussion regarding sediment control for the WB outside
41 ditch. The catch basins along the concrete traffic barrier and drop inlets within the ditches shall have inlet
42 protection installed. Outfall protection will be constructed at each discharge point to prevent erosion of
43 the lakeshore slope or any wetlands.
44

45 **Staging, Stockpile, and Mitigation Sites**

46
47 Temporary sediment traps, check dams in ditches, plastic covering, HECF Type 1 Mulch, and seeding
48 shall be used throughout the staging sites to control erosion. Salvaged environmental restoration

1 materials, such as logs with rootwads and native top soil shall be stockpiled and may require plastic
2 covering and runoff containment. Site specific BMPs for sediment control are described below.
3

4 **Crystal Springs Sno-Park**

5 The proposed TESC BMPs called for in the **Crystal Springs Sno-Park** subsection of TESC Element 3
6 will provide sediment control in addition to flow control. An existing sediment pond, located at the
7 northeastern corner of the site currently provides storage for turbid runoff. The sediment accumulated
8 within the sediment pond shall be removed as designated by the Engineer and disposed of offsite.
9

10 During the final grading of the site, check dams shall be installed within the proposed ditches to reduce
11 flow rates and allow time for sediment to settle out of the runoff. HVSF shall be placed along the western
12 limits of the final grading. This will prevent sediment from being carried to the western pond.
13

14 **Material Balance Site (LW 1410+89 to 1420+56)**

15 The proposed TESC BMPs called for in the **Material Balance Site (LW 1410+89 to 1420+56)**
16 subsection of TESC Element 3 will provide sediment control in addition to flow control. In addition to the
17 TESC BMPs previously described, check dams shall be added along the temporary/permanent ditches
18 constructed within the site. A temporary sediment trap shall be built where shown on the plans to reduce
19 flows and provide time for sediment to settle out of the runoff.
20

21 **Price Creek Sno-Park**

22 HVSF shall be used to identify resources and to prevent sediment, from construction vehicles, from being
23 carried to the existing vegetated area between the Price Creek Sno-Park staging facility and existing WB
24 lanes of I-90.
25

26 **Townsend Creek Mitigation Site**

27 The proposed TESC BMPs called for in the **Townsend Creek Mitigation Site** subsection of TESC
28 Element 3 will provide sediment control in addition to flow control. Townsend Creek will be diverted
29 around the existing culvert using a temporary flexible pipe during the removal operation to prevent any
30 sediment contamination and erosion. See the Stream Diversion Special Provision for additional
31 information. Wattles shall be used to help divert water, keeping the work area dry and free of sediment
32 transport, during culvert removal. High visibility silt fence shall be placed at the toe of cut slopes to
33 prevent sediment transport to Townsend Creek.
34

35 **Sunset Highway Mitigation Site**

36 The proposed TESC BMPs called for in the **Sunset Highway Mitigation Site** subsection of TESC
37 Element 3 will provide sediment control in addition to flow control. After existing logs and concrete
38 panels are removed from the Sunset Highway Mitigation Site, wattles shall be placed every 200' across
39 the road to control sediment transport.
40

41 **Upper Resort Creek Mitigation Site**

42 The culvert replacement and channel grading will occur while Resort Creek is diverted. See the Stream
43 Diversion Special Provision. Slope protection at the outfall of the temporary culvert will be required to
44 disperse the stream flow. The dispersion will reduce flow and minimize downstream erosion. The
45 proposed streambed material and scour protection shall be placed as soon as the excavation and grading is
46 complete.
47
48

1 **Detour Alignment Construction**

3 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

4 The DW11 and DE11 detour construction does not extend beyond the existing paved shoulders. The
5 existing runoff characteristics will not be impacted by the proposed work. Check dams shall be added in
6 all of the existing ditches to reduce flow and allow time for sediment to settle out of the runoff.

7 Temporary and permanent culverts and drain pipes shall have slope protection added at their outfalls to
8 minimize erosion.

10 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

11 The DW12 and DE12 detour construction extends beyond the existing paved shoulders, creates temporary
12 ditches, and increases the paved contributing runoff areas. HVSF, wattles, and check dams shall be
13 included to reduce flow and allow time for sediment to settle out of the runoff. HECF and seeding shall be
14 included as shown on the plans to minimize erosion. Temporary and permanent culverts and drain pipes
15 shall have slope protection added at their outfalls to minimize erosion.

17 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

18 The DW13 and DE13 detour construction extends beyond the existing paved shoulders and increases the
19 paved contributing runoff areas. Wattles shall be included along the side slopes and check dams within
20 the ditches to reduce flow and allow time for sediment to settle out of the runoff. HECF, erosion control
21 blankets, and seeding shall be included to minimize erosion. Temporary and permanent culverts and drain
22 pipes shall have slope protection added at their outfalls to minimize erosion.

24 During Stage 3, it is anticipated that the existing Snowshed will be removed. Wall 3 is approximately
25 offset 4 ft right and 2 ft below the DE13 outside edge of shoulder. The area between the DE13 detour
26 lanes and Wall 3 shall be covered with shotcrete to prevent erosion of the wall backfill. Runoff will flow
27 from the DE13 lanes over Wall 3.

29 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

30 Since the proposed work for the DW14 and DE14 detours is limited to lane and traffic barrier shifts,
31 sediment control BMPs related to DW14 and DE14 construction will not be required. However, check
32 dams will continue to be used in the temporary and permanent ditches until the permanent stormwater
33 BMPs have been installed. If the proposed staging plans are modified, sediment control should be re-
34 evaluated.

36 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

37 The DW15 and DE15 detour construction extends beyond the existing paved shoulders, creates temporary
38 ditches, and increases the paved contributing runoff areas. HVSF, wattles, and check dams shall be
39 included to reduce flow and allow time for sediment to settle out of the runoff. HECF shall be included to
40 minimize erosion. Permanent culverts and drain pipes shall have slope protection added at their outfalls to
41 minimize erosion.

43 **BMPs Identified**

44 The following BMPs shall be used to help control sediment at the Project site:

- 45 • Sediment Control Barriers, SS 8-01.3(9)
- 46 • Wattles, SS 8-01.3(10), Std. Plan I-30.30-00
- 47 • Compost Sock, SS 8-01.3(12), Std. Plan I-30.40-00

- 1 • HVF, “Delineation of Sensitive Areas” in SP “Prosecution of Work”, SS 1-08.4, Std. Plan I-
2 30.10-00
- 3 • HVSF, “Delineation of Sensitive Areas” in SP “Prosecution of Work”, “Sediment Control
4 Barriers” in SP “Erosion Control and Water Pollution Control”, SS 1-08.4, SS 8-01.3(9)A, Std.
5 Plan I-30.10-00
- 6 • Check Dams, SS 8-01.3(6), Std. Plan I-50.20-00
- 7 • Inlet Protection, SS 8-01.3(9)D, Std. Plan I-40.10-00 and I-40.20-00
- 8 • Temporary Sediment Trap, SP “Detention/Retention Pond Construction” in SP “Erosion Control
9 and Water Pollution Control”, Std. Plan I-80.10-00
- 10 • Floating Silt Curtain, SP “Floating Silt Curtain”
- 11 • Street Cleaning, SS 8-01.3(8)
- 12 • Geotextile Silt Tubes, SP “Erosion Control And Water Pollution Control”
- 13 • Compost Berm, SS 8-01.3(9)B, and Std. Plan I-80.10-00
- 14 • Stabilized Construction Entrance, SS 8-01.3(7), Std. Plan I-80.10-00
- 15 • Tire Wash, SS 8-01.3(7), SP “Erosion Control And Water Pollution Control”
- 16 • Seeding, SS 8-01.3(2)
- 17 • HECP Type 1 Mulch, SP “Erosion Control And Water Pollution Control”, SS 8-01.3(2)D, SS 9-
18 14.4(2) as revised in the Amendments to the SS”
- 19 • Erosion Control Blanket, SS 8-01.3(3)
- 20

21 **TESC Element 5: Stabilize Soils**

22
23 Soils shall not remain exposed and un-worked for more than the time periods set forth below to prevent
24 wind and water erosion. This stabilization requirement applies to all soils onsite, whether at final grade or
25 not. This time limit may be adjusted by WSDOT if it can be shown that local precipitation data justifies a
26 different standard.

27
28 During the regional dry season (May 1 through September 30): 7-days maximum

29 During the regional wet season (October 1 through April 30): 2-days maximum

30
31 Exposed and un-worked soils shall be temporarily or permanently stabilized by application of effective
32 BMPs, such as HECP Type 1 Mulch, compost blanket, or others that protect the soil from erosive forces
33 of raindrops, flowing water, and wind. Due to cold climate conditions, i.e. shortened growing seasons,
34 stabilization of soils during winter months may require erosion control blankets, plastic sheets, or other
35 immediately effective stabilizing materials.

