Mt. Ashland Ski Area
Stormwater Pollution Control Plan 2013
Summer Projects

Prepared for:
Mr. Kim Clark, General Manager
Mt. Ashland Ski Area
PO Box 220
693 Washington St.,
Ashland OR 97520

Prepared by:
Re-Align Environmental
Bill Granger, Owner
14056 180th Ave SE
Renton, WA
(206) 790-6132
Bill@re-alignenv.com

March 2013 (revised April 2013)

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1.0 Introduction

The Mount Ashland Ski Area (MASA) is an existing winter sports recreation area located within the Siskiyou Mountains in Southern Oregon on National Forest System Lands (NFSL) (see Figure 1). It is operated by the Mt. Ashland Association (MAA) under special use authorization issued by the Rogue River-Siskiyou National Forest, Ashland Ranger District. A small portion of the ski area is located on the Klamath National Forest. The MASA is located about 7 air miles south of the City of Ashland, primarily within the Ashland Creek Watershed. This municipal watershed serves as the source of drinking water for the City of Ashland.

In the Record of Decision (ROD) and Final Environmental Impact Statement (FEIS) for the Mt. Ashland Ski Area Expansion, signed September 2004, MASA was given approval for the construction of two chairlifts, associated trails, Moraine Lodge, and other elements of the proposed expansion (Figure 2). As a requirement of the US Forest Service (USFS) approval, a Stormwater Pollution Control Plan (SWPCP) and Erosion Control Plan (ECP) must be submitted to and approved by the USFS before construction can begin. Therefore, this SWPCP/ECP has been prepared to satisfy the USFS requirements and to be consistent with Section 402 of the Clean Water Act of 1977, as amended by the Water Quality Act of 1987. To insure that the project complies with all pertinent federal laws, the Best Management Practices (BMPs) specified in this SWPCP/ECP will be applied and used during all phases of the project. This SWPCP/ECP will address project implementation and erosion control measures for the following activities of Phase 1-Year 1 expansion activities:

- Watershed Restoration Project construction
- Ski Run Widening
- Parking Lot Construction

This April, 2013 revision incorporates comments provided by the Ashland Ranger District and the City of Ashland. Revisions made in response to these comments are highlighted yellow.

1.1. Stormwater Pollution Prevention Plan Coordinator

The SWPCP/ECP coordinator for the 2013 expansion activities is Kim Clark, Ski Area Manager at MASA, who can be reached by phone at (541) 482-2897. As the coordinator, the erosion control duties include the following:

- Oversee the implementation of the SWPCP/ECP with the aid of additional team members,
- Conduct or oversee daily site inspections to ensure effectiveness of BMPs,
- Oversee the maintenance of structural BMPs,
- Ensure that any changes to the construction site plans are addressed in the SWPCP/ECP and that any new BMPs required to address the changes are implemented.
- Coordinate job site activities with the USFS representatives and contractors.