36
37 Construction activities shall minimize clearing and should never expose more erodible earth than the
38 amounts shown below:

39
40 17 Acres – May 1 through September 30

41 5 Acres – October 1 through April 30

42
43 Seed shall be applied during the seeding window from September 1st to November 15th. Where HECP
44 Type 1 Mulch is applied prior to September 1st, the exposed soil shall be scarified, seeding applied, and
45 HECP Type 1 Mulch reapplied for winter protection.

46

1 Construction activities including equipment staging areas, material storage areas, and borrow areas shall
2 be stabilized. Stockpiles shall be stabilized and protected with sediment-trapping measures and located
3 away from storm drain inlets, waterways, and drainage channels.
4

5 Prior to the winter shut-down (late fall to early spring), all exposed soils shall be planted, terraced or
6 covered with HECF Type 1 Mulch, erosion control blanket, or other substance that will stabilize the soil.
7 Ditches and channels may be stabilized with coarse gravel, quarry spalls, or other erosion protection
8 including erosion control blankets, wattles, or check dams as needed.
9

10 **Construction Activities/Locations**

11 The following construction areas and activities require soil stabilization methods to help prevent erosion.
12
13

14 **Replacement Snowshed (LW 1352+50 to LW 1363+50)**

15 The four major construction elements for the Snowshed and the proposed soil stabilization BMPs for each
16 are described below:
17

18 **Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/ 19 mechanical/electrical rooms, water tank room, backfill, and drainage systems)**

20 As part of the excavation for the Pier 1 substructure, the rock face shall be stabilized using the methods
21 described in the Rock Slope Stabilization Plans. See the Rock Excavation subsection below for additional
22 information about soil and rock stabilization. A temporary ditch shall be graded into the gravel backfill
23 for the Pier 1 retaining wall prior to the winter shutdown. The ditch shall be in place until the Snowshed
24 superstructure is completed.
25

26 **Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)**

27 Once the AR6 Work Bench is excavated, quarry spalls shall be placed to stabilize the work bench. The
28 slope below the work bench shall not be impacted by the proposed construction operations. The proposed
29 quarry spalls and existing sandy and gravelly soil will be heavily compacted by the contraction
30 construction traffic through the work bench. Once the work associated with the Pier 2 substructure is
31 complete, the work bench shall be armored with rock for erosion control and scour protection and SRE
32 for wave protection.
33

34 **Superstructure (roof, portals, and Walls 9A thru 9D and 10)**

35 Once the Replacement Snowshed superstructure is completed, including the remaining Pier 1 backfill, the
36 gravel and fill will be placed over the existing ground and Replacement Snowshed roof at a 6% grade.
37 The gravel and fill will not require additional soil stabilization BMPs. The site should be monitored to
38 ensure no erosion is occurring.
39

40 **Roadways (existing Snowshed removal, pavement, utilities, and drainage system)**

41 Once the Replacement Snowshed substructure and superstructure are completed, stormwater runoff
42 tracked into the Snowshed will be conveyed to the lake through permanent enclosed drainage systems. At
43 the outfall locations, riprap or SRE, will be placed as shown in the plans to prevent any slope erosion.
44

45 **Snow Nets**

46 By keeping clearing to a minimum and using wood mulch/chips where necessary, ground disturbance will
47 be minimal and additional soil disturbance BMP's will not be required.
48

1 **SCB (LE 1372+06 to LE 1383+58)**

2 The AR1 Work Bench shall be excavated from the existing side slope. As discussed previously, the work
3 bench material is heavily compacted sand and gravel, and quarry spalls shall be placed over the existing
4 material. The slope below the work bench shall not be impacted by the proposed construction operations.
5 Once the substructure work is complete, the work bench and access ramps shall be armored with rock for
6 erosion control and scour protection and SRE for wave protection.
7

8 **Wall 8 (LW 1375+85 to LW 1423+00)**

9 To begin initial construction of Wall 8, the existing ground and/or rock slopes will need to be excavated
10 as shown in the plans. The upper reaches of the excavated or existing rock slopes and overburden areas
11 shall be permanently stabilized as shown in the Rock Slope Stabilization plans. Erosion control blanket
12 shall be placed in the overburden areas where shown in the plans. See the Rock Slope Stabilization (LW
13 1346+61 to LW 1411+00) subsection for additional information regarding the rock cut and overburden
14 areas.
15

16 The two construction ditches formed by the Wall 8 construction shall include check dams and sediment
17 traps to reduce flow. The reduced flow will prevent the toe of slope from being undercut and therefore
18 destabilizing the backfill slope. The Wall 8 backfill is erosion resistant to sheet flow runoff and will not
19 require additional TESC BMPs. The construction ditches associated with Wall 8 will include check dams
20 which will need to be reset as the elevation of the wall and wall backfill increases. Once the ditches have
21 been graded to their final/winter shutdown elevation and received their final/winter shutdown surface
22 treatment, the check dams may be removed. The underdrain system associated with Wall 8 will discharge
23 into drainage structures or onto the LE outside fill slope. Slope protection will be provided for any
24 drainage structure that discharges onto the LE outside fill slope.
25

26 **Wall 24 (LW 1349+00 to LW 1351+06)**

27 The rock and overburden excavation areas associated with Wall 24 shall be stabilized as described in the
28 Rock Slope Stabilization Plans. Erosion control blanket and HECF shall be placed over the overburden
29 areas and rock excavation areas as shown in the plans, respectively. Once LW construction is complete,
30 the permanent stormwater BMPs and roadside restoration items shall be installed.
31

32 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

33 The rock excavation areas shall be stabilized as described in the Rock Slope Stabilization Plans. Erosion
34 control blanket and HECF shall be placed over the overburden areas and rock excavation areas as shown
35 in the plans, respectively. Once LW construction is complete, the permanent stormwater BMPs and
36 roadside restoration items shall be installed.
37

38 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),**
39 **and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80**
40 **to LE 1427+60)**

41 During construction of the EB and WB Resort Creek bridges, stormwater runoff from the median ditches
42 will discharge into the construction zone. Rock for erosion and scour protection shall be placed from the
43 ditch bottom to the toe of slope. All habitat features, streambed aggregate, and scour protection measures
44 shall be in place prior to diverting Resort Creek to its proposed channel. See Special Provision
45 “Temporary Stream Diversion”.
46
47

1 **Unnamed Creek at MP 59.7 Bridges EB and WB**

2 Disturbed soils in the vicinity of Unnamed Creek at MP 59.7 shall be covered with HECP Type 1 Mulch
3 and planted with permanent seeding when construction is complete. Construction vehicle travel within the
4 median area shall be limited to stabilized areas in order to minimize disturbed soils.
5

6 **EB I-90 (LE 1334+83 to AE 124+80)**

7 HECP Type 1 Mulch shall be placed where shown on the plans for soil stabilization purposes. For the
8 entire EB roadway, SRE will be placed along the outside fill slope for wave protection and to stabilize the
9 soils. Proposed ditches with the erodible soils shall be covered with HECP Type 1 Mulch until the EB
10 roadway construction is complete. When the EB roadway construction is complete, the permanent
11 roadside restoration items shall be installed.
12

13 **WB I-90 (LW 1335+95 to AW 138+55)**

14 Proposed ditches with erodible soils shall be covered with HECP Type 1 Mulch until the WB roadway
15 construction is complete. When the WB roadway construction is complete, the final roadside restoration
16 items shall be installed.
17

18 **Staging, Stockpile, and Mitigation Sites**

19
20 **Crystal Springs Sno-Park**

21 The Crystal Springs Sno-Park staging and stock pile site contains soils that easily cloud stormwater runoff
22 during rain and snowmelt events. The size, existing use, and proposed construction activities within the
23 site limit the effectiveness of the available stormwater BMPs. The flow control and sediment control
24 BMPs will require constant maintenance and monitoring. Stockpiled materials shall be stabilized with
25 HECP Type 1 Mulch and temporary seeding or plastic sheeting. Permanent roadside restoration items and
26 permanent stormwater BMPs shall be installed after the final grading has been completed.
27

28 **Material Balance Site (LW 1410+89 to 1420+56)**

29 Disturbed and stockpiled soils at the Mitigation Balance Site shall be stabilized with HECP Type 1 Mulch
30 and seeding.
31

32 **Price Creek Sno-Park**

33 There are no soil disturbing or stockpiling activities at the Price Creek Sno-Park. No soil stabilization
34 BMPs are required.
35

36 **Townsend Creek Mitigation Site**

37 The Contractor shall be permitted to work at Townsend Creek between July 15th and September 15th when
38 precipitation is at its lowest. Groundwater within the site is relatively shallow. All work is expected to be
39 completed within one construction season.
40

41 The Townsend Creek grading site east of the creek creates a small basin. Therefore, the risk of sediment
42 being carried offsite is minimal. When the grading work is complete, the permanent roadside restoration
43 items shall be installed.
44

45 The Townsend Creek culvert removal and grading shall be completed while the creek is diverted. See the
46 Stream Diversion Special Provision for additional information. Once the excavation is complete, the
47 streambed aggregate and habitat structures shall be placed immediately.
48

1 **Sunset Highway Mitigation Site**

2 Once the grading work at the Sunset Highway site is complete, the permanent roadside restoration items
3 shall be installed. All work is expected to be completed within one construction season.
4

5 **Upper Resort Creek Mitigation Site**

6 The proposed work for the Upper Resort Creek Mitigation Site will be completed while the creek is
7 diverted. All work is expected to be completed within one construction season. The streambed and scour
8 protection shall be installed immediately after the excavation and culvert work is complete.
9

10 **Detour Alignment Construction**

11
12 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

13 Since the DW11 and DE11 detour construction does not extend beyond the existing paved shoulders, soil
14 stabilization will not be required.
15

16 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

17 The DW12 and DE12 detour construction does extend beyond the existing paved shoulders and creates
18 temporary ditches. The exposed soils shall be covered with HECF Type 1 Mulch and planted with
19 temporary seeding.
20

21 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

22 The DW13 and DE13 detour construction does extend beyond the existing paved shoulders and creates
23 temporary ditches. The exposed soils shall be covered with HECF Type 1 Mulch and planted with
24 temporary seeding.
25

26 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

27 Since the proposed work for the DW14 and DE14 detours is limited to lane and traffic barrier shifts, no
28 additional TESC BMPs will be required for soil stabilization.
29

30 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

31 The DW15 and DE15 detour construction extends beyond the existing paved shoulders and creates
32 temporary ditches. The exposed soils shall be covered with HECF Type 1 Mulch.
33

34 **BMPs Identified**

35 The following BMPs will be used to stabilize disturbed soils at the Project site:

- 36 • HECF Type 1 Mulch, SP “Erosion Control and Water Pollution Control”, SS 8-01.3(2)D, SS 9-
37 14.4(2) as revised in the Amendments to the SS”
- 38 • Placing Erosion Control Blanket, SS 8-01.3(3), Std. Plan I -60-10.00, and Std. Plan I-60.20.00
- 39 • Placing Compost Blanket, SS 8-01.3(4)
- 40 • Seeding, Fertilizing, and Mulching, SS 8-01.3(2), SP “Erosion Control And Water Pollution
41 Control”
- 42 • Vegetation Protection and Restoration, SS 1-07.16(2)
- 43 • Erosion Control at Culvert Ends, Std. Plan I-30.20-00
- 44 • Placing Plastic Covering, SS 8-01.3(5), Detail Sheet TDD5
- 45 • Wattles, SS 8-01.3(10), Std. Plan I-30.30-00
- 46 • Jute Mat
- 47 • Quarry Spalls, SS 8-15.3(6), SP “Riprap”

- Compost Sock, Std. Plan I-30.40-00

TESC Element 6: Protect Slopes

The cut and fill slopes shall be constructed in a manner that will minimize slope erosion. The length of continuous slopes and the steepness of slopes (based on material type) during construction shall be considered for erosion potential. If necessary, the slopes shall be roughened to prevent the concentration of runoff down a slope. Placements of BMPs described in previously discussed TESC Elements (Control Flow Rates, Install Sediment Controls, and Stabilize Soils) are also essential components in protecting slopes. Slopes shall be stabilized according to the schedule described in TESC Element 5: Stabilize Soils. Where feasible, vegetation shall be preserved along slopes to increase infiltration and reduce flow velocities and erosion.

Construction Activities/Locations

The following activities and locations require BMPs to protect slopes from erosion:

Replacement Snowshed (LW 1352+50 to LW 1363+50)

The four major construction elements for the Snowshed and the proposed soil stabilization BMPs for each are described below:

Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/mechanical/electrical rooms, water tank room, backfill, and drainage systems)

As part of the excavation for the Pier 1 substructure, the rock face shall be stabilized using the methods described in the Rock Slope Stabilization Plans. See the Rock Excavation subsection below for additional information about soil and rock stabilization. A temporary ditch shall be graded into the gravel backfill for the Pier 1 retaining wall prior to the winter shutdown. The ditch shall be in place until the Snowshed superstructure is completed.

Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)

The slopes below the AR6 Work Bench shall not be impacted by the proposed construction operations. A berm and wattles shall be placed as shown on the plans to minimize the amount of sediment carried down the slopes to the lake. The existing slopes consist of cobbles and large boulders and naturally roughened. The slopes are inundated by the fluctuating lake elevations for much of the year.

Superstructure (roof, portals, and Walls 9A thru 9D and 10)

Once the Replacement Snowshed superstructure is completed, including the remaining Pier 1 backfill, the gravel and fill shall be placed over the existing ground and Replacement Snowshed roof at a 6% grade. The existing slope, gravel, and fill will not require additional slope protection BMPs. The site should be monitored to ensure no erosion is occurring.

Roadways (existing Snowshed removal, pavement, utilities, and drainage system)

Once the Replacement Snowshed substructure and superstructure are completed, stormwater runoff tracked into the Snowshed will be conveyed to the lake through permanent enclosed drainage systems. At the outfall locations, riprap or SRE, will be placed as shown in the plans to prevent any slope erosion.

1 **Snow Nets**

2 Installation of Snow Nets will not result in slope instability; therefore, slope protection will not be
3 required for this work.
4

5 **SCB (LE 1372+06 to LE 1383+58)**

6 The AR1 Work Bench shall be excavated from the existing side slope. A berm and wattles shall be placed
7 as shown on the plans to minimize the amount of sediment carried down the slopes the lake. The existing
8 slopes consist of cobbles and large boulders and naturally roughened. The slopes are inundated by the
9 fluctuating lake elevation for much of the year.
10

11 **Wall 8 (LW 1375+85 to LW 1423+00)**

12 To begin initial construction of Wall 8, the existing ground and/or rock slopes shall be excavated as
13 shown in the plans. The upper reaches of the excavated or existing rock slopes and overburden areas shall
14 be permanently stabilized as shown in the Rock Slope Stabilization plans. Erosion control blanket shall
15 be placed in the overburden areas where shown in the plans. See the Rock Slope Stabilization (LW
16 1346+61 to LW 1411+00) subsection for additional information regarding the rock cut and overburden
17 areas.
18

19 The two construction ditches formed by the Wall 8 construction shall include check dams and sediment
20 traps to reduce flow. The reduced flow will prevent the toe of slope from being undercut and therefore
21 destabilizing the backfill slope. The Wall 8 backfill is erosion resistant to sheet flow runoff and will not
22 require additional TESC BMPs. The construction ditches associated with Wall 8 shall include check dams
23 which will need to be reset as the elevation of the wall and wall backfill increases. Once the ditches have
24 been graded to their final/winter shutdown elevation and received their final/winter shutdown surface
25 treatment, the check dams may be removed. The underdrain system associated with Wall 8 will discharge
26 into drainage structures or onto the LE outside fill slope. Slope protection shall be provided for any
27 drainage structure that discharges onto the LE outside fill slope.
28

29 **Wall 24 (LW 1349+00 to LW 1351+06)**

30 The rock and overburden excavation areas shall be stabilized as described in the Rock Slope Stabilization
31 Plans. Erosion control blanket, HECF Type 1 Mulch, and temporary seeding shall be placed over the
32 overburden areas and rock excavation areas as shown in the plans, respectively. Once LW construction is
33 complete, the permanent stormwater BMPs and roadside restoration items shall be installed.
34

35 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

36 The rock excavation areas shall be stabilized as described in the Rock Slope Stabilization Plans. Erosion
37 control blanket, HECF Type 1 Mulch, and temporary seeding shall be placed over the overburden areas
38 and rock excavation areas as shown in the plans, respectively. Once LW construction is complete, the
39 permanent stormwater BMPs and roadside restoration items shall be installed.
40

41 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),
42 and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80
43 to LE 1427+60)**

44 Erodible soils will be exposed on side slopes associated with EB and WB I-90 Resort Creek bridges and
45 the proposed channel grading. At the end of each construction season, the erodible soils shall be
46 compacted and side tracked. During construction of the EB and WB Resort Creek bridges, stormwater
47 runoff from the median ditches will discharge into the construction zone. Rock for erosion and scour
48 protection shall be placed from the ditch bottom to the toe of slope. All habitat features, streambed

1 aggregate, and scour protection measures shall be in place prior to diverting Resort Creek to its proposed
2 channel. See Special Provision “Temporary Stream Diversion”.
3

4 **Unnamed Creek at MP 59.7 Bridges EB and WB**

5 Disturbed soils, including the median side slopes, in the vicinity of Unnamed Creek at MP 59.7 shall be
6 covered with HECF Type 1 Mulch and planted with permanent seeding when construction is complete.
7