Figure 1-1: Vicinity Map

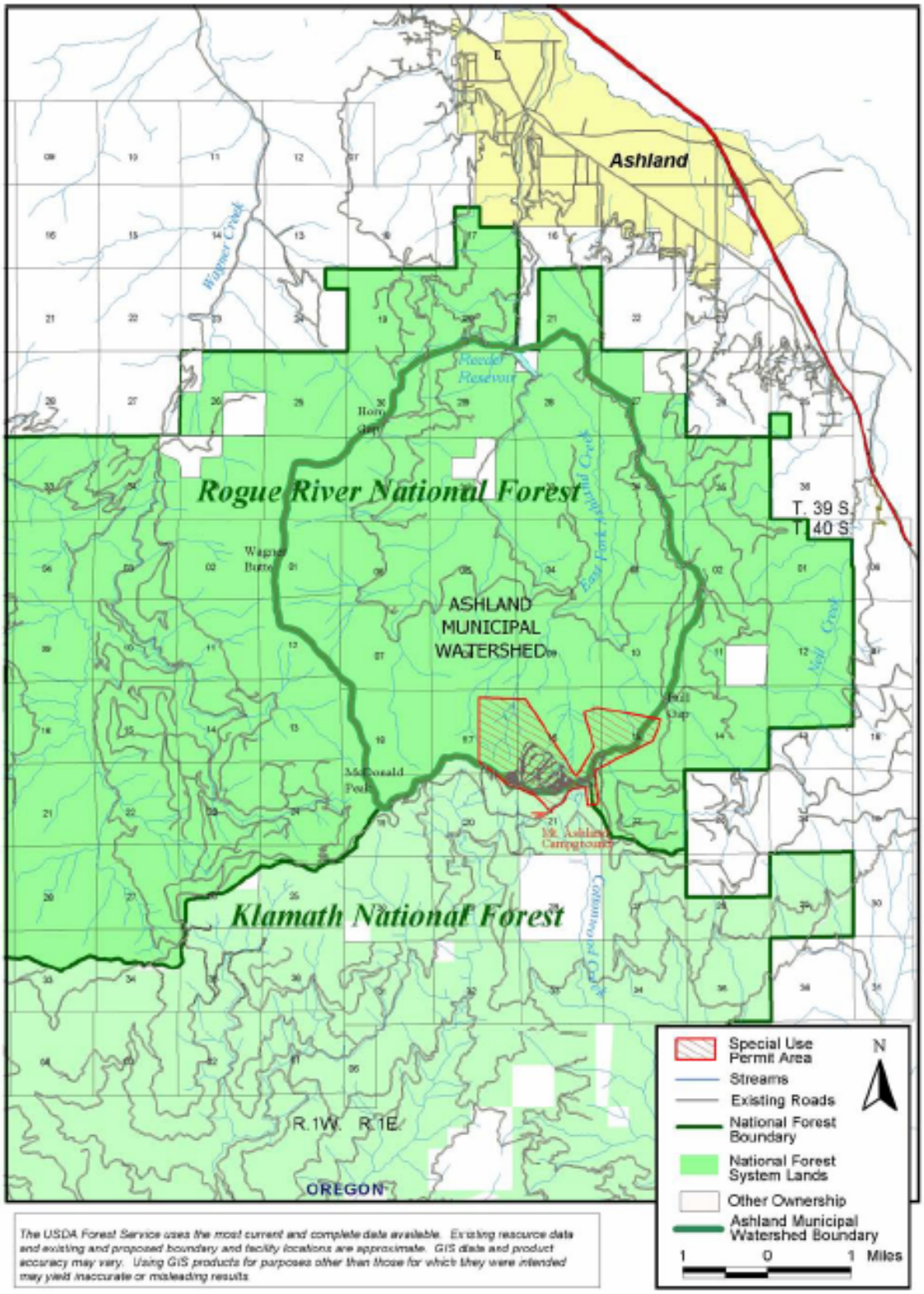
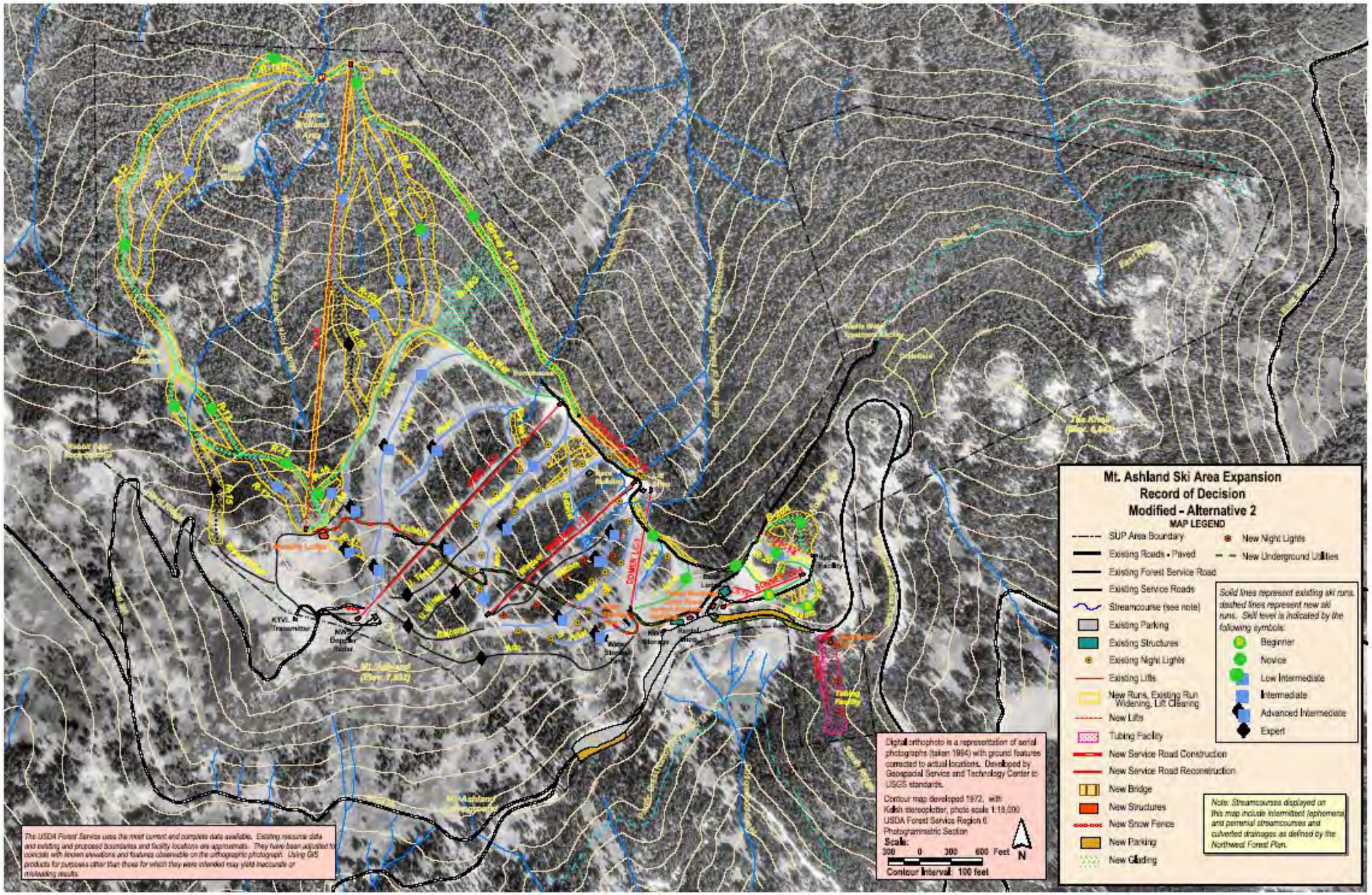