8 **EB I-90 (LE 1334+83 to AE 124+80)**

9 At the end of each construction season, the embankment slopes and other erodible soils shall be covered
10 with HECF Type 1 Mulch as shown in the plans to protect side slopes. For the entire EB roadway, SRE
11 shall be placed along the outside fill slope for wave protection and side slope stabilization. Where there
12 are proposed ditches, the erodible soils shall be covered with HECF Type 1 Mulch until the EB roadway
13 construction is complete. When the EB roadway construction is complete, the permanent roadside
14 restoration items shall be installed. Where there are pipe outfalls, slope protection shall be placed on the
15 side slope to prevent erosion. Additional TESC BMPs that may be installed prior to the placement of
16 HECF Type 1 Mulch include erosion control blankets, side tracking, and benching of slopes.
17

18 **WB I-90 (LW 1335+95 to AW 139+25)**

19 Proposed ditches with erodible soils shall be covered with HECF Type 1 Mulch as shown in the plans
20 until the WB roadway construction is complete. When the WB roadway construction is complete, the
21 permanent roadside restoration items shall be installed. Where there are pipe outfalls, slope protection
22 shall be placed on the side slope to prevent erosion. Additional TESC BMPs that may be installed prior to
23 the placement of HECF Type 1 Mulch include erosion control blankets, side tracking, and benching of
24 slopes.
25

26 **Staging, Stockpile, and Mitigation Sites**

27 **Crystal Springs Sno-Park**

28 During construction, stockpiled materials at Crystal Springs Sno-Park shall be stabilized with HECF Type
29 1 Mulch and temporary seeding or plastic sheeting. Permanent roadside restoration items and permanent
30 stormwater BMPs shall be installed after the final grading has been completed.
31
32

33 **Material Balance Site (LW 1410+89 to 1420+56)**

34 Disturbed and stockpiled soils at the Material Balance Site shall be stabilized with HECF Type 1 Mulch
35 and seeding.
36

37 **Price Creek Sno-Park**

38 There are no soil disturbing or stockpiling activities at the Price Creek Sno-Park. No soil stabilization
39 BMPs are required.
40

41 **Townsend Creek Mitigation Site**

42 The Townsend Creek grading site east of the creek creates a small basin. During the site grading, wattles
43 shall be placed along the slopes to roughen the soil and minimize runoff concentration. When the grading
44 work is complete, the permanent roadside restoration items shall be installed.
45

46 The Townsend Creek culvert removal and grading shall be completed while the creek is diverted. See the
47 Stream Diversion Special Provision for additional information. Once the excavation is complete, the
48 streambed aggregate and habitat structures shall be placed immediately.

1
2 **Sunset Highway Mitigation Site**

3 During construction, wattles shall be placed across the excavated roadway until the final grading is
4 complete. The wattles will roughen the slope and minimize runoff concentration and velocity. Once the
5 grading work at the Sunset Highway site is complete, the permanent roadside restoration items shall be
6 installed. All work is expected to be completed within one construction season.
7

8 **Upper Resort Creek Mitigation Site**

9 The proposed work for the Upper Resort Creek Mitigation Site will be completed while the creek is
10 diverted. All work is expected to be completed within one construction season. The streambed and scour
11 protection shall be installed immediately after the excavation and culvert work is complete.
12

13 **Detour Alignment Construction**

14
15 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

16 Since the DW11 and DE11 detour construction does not extend beyond the existing paved shoulders, soil
17 stabilization will not be required. Where there are temporary pipe outfalls, slope protection shall be
18 placed on the side slope to prevent erosion.
19

20 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

21 The DW12 and DE12 detour construction does extend beyond the existing paved shoulders and creates
22 temporary ditches. The slopes shall be covered with HECF Type 1 Mulch and planted with temporary
23 seeding as shown in the plans. Where there are temporary pipe outfalls, slope protection shall be placed
24 on the side slope to prevent erosion.
25

26 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

27 The DW13 and DE13 detour construction does extend beyond the existing paved shoulders and creates
28 temporary ditches. The exposed slopes shall be covered with HECF Type 1 Mulch and planted with
29 temporary seeding as shown in the plans. Where there are temporary pipe outfalls, slope protection shall
30 be placed on the side slope to prevent erosion.
31

32 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

33 Since the proposed work for the DW14 and DE14 detours is limited to lane and traffic barrier shifts, no
34 additional TESC BMPs will be required for slope protection.
35

36 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

37 The DW15 and DE15 detour construction extends beyond the existing paved shoulders and creates
38 temporary ditches. The exposed soils shall be covered with HECF Type 1 Mulch. Where there are
39 temporary pipe outfalls, slope protection shall be placed on the side slope to prevent erosion.
40

41 **BMPs Identified**

42
43 The following BMPs shall be implemented to provide slope stability at the Project site:

- 44
- 45 • Water Management, SS 8-01.3(1)C
 - 46 • Sediment Control Barriers, SS 8-01.3(9)
 - 47 • Coir Log, SS 8-01.3(6)E
 - Wattles, SS 8-01.3(10), Std. Plan I-30.30-00

- 1 • Compost Sock, SS 8-01.3(12), Std. Plan I-30.40-00
- 2 • HVSF, “Delineation of Sensitive Areas” in SP “Prosecution of Work”, “Sediment Control
- 3 Barriers” in SP “Erosion Control and Water Pollution Control” , SS 1-08.4, SS 8-01.3(9)A, Std.
- 4 Plan I-30.10-00
- 5 • HECF Type 1 Mulch, SP “Erosion Control And Water Pollution Control”, SS 8-01.3(2)D, SS 9-
- 6 14.4(2) as revised in the Amendments to the SS”
- 7 • Mulching SS, 8-01.3(2)D
- 8 • Placing Erosion Control Blanket, SS 8-01.3(3), Std. Plan I -60-10.00 and Std. Plan I-60.20.00
- 9 • Placing Compost Blanket, SS 8-01.3(4)
- 10 • Seeding, Fertilizing, and Mulching, SS 8-01.3(2), SP “Erosion Control And Water Pollution
- 11 Control”
- 12 • Vegetation Protection and Restoration, SS 1-07.16(2)
- 13 • Erosion Control Blanket, SS 8-01.3(3), Std. Plan I 60.10-00
- 14 • Plastic Covering, SS 8-01.3(5)
- 15

16 **TESC Element 7: Protect Drain Inlets**

17

18 Storm drain inlets and culverts used during construction shall not convey sediment laden stormwater

19 runoff or street wash water. Inlet protection shall be provided for all inlets within the project limits

20 exposed to construction vehicle travel. Although there may not be earthwork activity in all of these areas,

21 inlet protection will help identify inlet locations and deter construction vehicles from driving over the

22 inlets. Inlet protection BMPs shall be installed such that if the protection BMP becomes plugged for any

23 reason, water will not backup on to traffic lanes causing a safety hazard to motorists. Inlets shall be

24 inspected weekly at a minimum and daily during storm events. Inlet protection devices shall be cleaned or

25 removed and replaced before sediment can accumulate as specified by the manufacturer. Locations

26 requiring drain inlet protection are shown on the Temporary Drainage/TESC Plan Sheets.

27

28 Inlets discharging to Keechelus Lake will be exposed to construction traffic until they are removed or

29 abandoned during construction. Each of these inlets requires protection until they are permanently

30 removed or abandoned. TESC BMPs shall not be placed within the flow channel at culvert openings or in

31 locations that will obstruct flow at the entrance to the culvert. The inlet conditions described below

32 require inlet protection:

33

- 34 • Existing inlets along the freeway, within wetland mitigation sites, or within staging/stockpile sites
- 35 that will remain operational during construction.
- 36 • Temporary inlets that will be used to convey runoff from the detour lanes along the freeway.
- 37 • Proposed inlets along the freeway, within wetland mitigation sites, or within staging/stockpile
- 38 sites that will be needed during construction to convey runoff.
- 39

40 Three types of inlet protection, listed below, are indicated on the Temporary Drainage/TESC Plan Sheets:

41

- 42 • Inlet Protection using Silt Fencing around the perimeter of the inlet (Std. Plan I-40.10-00). This
- 43 condition occurs where the inlet is located within a ditch or swale.
- 44 • Inlet Protection using an Inlet Filter Sock (Std. Plan I-40.20-00). This condition occurs where the
- 45 inlet is located on the shoulder of a roadway used by construction vehicles.
- 46 • Inlet Protection using a Rectangular Solid Metal Cover (Std. Plan B-30.20-01). This condition
- 47 occurs where an existing inlet is permanently or temporarily covered during construction.