Figure 2 - Approved MASA Expansion Plan



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The remaining members of the SWPCP/ECP team are:

- Steve Johnson - USFS Administrator (541-552-2900)
- Pete Jones - USFS Geologist Pete Jones (541-552-2900)
- Jim Campbell - USFS Timber Sale Administrator (541-552-2900)
- Woodie Tesh - Outdoor Operations Manager (541) 482-2897)
- Bill Granger – Re-Align Environmental, Documentation (206) 790-6132

1.2. Required Mitigation Measures

As required by the ROD, the project activities proposed for 2013 have included all applicable Mitigation Measures in the planning, design, and implementation of 2013 project activities identified previously. The complete list of Mitigation Measures approved in the ROD can be found in Section 1.2 – Required Mitigation Measures of the 2013 Annual Operating Plan Update/ Summer Work Plan.

2.0 Project Overview

Per the ROD and FEIS for the Mt. Ashland Ski Area Expansion, the following project description should enhance the reader's understanding of the 2013 project activities.

2.1. Site Description

The project area ranges in elevation from 6,400 and 7,500 feet. The project area for ski run widening is located within the Upper Ashland Creek subwatershed and the proposed parking lot expansion is located in the Cottonwood Creek subwatershed. Watershed restoration projects are proposed in the Upper Ashland Creek, Neil Creek, and Cottonwood Creek subwatersheds. The terrain at Mt. Ashland is characterized by rocky ridges, separated by incised channels, steep small creeks, and alder glades. Slopes range in steepness from 0 to greater than 70 percent and are classified into 4 landslide hazard classes; 1 through 4 with class 1 containing the highest risk. Soils in this area are classified by the Soil Resource Inventory for the Rogue River National Forest. Soil types 80, 80a and 95(a) comprise the existing ski area, where 2013 project activities will occur. Soil type 95(a), which is defined as grasses/forbs and scattered trees, has a higher erosion rate than the others due to the lack of vegetation.

Two headwater streams are located in the ski run widening project area (see below) and are associated with the East Fork of the East Fork of Ashland Creek. The proposed parking lot expansion area is located entirely in uplands above any headwater streams that drain to Cottonwood Creek. The proposed watershed restoration projects will take place in headwater (ephemeral and intermittent) streams in the Upper Ashland Creek, Neil Creek and Cottonwood Creek watersheds.

2.2. Project Description

2.2.1. Ski Run Tree Removal

Approximately 4.10 acres of forested area will be cleared for the widening of 6 existing ski runs and the construction of one new run, as shown in Table 1.