1
2 With the exception of the Rectangular Solid Metal Cover (Std. Plan B-30.20-01), inlet protection shall be
3 removed for winterization.
4

5 **BMPs Identified**

6
7 The following BMPs shall be implemented to provide slope stability at the Project site:
8

- 9 • Inlet protection shall be in accordance with SS 8-01.3(9)D
 - 10 • Std. Plans I-40.10-00, I-40.20-00, and B-30.20-01
- 11

12 **TESC Element 8: Stabilize Channels and Outlets**

13
14 Temporary and permanent ditches shall be constructed and maintained in a manner that will minimize
15 scour. To maintain proper flow velocity and channel stability for ditches, check dams and sediment traps
16 will be required. Check dam locations are not limited to those shown on the Temporary Drainage/TESC
17 Plan Sheets plans. Temporary stream diversions shall utilize flexible pipe and direct or keep flow away
18 from the construction zone. Temporary outfalls or existing outfalls with increased flow due to
19 construction grading shall be protected at their discharge points with slope protection. Placement and
20 application of BMPs described in previously discussed TESC Elements (Control Flow Rates, Install
21 Sediment Controls, Stabilize Soils, and Protect Slopes) are also essential components in stabilizing
22 channels and protecting outlets.
23

24 **Construction Activities/Locations**

25
26 The following activities and locations require BMPs to stabilize channels and outlets:
27

28 **Replacement Snowshed (LW 1352+50 to LW 1363+50)**

29 The four major construction elements for the Snowshed and the proposed soil stabilization BMPs for each
30 are described below:
31

32 **Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/ 33 mechanical/electrical rooms, water tank room, backfill, and drainage systems)**

34 The ditch associated with the Pier 1 backfill shall be stabilized as described in the following TESC
35 Elements: Control Flow Rates, Install Sediment Controls, Stabilize Soils, and Protect Slopes.
36

37 **Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)**

38 The AR6 Work Bench will be graded into the existing side slope. The existing side slope is sandy and
39 gravelly and will be covered with a layer of quarry spalls. These materials are resistant to the erosive
40 forces of low concentrations of channelized flow. During Stage 1, Seasons 1 and 2, the Contractor shall
41 be responsible for perpetuating existing drainage in the vicinity of the Replacement Snowshed. The
42 Contractor shall be responsible including the appropriate slope protection for the outfall pipe(s) associated
43 with Replacement Snowshed temporary drainage. See the Maintaining Drainage Special Provision for
44 additional information.
45
46

1 **Superstructure (roof, portals, and Walls 9A thru 9D and 10)**

2 Once the Replacement Snowshed superstructure is completed, hillside runoff and avalanches will be
3 discharged from the Replacement Snowshed roof to Keechelus Lake and the existing lakeshore/side
4 slope. The existing side slope is adequately armored for receiving the estimated runoff.
5

6 **Roadways (existing Snowshed removal, pavement, utilities, and drainage system)**

7 Once the Replacement Snowshed substructure and superstructure are completed, stormwater runoff
8 tracked into the Replacement Snowshed will be conveyed to the lake through permanent enclosed
9 drainage systems. At the outfall locations, riprap or SRE, will be placed as shown in the plans to prevent
10 any slope erosion
11

12 **Snow Nets**

13 The construction operations for the Snow Nets will not create channels or outlet. Therefore, no channel
14 stabilization for this area is required.
15

16 **SCB (LE 1372+06 to LE 1383+58)**

17 The AR1 Work Bench will be excavated along the existing side slope. The existing side slope is sandy
18 and gravelly and shall be covered with quarry spalls. These materials are resistant to the erosive forces of
19 low concentrations of channelized flow. During Stage 1, Seasons 1 and 2 and Stage 2, the Contractor shall
20 be responsible for perpetuating existing drainage in the vicinity of SCB. The Contractor shall be
21 responsible for including the appropriate slope protection for the outfall pipe(s) associated with SCB
22 temporary drainage. See the Maintaining Drainage Special Provision for additional information.
23

24 **Wall 8 (LW 1375+85 to LW 1423+00)**

25 The ditch associated with Wall 8 backfill shall be stabilized as described in the following TESC
26 Elements: Control Flow Rates, Install Sediment Controls, Stabilize Soils, and Protect Slopes.
27

28 **Wall 24 (LW 1349+00 to LW 1351+06)**

29 The ditches associated with rock and overburden excavation areas shall be stabilized as described in the
30 following TESC Elements: Control Flow Rates, Install Sediment Controls, Stabilize Soils, and Protect
31 Slopes. These TESC BMPs will stabilize the conveyance channels associated with the rock excavation
32 operations.
33

34 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

35 The ditches associated with rock excavation areas shall be stabilized as described in the following TESC
36 Elements: Control Flow Rates, Install Sediment Controls, Stabilize Soils, and Protect Slopes. These
37 TESC BMPs will stabilize the conveyance channels associated with the rock excavation operations.
38

39 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),
40 and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80
41 to LE 1427+60)**

42 The new streambed for Resort Creek shall be constructed after both bridges have been completed. The
43 Contractor shall prevent Resort Creek from avulsing into the proposed channel until the streambed
44 material and bridge scour protection are in place. The stream diversion operation shall follow the
45 parameters described in the Stream Diversion Special Provision including channel protection. During
46 construction of the EB and WB Resort Creek bridges, stormwater runoff from the median ditches will
47 discharge into the construction zone. Rock for erosion and scour protection shall be placed from the ditch

1 bottom to the toe of slope. The existing channel shall remain operational and shall be protected from
2 construction activities until the new channel is completed.

3
4 The existing Resort Creek culvert lining and extension shall incorporate slope/channel protection at the
5 outfall. This culvert shall carry Resort Creek through I-90 from Stage 1, Season I until the proposed
6 Resort Creek Channel is operation in Stage 3. During construction of the culvert lining and extension,
7 Resort Creek shall be diverted as described in the Stream Diversion Special Provision. The flow of Resort
8 Creek shall be introduced into the new channel in a slow and controlled manner to reduce erosion and
9 sediment transport.

10 11 **Unnamed Creek at MP 59.7 Bridges EB and WB**

12 The existing channel will not be impacted by the proposed construction. No additional channel protection
13 is required.

14 15 **EB I-90 (LE 1334+83 to AE 124+80)**

16 Temporary ditches will be required to convey runoff around or through the work area. These ditches shall
17 include quarry spalls, check dams, sediment traps, HECP Type 1 Mulch, and seeding to reduce flows,
18 prevent scour, and protect the ditch channels. Slope/channel protection shall be required for all temporary
19 and permanent outfalls. The channels shall be protected from the outfalls to the toe of slope or existing
20 slope which is adequately armored.

21 22 **WB I-90 (LW 1335+95 to AW 139+25)**

23 Temporary ditches will be required to convey runoff around or through the work area. These ditches shall
24 include quarry spalls, check dams, sediment traps, HECP Type 1 Mulch, and seeding to reduce flows,
25 prevent scour, and protect the ditch channels. Slope/channel protection will be required for all temporary
26 and permanent outfalls. The channels shall be protected from the outfalls to the toe of slope or existing
27 slope which adequately armored.

28 29 **Staging, Stockpile, and Mitigation Sites**

30 31 **Crystal Springs Sno-Park**

32 The existing ditches within the Crystal Springs Sno-Park are well established. During stockpiling and
33 processing operations, additional channel protection BMPs shall be added to the existing ditches. Those
34 additional BMPs include check dams and sediment traps. Additional armoring is not required at this time.
35 The existing pipe outfalls have adequately armored slope/channel protection. If additional culverts are
36 added during construction operation, additional slope/channel protection BMPs shall be considered.

37
38 During the final grading operations at the site, the proposed ditches shall be protected with HECP Type 1
39 Mulch and check dams until the permanent stormwater BMPs are installed. The slope and channel
40 protection at the proposed culverts shall be in place prior to the pipes becoming fully operational.

41 42 **Material Balance Site (LW 1410+89 to 1420+56)**

43 Ditches within the Material Balance Site shall include quarry spalls, check dams, sediment traps, HECP
44 Type 1 Mulch, and seeding. Slope/channel protection shall be added where the ditch outfalls to the Resort
45 Creek wetland.

1 **Price Creek Sno-Park**

2 The proposed use for the Price Creek Sno-Park staging facility will not require channel stabilization.
3

4 **Townsend Creek Mitigation Site**

5 During removal of the culvert and channel grading, Townsend Creek shall be diverted around the work
6 zone and will outfall into the existing channel downstream of the work zone. Scour protection BMPs shall
7 be added at the pipe outfall to prevent any channel erosion. Townsend Creek shall be introduced to the
8 proposed Townsend Creek channel as described in the Stream Diversion Special Provision.
9

10 **Sunset Highway Mitigation Site**

11 The existing Sunset Highway carries channelized flow during precipitation events. The proposed grading
12 will enhance the channel properties of the Sunset Highway. During construction, wattles shall be placed
13 across the excavated roadway until the final grading is complete. The wattles will roughen the slope and
14 minimize runoff concentration and velocity.
15

16 **Upper Resort Creek Mitigation Site**

17 The proposed work for the Upper Resort Creek Mitigation Site shall be completed while the creek is
18 diverted. Resort Creek shall be diverted as described in the Stream Diversion Special Provision. The
19 streambed and scour protection shall be installed immediately after the excavation and culvert work is
20 complete.
21

22 **Detour Alignment Construction**

23
24 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

25 During DW11 and DE11 detour construction, there will not be any grading of the existing ditches. Check
26 dams, sediment traps, and quarry spalls shall be added to the existing ditches where shown on the plans or
27 as needed to stabilize the ditch channels. Where there are temporary pipe outfalls, slope/channel
28 protection shall be placed on the side slope to prevent erosion.
29

30 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

31 During DW12 and DE12 detour construction, temporary and proposed ditches will be graded in addition
32 to retaining some of the existing ditches. Check dams, sediment traps, quarry spalls, HECF Type 1
33 Mulch, and seeding shall be added to the ditches where shown on the plans or as needed to stabilize the
34 ditch channels. Where there are temporary or permanent pipe outfalls, slope/channel protection shall be
35 placed on the side slope to prevent erosion.
36

37 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

38 During DW13 and DE13 detour construction, temporary and proposed ditches will be graded in addition
39 to retaining some of the existing ditches. Check dams, sediment traps, quarry spalls, HECF Type 1
40 Mulch, and seeding shall be added to the ditches where shown on the plans or as needed to stabilize the
41 ditch channels. Where there are temporary pipe outfalls, slope/channel protection shall be placed on the
42 side slope to prevent erosion.
43

44 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

45 Since the proposed work for the DW14 and DE14 detours is limited to lane and traffic barrier shifts, the
46 same channel stabilization BMPs used for the DW13 and DE13 detour construction shall be used for the
47 DW14 and DE14 detour activities.
48

1 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

2 During DW15 and DE15 detour construction, temporary and proposed ditches will be graded in addition
3 to retaining some of the existing ditches. Check dams, sediment traps, quarry spalls, HECF Type 1
4 Mulch, and seeding shall be added to the ditches where shown on the plans or as needed to stabilize the
5 ditch channels. Where there are temporary pipe outfalls, slope/channel protection shall be placed on the
6 side slope to prevent erosion.
7

8 **BMPs Identified**

9
10 The following BMPs will be used to stabilize channels and outfall locations within the Project area:

- 11 • Check Dams, SS 8-01.3(6), Std. Plan I-50.10-00 and I-50.20-00
- 12 • Temporary Seeding, SS 8-01.3(2)A, SP “Erosion Control And Water Pollution Control”
- 13 • Erosion Control Blanket, SS 8-01.3(3), Std. Plan I-60.20-00
- 14 • Erosion Control at Culvert Ends, Std. Plan I-30.20-00 Inlet Protection, SS 8-01.3(9)D, Std. Plan I-
15 40.20-00
- 16 • Geotextile Silt Tubes, SP “Erosion Control And Water Pollution Control” Riprap, SS 8-15 and 9-
17 13.1
- 18 • Riprap, SP “Riprap”, SS 8-15 and 9-13.1
- 19 • Temporary Drainage - Snowshed, Wall 4, SP “Maintaining Drainage”
- 20 • Temporary Drainage – Slide Curve Bridge, Wall 7, SP “Maintaining Drainage”
21

22 **TESC Element 9: Control Pollutants**

23
24 The Contractor will be required to develop a Spill Prevention Control and Countermeasures Plan (SPCC
25 Plan) that will address sensitive resource protection and handling and disposing of pollutants. All
26 pollutants, including construction materials, waste materials, and demolition debris, must be contained
27 and disposed of at a WSDOT approved site in a manner that does not cause contamination of sensitive
28 resources. The SPCC Plan must be prepared to meet SS 1-07.15(1) and Washington State Department of
29 Ecology standards as described in WSDOT SPCC Plan Preparation Instructions and Spill Plan Reviewers
30 Protocols.
31

32 Stormwater shall be prevented from contacting curing concrete. Stormwater or groundwater shall be
33 sampled in the vicinity of curing concrete on the down slope side to ensure that water quality standards
34 are not violated. Process water (concrete washout, hydro-demolition, etc.), any water that comes in
35 contact with curing concrete, and any other high pH water shall be fully contained and then disposed of at
36 an approved offsite location. A washout BMP shall be provided for all concrete tools and equipment. All
37 concrete washout facilities shall be checked daily and cleaned or changed when 75% full. Waste material
38 shall be vacuumed and then disposed of at an approved offsite location. Liquids shall not be discharged to
39 waterways, storm drains, or directly onto the ground. Structures shall be covered to prevent overflow
40 from storm events.
41

42 Equipment and supplies that may potentially contaminate ground or surface waters shall be removed from
43 the Project site or shall be stored in an appropriate, covered, and/or contained area prior to winter
44 shutdown.
45

1 **TESC Element 10: Control Dewatering**

2
3 Turbid water created during excavation of caisson shafts, trench dewatering, rock cutting, abutment
4 foundation and work platform construction shall be taken to a WSDOT approved location for disposal.
5 Turbid water may need to be conveyed to a temporary sediment trap, or some other temporary
6 containment such as a tank, prior to being removed for disposal.

7
8 Dewatering water meeting WAC 173-201A can be discharged to surface waters provided the dewatering
9 flow does not cause erosion or flooding of receiving waters. These clean waters may not be routed
10 through temporary sediment ponds.

11
12 Dewatering will be required during caisson shaft drilling, pouring and construction of all bridge
13 abutments. All high pH dewatering water shall be disposed of at a WSDOT approved offsite location.
14 Turbid dewatering water having a pH in the range of 6.8 to 8.5 pH units shall be taken to a WSDOT
15 approved location for disposal. The turbid water may be conveyed to a temporary sediment trap, or some
16 other temporary containment such as a tank, prior to being removed for disposal. Standard Specification
17 8-01.3(1)C lists the basic requirements for management of process water. The Erosion Control and Water
18 Pollution Control Special Provision requires the Contractor to submit a plan for preventing high pH or
19 dewatering water from entering surface waters.

20
21 “Process water shall not be allowed to infiltrate during shaft construction or at any other time. SS 1-07.15
22 and Item 2 in SS 8-01.3(1)C list the basic requirements for management of process water. The “Imposed
23 Restrictions and Requirements” subsection in Special Provision “Environmental Regulations” requires
24 that all process water be fully contained and then disposed of at an approved offsite location, “Imposed
25 Restrictions and Requirements” identifies flocculent laden water, high pH water, and wash water removed
26 from a tire wash as types of process water. The “Submittals” subsection in each of Special Provisions
27 “Cement Concrete Pavement” and “Concrete Structures” requires the Contractor to submit a plan for
28 preventing process water, high pH water, and high pH slurry from entering surface waters. The “High pH
29 Submittal” subsection in Special Provision “Erosion Control And Water Pollution Control” requires the
30 Contractor to submit a plan for preventing high pH water from entering surface waters.

31
32 Process water generated as part of the Tire Wash operation shall be disposed of called for in the Tire
33 Wash Special Provision.

34 **Construction Activities/Locations**

35
36
37 The following activities and locations require BMPs to control dewatering:

38 **Replacement Snowshed (LW 1352+50 to LW 1363+50)**

39
40 The four major construction elements for the Replacement Snowshed and the proposed dewatering BMPs
41 for each are described below:

42 **Pier 1 Substructure (footing, retaining wall, ventilation plenum, communication/ 43 mechanical/electrical rooms, water tank room, backfill, and drainage systems)**

44
45 As part of the Pier 1 substructure, rock excavation, footing construction, and pier wall construction will
46 create turbid water. Significant amounts of groundwater and stormwater runoff will be encountered
47 during Pier 1 construction. The Contractor shall capture all turbid water, groundwater coming into contact

1 with turbid water or fresh concrete, runoff coming into contact with turbid water or fresh concrete and
2 dispose of it offsite.

3
4 **Pier 2 Substructure (Walls 3 & 4, shafts, tie backs, piers, generator room, and diesel tank)**

5 Shaft drilling and construction, pier construction, and construction of Walls 3 and 4 will create turbid
6 water. Significant amounts of groundwater and stormwater runoff will be encountered during Pier 2
7 construction. The Contractor shall capture all turbid water, groundwater coming into contact with turbid
8 water or fresh concrete, runoff coming into contact with turbid water or fresh concrete and dispose of it
9 offsite.

10
11 **Superstructure (roof, portals, and Walls 9A thru 9D and 10)**

12 The roof deck of the Replacement Snowshed is the only element of the superstructure that will be cast-in-
13 place. The Contractor shall capture all groundwater and runoff coming into contact with fresh concrete
14 and dispose of it offsite.

15
16 **Roadways (existing Snowshed removal, pavement, utilities, and drainage system)**

17 The WB and EB roadways beneath the Replacement Snowshed will be built after the roof is in place. The
18 permanent drainage system for groundwater and surface water conveyance will be in place and
19 operational. It is unlikely that stormwater runoff will be coming into contact with any fresh concrete, but
20 if it does, the Contractor shall capture all of the runoff that comes into contact with the fresh concrete and
21 dispose of it offsite.