Table 1:
Proposed Ski Run Widening and Construction

Run #	Run Name	Clearing (ac.)
R-23	Sonnet/Blossom	0.39
R-25	Romeo (approx. 7 trees)	0.01
R-26	Lower Winter	0.83
R-27	Lower Tempest	0.83
R-28	All's Well	0.36
R-29	Lower Caliban	1.48
R-20	Run 20	0.2
Total		**4.10**

Note: MASA had originally proposed R-24 (Lower Juliet), but has since Removed this proposal. As a result, R-24 is not included in this SWPCP.

Hand-falling techniques will be utilized to remove trees for the ski runs. Ski run clearing will typically require tree removal and maintenance of a low vegetation level to allow sufficient snow cover for winter use. Construction methods customarily include cutting stumps just above ground level (12 inches or less), retention of most ground vegetation, with numerous tree branches left for erosion control and composting. Approximately ten percent of the material greater than 12" may be left on site for erosion control measures or as coarse woody material, as needed.

2.2.2 Parking Lot Construction (P-1)

Approximately 101 parking spaces will be constructed on the north side of the Jackson County access road at the entrance to the existing parking lot. Parking Lot construction will require the logging of 1.1 acre and the excavation of approximately 22,133 cubic yards of material. The finished parking lot will consist of an 8 inch lift subgrade of shale material covered by a 4 inch lift of crushed rock topped by 3 inch lift of AC pavement.

The finished parking lot will be sloped to drain to the south (toward the road) and into a drainage swale that will collect surface water and convey it to an existing catch basin that drains under the road to the south. Along the northern edge of the parking lot, at the toe of the cut slope, a drainage swale/ditch will be installed to convey surface flows to an inlet that is connected to the existing catch basin. This ditch will include the installation of rock check dams to help retain sediment generated from the cut slope. As described in Section 3.0, the phasing of site controls will include installation of the BMPs to address the stage of construction.

2.2.3 Re-Contouring of Sonnet and Blossom Ski Runs

The re-contouring of the widened Sonnet (2.73 acres) and Blossom (1.26 acre) ski runs will take place using the fill material generated from the parking lot excavation, currently estimated at 22,133 cubic yards of material. This project will include the removal of the old rope tow shack and electrical service housed there, new trenching for the electrical service back to the top of Sonnet lift and re-installation of the electrical service, including the re-location of up to two night light fixtures on the bottom of the Winter ski run after tree harvest. The project will include up to 3.99 acres of ground disturbance, including 0.39 acre of new tree clearing (Table 1), associated with fill placement and utility excavation.

2.2.4. Watershed Restoration Projects

Twenty watershed restoration projects within four watersheds will be constructed in 2013. These watershed restoration projects include revegetation and construction of stormwater control measures in order to minimize sediment mobilization and transport into streams. These watershed restoration projects were required as part of the ROD. Currently 3 projects have been completed, WA-2, WA-9, and WC-2. Table 2 lists the watershed restoration projects proposed for construction in 2013. The restoration work requiring a helicopter on projects WA-1, WA-6, WA-7 and WA-11 will be finalized in the future, when MASA begins trail clearing in the C-66 expansion area. Additional information for each restoration project can be found in Section 3.2 – Project Construction.

Table 2:
2013 Watershed Restoration Projects

Project Number	Name
WA-1	Windsor Run
WA-3	Pistol Run
WA-4	Dan's Run
WA-6	Betwixt Run
WA-7	Second Bowl
WA-8	Lower Tempest
WA-10	Bull Gap Creek
WA-11	West Fork Bull Gap Creek
WA-12	Big T Bar Terminal
WA-13	Pumphouse Creek
WN-1	South Ridge
WN-2	Drainfield Service Road
WN-3	East Ridge
WN-4	Bull Gap Trail (#1)
WN-5	Bull Gap Trail (#2)
WN-6	Neil Creek
WN-7	East Fork Neil Creek
WC-1	Cottonwood Meadow
WC-3	Existing Parking Lot
WG-1	Road 300

2.3. Project Timeline

In general, project implementation will occur within one construction season beginning in April and ending in mid-October 2013 (see Illustration 1). This construction timeline is subject to change due to inclement weather conditions.

Illustration 1:
Project Master Schedule

Task	2013						
	April	May	June	July	August	Sept	Oct
Project 1 - Run Widening							
Tree Cutting and Removal (over snow)							
Slash Disposal							
Install Erosion Controls							
Log Decking							
Log Haul-off							
Final Stabilization							
Project 2 - Parking Lot Expansion							
Project Engineering							
1200-C Permit Process							
Tree Cutting and Removal							
Mobilizatiion							
Install Erosion Controls							
Site Rough Grading							
Site Fine Grading/Drainage Controls							
Paving							
Project 3 - Sonnet and Blossom Re-grade							
Tree Cutting (Run 20)							
Slash Disposal							
Install Erosion Controls							
Site Rough Grading							
Site Fine Grading							
Final Stabilization							
Restoration Projects							
Rootwad and Log Preparation							
Rootwad and Log Placement							
Final Stabilization							

3.0 Erosion and Sediment Control Measures

Erosion and sediment control measures consist of the structural and procedural BMPs that will be implemented during 2013 project activities. Structural BMPs are physical features (e.g. silt fence, check dams, straw bales, mulch), that are constructed or installed onsite to minimize and control erosion from stormwater. Procedural BMPs are operational methods, such as construction sequencing, phasing, or inspection of structural BMPs.

For the 2013 project activities, the implementation of erosion and sediment control BMPs will occur in three phases over the 2013 construction season.

Phase I consists of site preparation. This phase will result in the implementation of all structural and procedural BMPs for tree clearing operations. All BMPs will be inspected by MASA and the USFS and approved before tree removal is allowed to begin. If problems are encountered with the structural BMPs, corrective actions will be identified and implemented immediately.

Phase II includes the tree removal process and construction of the watershed restoration projects. During this phase, all structural BMPs will be inspected weekly (see Section 4.0 – Monitoring) to insure they are functioning properly. The majority of erosion and sediment control measures in Phase II are procedural, and are designed minimize erosion caused by construction activities. For example, if wet weather conditions arise during construction, MASA will implement required mitigation measures for wet weather as described in the ROD.

Phase III will include site stabilization measures to be implemented for site closure.

As described in MASA's Summer Work Plan, Best Management Practices (BMPs) as identified in *General Water Quality Best Management Practices* (USDA PNW 1988) contain mitigation measures that will be used to protect watershed conditions and water quality. BMP guidelines as detailed in *Ski Area BMPs - Guidelines For Planning, Erosion Control and Reclamation,* will also be followed where applicable (USDA Wasatch-Cache NF 2001).

Timber Harvest

T-5 Limiting the Operating Period of Timber Sale Activities
T-7 Streamside Management Unit Designation
T-8 Streamcourse Protection
T-10 Log Landing Location
T-12 Suspended Log Yarding in Timber Harvesting
T-13 Erosion Prevention and Control Measures During Timber Sale Operations
T-14 Revegetation of Areas Disturbed by Harvest Activities
T-18 Erosion Control Structure Maintenance
T-21 Servicing and Refueling Equipment

Watershed Management

W-1 Watershed Restoration
W-3 Protection of Wetlands
W-4 Oil and Hazardous Substance Spill Contingency Plan and Spill Prevention Control and Countermeasures Plan
W-7 Water Quality Monitoring