22
23 **Snow Nets**

24 The proposed work in the avalanche fencing areas will not require dewatering.

25
26 **SCB (LE 1372+06 to LE 1383+58)**

27 Shaft drilling and construction, pier construction, and construction of Walls 7, 7A, 7B, and 23 will create
28 turbid water. Significant amounts of groundwater and stormwater runoff will be encountered during
29 substructure construction. The roof deck of the Replacement Snowshed is the only element of the
30 superstructure that will be cast-in-place. The Contractor shall capture all turbid water, groundwater
31 coming into contact with turbid water or fresh concrete, runoff coming into contact with turbid water or
32 fresh concrete and dispose of it offsite.

33
34 **Wall 8 (LW 1375+85 to LW 1423+00)**

35 The rock excavation associated with Wall 8 construction will create turbid water. Significant amounts of
36 groundwater and stormwater runoff will be encountered during Wall 8 construction. The Contractor shall
37 capture all turbid water, groundwater coming into contact with turbid water or fresh concrete, runoff
38 coming into contact with turbid water or fresh concrete and dispose of it offsite.

39
40 **Wall 24 (LW 1349+00 to LW 1351+06)**

41 Weep holes and horizontal drains will convey groundwater as shown in the Wall 24 and the Rock Slope
42 Stabilization Plans, respectively. Groundwater and offsite runoff conveyance and treatment shall follow
43 the methods previously described under the other TESC Elements.

44
45 **Rock Slope Stabilization (LW 1346+61 to LW 1411+00)**

46 Horizontal drains will convey groundwater as shown in the Rock Slope Stabilization Plans and will
47 discharge to the WB ditch. Groundwater and offsite runoff conveyance and treatment shall follow the
48 methods previously described under the other TESC Elements.

1
2 **Resort Cr. Br. WB, Resort Cr. Br. EB, Culvert Lining and Extension (LW 1423+38),**
3 **and Resort Creek Re-Channelization (LW 1426+10 to LW 1427+90 and LE 1425+80**
4 **to LE 1427+60)**

5 Shaft drilling and construction and abutment construction for both bridges and placement of CDF
6 associated with the culvert lining will create turbid water. Groundwater and stormwater runoff will be
7 encountered during substructure construction for both bridges. The Contractor shall capture all turbid
8 water, groundwater coming into contact with turbid water or fresh concrete, runoff coming into contact
9 with turbid water of fresh concrete and dispose of it offsite.
10

11 **Unnamed Creek at MP 59.7 Bridges EB and WB**

12 Shaft drilling, micropile drilling, and abutment construction for both bridges will create turbid water.
13 Stormwater runoff will be encountered during substructure construction for both bridges. The Contractor
14 shall capture all turbid water, groundwater coming into contact with turbid water or fresh concrete, runoff
15 coming into contact with turbid water or fresh concrete and dispose of it offsite.
16

17 **EB I-90 (LE 1334+83 to AE 124+80)**

18 The Contractor shall take precautions to ensure that stormwater runoff does not come into contact with
19 fresh concrete placed as part of the EB I-90 Construction. If it does, the Contractor shall capture the
20 contaminated runoff and dispose of it offsite.
21

22 **WB I-90 (LW 1335+95to AW 139+25)**

23 The Contractor shall take precautions to ensure that stormwater runoff does not come into contact with
24 fresh concrete placed as part of the WB I-90 Construction. If it does, the Contractor shall capture the
25 contaminated runoff and dispose of it offsite.
26

27 **Staging, Stockpiling, and Mitigation Sites:**

28
29 **Crystal Springs Sno-Park**

30 Process water generated as part of any aggregate processing operations shall be captured and disposed of
31 offsite. Stormwater runoff coming into contact with the aggregate processing equipment or process water
32 shall be captured and disposed of offsite.
33

34 **Material Balance Site (LW 1410+89 to 1420+56)**

35 Neither excavation nor processing activities are anticipated for this site. Therefore groundwater, turbid
36 water, and process water will not be encountered at this site.
37

38 **Price Creek Sno-Park**

39 Neither excavation nor processing activities are anticipated for this site. Therefore groundwater, turbid
40 water, and process water will not be encountered at this site.
41

42 **Townsend Creek Mitigation Site**

43 During the proposed grading activities, it is likely that groundwater will be encountered, and it will
44 become turbid. Since the proposed grading will create a basin, it is anticipated that the turbid water will
45 not leave the site and enter any surface waters. Dewatering may be required if during construction,
46 conditions change significantly.
47
48

1 **Sunset Highway Mitigation Site**

2 During the proposed activities, groundwater may be encountered. The surrounding site is well vegetated
3 and no surface waters are in the immediate vicinity. Dewatering will not likely be required during
4 construction.
5

6 **Upper Resort Creek Mitigation Site**

7 During construction of the culvert foundation, surface runoff may come into contact with fresh
8 concrete and become turbid. The Contractor shall capture all turbid water, groundwater coming into
9 contact with turbid water or fresh concrete, and runoff coming into contact with turbid water or fresh
10 concrete and dispose of it offsite.
11

12 **Detour Alignment Construction**

13 **DW11 & DE11 Construction (DW11 10+00 to DW11 58+11, DE11 10+00 to DE11 57+65)**

14 It is not anticipated that construction of the DW11 and DE11 detour roads will encounter any
15 groundwater. There will not be any concrete poured as part of the detour construction. Dewatering is not
16 anticipated for detour lane construction.
17

18 **DW12 & DE12 Construction (DW12 10+00 to DW12 93+48, DE12 10+00 to DE12 92+21)**

19 It is not anticipated that construction of the DW12 and DE12 detour roads will encounter any
20 groundwater. There will not be any concrete poured as part of the detour construction. Dewatering is not
21 anticipated for detour lane construction.
22

23 **DW13 & DE13 Construction (DW13 10+00 to DW13 65+60, DE13 10+00 to DE13 67+36)**

24 It is not anticipated that construction of the DW13 and DE13 detour roads will encounter any
25 groundwater. There will not be any concrete poured as part of the detour construction. Dewatering is not
26 anticipated for detour lane construction.
27

28 **DW14 & DE14 Construction (DW14 10+00 to DW14 45+57, DE14 10+00 to DE14 47+42)**

29 Since the proposed work for the DW14 and DE14 detours is limited to lane and traffic barrier shifts,
30 ground water will not be encountered, and there will not be any concrete poured as part of the detour
31 construction. Dewatering is not anticipated for detour lane construction.
32

33 **DW15 & DE15 Construction (DW15 10+00 to DW15 137+17, DE15 10+00 to DE15 139+49)**

34 It is not anticipated that construction of the DW15 and DE15 detour roads will encounter any
35 groundwater. There will not be any concrete poured as part of the detour construction. Dewatering is not
36 anticipated for detour lane construction.
37

38 **BMPs Identified**

- 39
- 40 • Temporary Sediment Trap, SP “Detention/Retention Pond Construction” in SP “Erosion Control
 - 41 and Water Pollution Control”, Std. Plan I-80.10-00, Detail Sheet TDD3
 - 42 • Tire Wash, SS 8-01.3(7), SP “Erosion Control And Water Pollution Control”
 - 43 • Water Management, SS 8-01.3(1)C
 - 44 • Concrete Washout, Dept. of Ecology BMP -154
- 45
46

1 **TESC Element 11: Maintain BMPs**

2
3 Temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as
4 needed to assure continued performance.

5
6 Contractor demobilization at the end of each construction season shall include winterization of the Project
7 which includes, but is not limited to, stabilization of all construction, stockpiling, staging and storage sites
8 with BMPs that can withstand heavy rainfall and snow accumulation. Maintenance of all construction site
9 BMPs during non-construction periods (October 15 to April 15) shall be the responsibility of the
10 Contractor. The transition from temporary BMP maintenance to permanent BMP implementation shall be
11 as approved by the Project Engineer.
12

13 **Inspection and Monitoring**

14
15 The following inspection and monitoring requirements apply to all construction areas and activities within
16 the Project limits:

17
18 All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their
19 intended function. New and existing drainage structures shall be cleaned out prior to winter and before
20 beginning construction in spring.

21
22 An Environmental Compliance Lead shall be identified in the Construction TESC Plan and shall be onsite
23 or on-call at all times. If this information is not available at the preconstruction discussions, it shall be
24 noted in the Narrative of the TESC. When the individual is identified, the information shall be added to
25 the TESC.
26

27 Sampling and analysis of the stormwater discharges from the construction site shall be necessary on a
28 case-by-case basis to ensure compliance with standards. Together with WSDOT, the Contractor shall
29 establish a monitoring and reporting schedule to meet permit requirements.
30

31 Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction TESC Plan
32 are inadequate, the TESC Plan shall be modified and updated as appropriate and in a timely manner.
33

34 **BMPs Identified**

- 35
36
- 37 • Submittals, SS 8-01.3(1)A
 - 38 • Environmental Compliance Lead, SP “Erosion Control And Water Pollution Control”
 - 39 • Water Management, SS 8-01.3(1)C

40 **TESC Element 12: Manage the Project**

41
42 The Contractor shall follow the guidance below to ensure proper management of the Project.
43
44

1 **Construction Phasing**

2
3 Sediment transport during construction shall be prevented to the maximum extent possible. Sediment
4 shall not enter any water body within or adjacent to the Project site. Re-vegetation of exposed areas and
5 maintenance of that vegetation shall be an integral part of the clearing and stabilizing activities for any
6 phase. The level of Keechelus Lake shall determine the construction sequence so that no in-water
7 activities occur. See Special Provision “Prosecution of Work”.