3.1. Phase 1 – Site Preparation

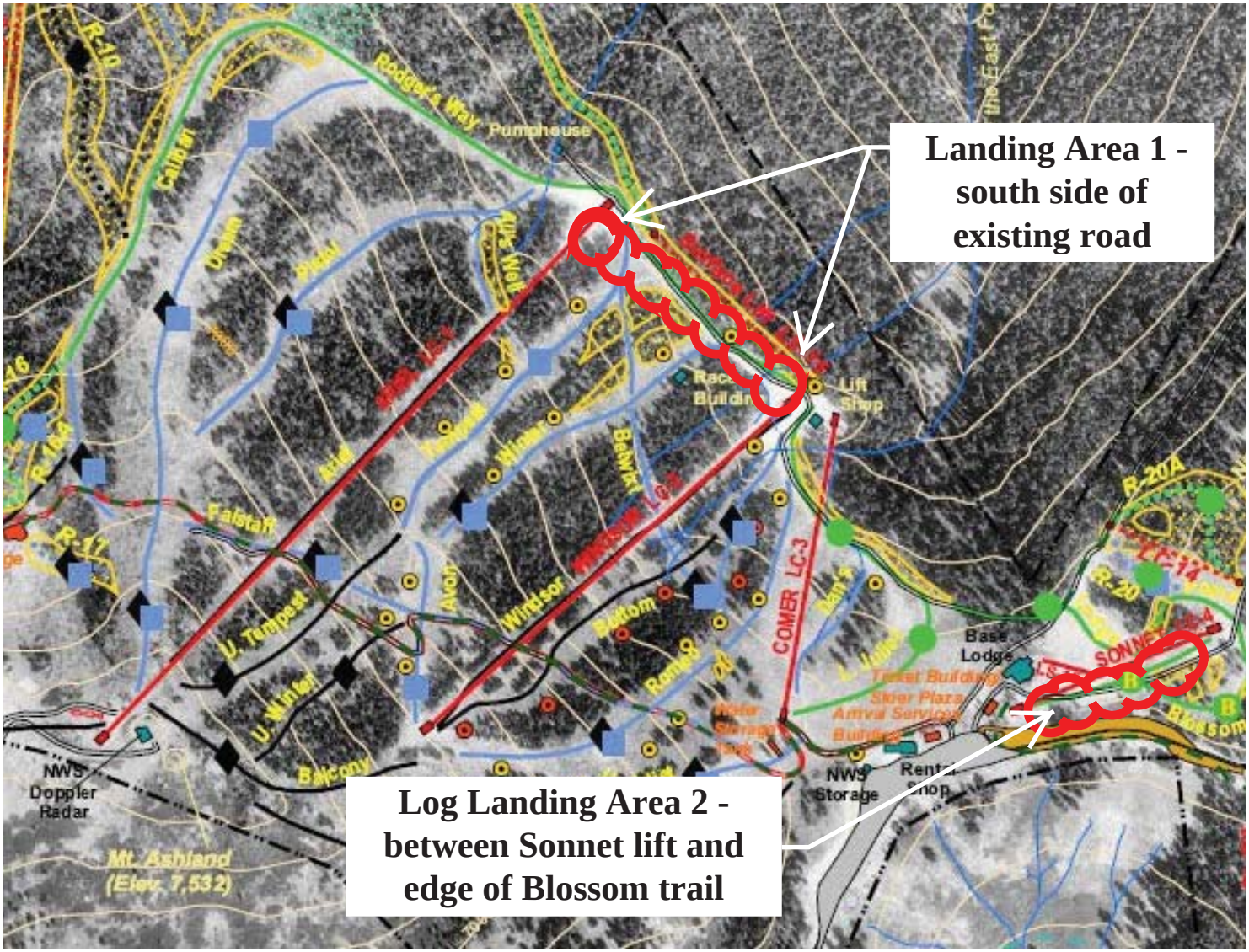
Materials List

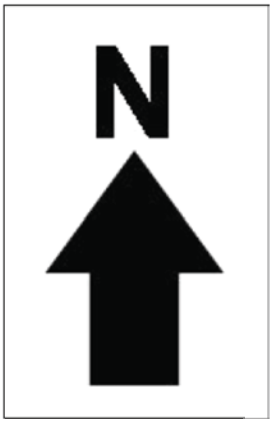
- Flagging/Barrier Fencing
- Straw Bales/Mulch/Wattles (slash may be substituted, as appropriate)
- Gravel/Wood Chips(slash may be substituted, as appropriate)
- Sediment Sock for Existing Catch Basin
- Fuel/Oil Containment
- Spill Kit

3.1.1 Ski Run Widening/Clearing

As part of the site preparation for ski run and lift line clearing, clearing limits will be established onsite. As ski run clearing will utilize hand-falling, stumps will be left in the ground, no other structural BMPs are required for erosion control during tree removal activities. If it is determined that local erosion issues resulting from tree falling require treatment, the MASA and the USFS site coordinator will develop a solution to control erosion onsite. Possible solutions may include application of straw or slash, application of wood chips, wattles, use of waterbars or logs (see Appendix A).

A log landing and staging area will be established along the skier's left of the road between Ariel and Windsor for a self-loader (Figure 3 – Landing #1). This landing will serve as the decking area for the tree removal projects, with the exception of R-24 (Sonnet/Blossom – See Table 1). A log landing area for the R-24 project will be established between the Sonnet lift and the edge of the Blossom trail (Figure 3 – Landing #2), where all logs from the R-24 project will be decked. Gravel or wood chips will be temporarily placed on the existing road surfaces to protect the ground surface during log landing operations. This area will be roped off to prevent un-authorized access. The staging areas will include BMPs for fuel and oil storage which may include the use of a pre-fabricated containment area or an earthen bund. A spill kit consisting of absorbent pads, booms, containers, disposal bags and ties, labels, emergency response guide book and an instruction book will be kept within the fuel/oil containment area.





Not to Scale

Figure 3

Mt. Ashland 2013 Projects

Log Landing Areas

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3.1.2 Parking Lot Construction

The initial site preparation for the parking lot construction will include the removal of 1.1 acre of trees (approximately 70 trees total), including removal of the stumps. At the request of the Forest Service, the trees will be felled in the direction of the area to be excavated after the snow has melted, unlike the ski trail projects, which will be logged over the snow. Logs will be yarded to the existing parking lot. Drainage from the disturbed ground will be diverted using temporary diversion dikes and water bars, which will end with sediment traps to capture any sediment that is mobilized from the disturbed ground prior to the start of excavation (see Section 3.2.2).

Surface water leaving the sediment traps from the cleared hillside will drain to the existing roadside ditch (as is the current situation) and drain to the existing dry swale that is slated for restoration (see Table 2, WC-3). In order to protect the swale from potential increased flow volumes due to the clearing, and in anticipation of the added impervious surface at the completion of the project, the inlet of the swale will be lined with quarry spalls, which will ultimately serve as outlet protection (see Typical J in Appendix A) for the completed stormwater drainage system.

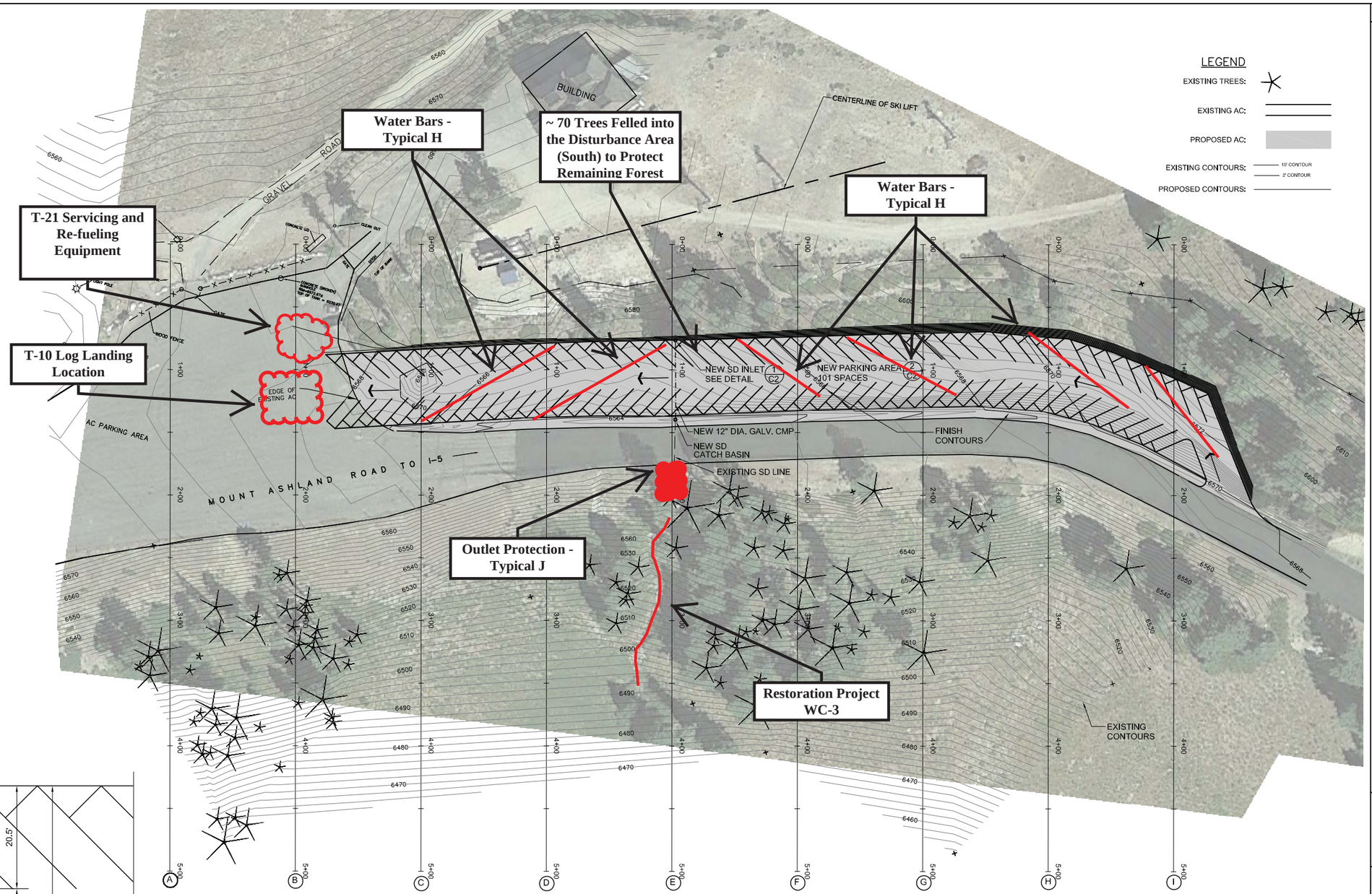
Excavation equipment will be staged in the existing parking lot (see Section 3.1.1), including BMPs for fuel and oil storage. Figure 4 shows the site preparation bmps that will be used on the cleared area.