8
9 Clearing and grubbing activities shall only be allowed if conducted pursuant to an approved site
10 development plan that establishes timing, sequencing and staging of permitted areas for clearing, grading,
11 cutting, and filling. Clearing and grubbing activities shall be limited to the work area needed for
12 construction to minimize tree removal and native soil compaction. Defined preservation areas shall be
13 delineated on the site plans.

14
15 Communication with Hyak Maintenance Personnel, Project Engineering Staff, Construction Management
16 and the Environmental Compliance Lead shall be maintained. On-site log books shall be maintained as
17 required by the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater
18 General Permit. The TESC Plan Sheets and Narrative need to remain adaptable to specific situations and
19 events. Open lines of communication will help ensure that stormwater events can be anticipated early or
20 dealt with quickly and efficiently.

21 **Construction SWPPP Maintenance**

22
23
24 The Construction TESC Narrative and Plans shall be retained on-site or within reasonable access to the
25 site at all times. The Construction TESC Narrative and Plans shall be modified whenever there is a
26 significant change in the design, construction, operation, or maintenance of any BMP.

27 **Simplified TESC Schedule**

28
29
30 The following scheduling guidance shall be followed for proper TESC procedures:

- 31
- 32 • Prior to commencing any construction activities, BMP measures from the previous construction
 - 33 stage shall be inspected, repaired or replaced and/or cleaned out.
 - 34 • Clearing limits and buffer zones at all active construction zones shall be delineated with HVF and
 - 35 HVSF. The water elevation of Keechelus Lake shall be evaluated at the time of construction, and
 - 36 construction activities which are not affected by the lake elevation shall be performed.
 - 37 • An Erosion and Sediment Control (ESC) inspection and maintenance schedule shall be
 - 38 implemented.
 - 39 • Stabilized construction access points and construction haul routes shall be established.
 - 40 • Staging and stockpile areas will be established.
 - 41 • Exposed soil at any one time shall be minimized to help prevent the transport of sediment from
 - 42 the site during construction.
 - 43 • Temporary erosion and sediment control BMPs shall be installed prior to any construction
 - 44 activities.
 - 45 • Offsite surface water runoff shall be diverted around or through all active or unstable work areas.
 - 46 • Existing culverts will be used to convey offsite runoff through or around the site. Existing
 - 47 culverts shall remain operational until permanent culverts are fully functional. Sediment shall not
 - 48 be discharged into any water body.

- BMPs, such as check dams, silt fencing, coir mats, HECF Type 1 Mulch or mats shall be used to hold erodible soils in place or limit transport of sediment in ditches upstream of culverts. These temporary BMPs shall be maintained until the permanent BMPs are established.

The final order of work prior to ending construction for each season shall be to secure all BMPs for winterization of the Project sites.

Site Characteristics (Factors Affecting Erodibility)

Soils

The areas on the northerly side of I-90 are underlain with volcanic rock and layers of sandstone. The top of the steep rock outcroppings contain approximately 2-feet to 30-feet of soil overburden. The rock cutting along the Replacement Snowshed and Slide Curve may increase the potential for rock fall and erosion of the loose soil (overburden). During the rock stability investigations, faults were discovered in areas where the cut slopes will occur. These faults could be exposed and cause large areas of rocks and loose soil to slough off. The exposed surface and loose soil would be hard to control if a large precipitation event occurred or perched aquifers were exposed. These rock outcroppings limit the areas where infiltration methods can be located.

Generally, the soils along the southerly side of the Project are composed of glacial outwash and river deposits. The outwash material is mostly made up of coarse sand and gravel. When I-90 was originally constructed, the roadbed fill was a mixture of gravel, cobbles and silty sand. All of this material drains well and has high infiltration rates.

Sandstone layers were also found along the lake shoreline around the Resort Creek area. Several seeps were located along shoreline side slopes from Unnamed Creek at MP 59.7 westerly to approximately MP 59.0.

Precipitation

Precipitation varies from west to east across the Cascade Mountain Range. Data from the Lake Keechelus monitoring station shows an average yearly rainfall total of approximately 70 inches compared with approximately 105 inches at Snoqualmie Pass. Similarly, snowfall at the Lake Keechelus station ranged from 53 to 452 inches with an average of approximately 220 inches while the Snoqualmie Pass station ranged from 172 to 800 inches with an average of approximately 460 inches of snowfall (<http://www.wrcc.dri.edu/>).

Temperature variations are common throughout the winter, with rapid snowmelt and rain-on-snow events which generate large amounts of runoff, occurring frequently throughout the Project area. Peak flow runoff rates occur more often between April and May from rain-on-snow events.

Topography

The Project lies within the alpine zone of the eastern side of the Cascade Mountains and has mountainous ridges and peaks, with deep glacially carved valleys. Keechelus Lake is a natural water body that was

1 formed by glaciers. A dam was installed on the easterly end to help prevent flooding and provide
2 irrigation for agriculture.

3
4 The High Water Level elevation for Keechelus Lake is 2,517 feet above Mean Sea Level (MSL). During
5 an average year, the elevation of the lake begins to drop rapidly around the beginning of July when the
6 United States Bureau of Reclamation (USBR) releases a larger quantity of irrigation water from the dam.
7 The rapid elevation drop begins to stabilize in September. Around mid-October, the lake level begins to
8 increase steadily until discharge rates are greatly increased in July.

9
10 The elevation for the I-90 corridor is approximately 2,550 feet and Keechelus Ridge is about 4,000 feet
11 MSL. Both sides of I-90 have steep slopes. The rock cut slopes at the Replacement Snowshed and Slide
12 Curve are almost vertical, and the slopes along the Keechelus Lake shoreline are as steep as 1:1. These
13 slopes make it very important to keep BMPs working properly and control flow rates to ensure that
14 sediment laden runoff does not enter the lake or cause erosion at downstream locations.

16 **Vegetation**

17
18 Vegetation around the Project consists of tall grasses, ferns, scrub-shrub, willows, forest vegetation and
19 second growth timber. There are areas classified as wetlands along both side of I-90, at Resort Creek,
20 Townsend Creek, Sunset Highway, and Unnamed Creek at MP 59.7. Resort Creek and Unnamed Creek at
21 MP 59.7 have wetlands on both sides of the roadway. The northerly side is produced by Resort Creek and
22 Keechelus Lake high pool elevation, and the southerly side has areas that have been formed mainly by
23 seepage from the north through the roadway.

25 **Adjacent Areas**

26
27 Areas adjacent to the Project are:

- 28 • Keechelus Lake - south
- 29 • Wenatchee National Forest - north
- 30 • WSDOT (I-90) – east and west

33 **Groundwater**

34
35 Groundwater fluctuates with the seasonal conditions. Low groundwater near the end of summer rises
36 quickly with fall rainstorms. Precipitation falls during the winter as snow and groundwater levels decline
37 to mimic the levels near the end of the summer dry season. Groundwater rises to elevations similar to the
38 fall levels as the snow pack begins to melt in the spring. The groundwater is also affected by the
39 Keechelus Lake water level; it tends to remain at higher levels when the lake is high and drops along with
40 the lake level during the summer.

41
42 Several shallow, perched aquifers were located by soil borings near the Replacement Snowshed and Slide
43 Curve areas. These aquifers may be encountered during rock cutting and will need additional or unique
44 BMPs to control the additional runoff.

1 Sensitive Areas

2
3 The Project is surrounded by sensitive areas such as vegetated buffer areas, wetlands, creeks, and
4 Keechelus Lake. Hydrologic connectivity is an environmental concern as I-90 bisects wetlands, alluvial
5 fans, seepage zones, and important aquifer recharge areas. The roadway forms a barrier that prohibits
6 natural surface and subsurface flow paths from occurring. These flow paths are needed to maintain
7 natural seepage, groundwater recharge and wetland flow areas. The roadway also creates an opportunity
8 for wetland and floodplain mitigation to help support the hydrologic connectivity between the north and
9 the south sides. The roadway BMPs and temporary and permanent drainage designs are important aspects
10 in an effort to keep continuity between surface and subsurface flow. Design objectives include:

- 11
- 12 • Maintaining natural methods for routing water - surface and subsurface.
- 13 • Improving floodplains and wetlands for groundwater recharge.
- 14 • Providing conditions that will lower water temperatures.
- 15 • Transmitting water beneath the roadway to restore natural flow paths.

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