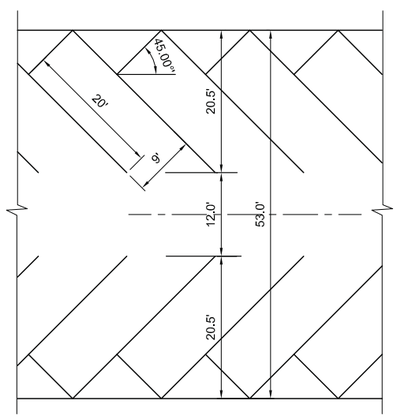
3.1.3 Re-Contouring of Sonnet and Blossom Ski Runs

Site preparation for the ski run re-contouring will begin with the cutting of the trees associated with the widening of the runs. Upon removal of the trees and slash material, the perimeter of the site will be marked with flagging or barrier fencing to ensure that fill material is not placed outside of the approved project limits. Silt fence or wattles (see Typicals L and M in Appendix A) will be installed along the downslope limits of the project.

3.1.4 Watershed Restoration Projects

The watershed restoration projects are in, and of themselves, the installation of structural stormwater control measures that are intended to reduce erosion and sedimentation. There are no additional structural controls that will be established at each restoration project site prior to construction.





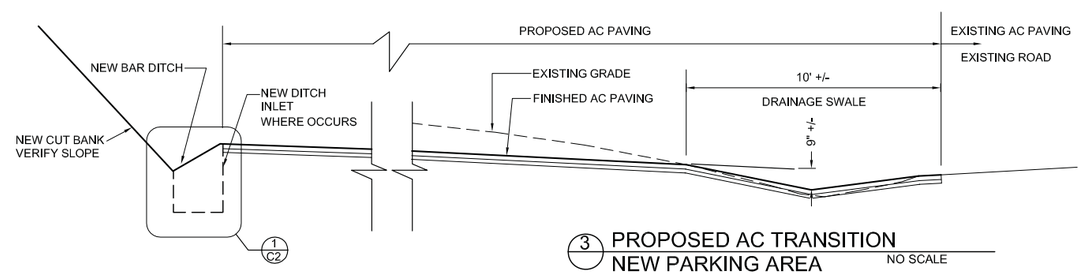
2 TYPICAL PARKING SPACE
NEW PARKING AREA
SCALE - 1" = 10'

1 PRELIMINARY PARKING AREA LAYOUT
SHOWING PROPOSED GRADING
SCALE - 1" = 40'

101 PARKING SPACES
NEW PAVING AREA = 48, 378 SQ. FT.

VOLUME QUANTITIES
CUT 22,133 CU. YDS.

PRELIMINARY
NOT FOR CONSTRUCTION



3 PROPOSED AC TRANSITION
NEW PARKING AREA
NO SCALE

GENERAL NOTES

1. Equipment, labor and materials shall be in accordance with the current ODOT, American Public Works Associations (APWA) standard specifications and drawings, unless otherwise covered by the specifications written for this project.
2. In the event of conflict in regulations and specifications governing this project, the order of precedence is as follows; a) ODOT b) American Public Works Associations; c) General Notes d) Engineer.
3. All construction shall be subject to inspection and compliance with the above applicable regulations and specifications.
4. Contractor shall notify Oregon Utility Notification Center at 1-800-332-2344 and The Engineer, at least 48 hours prior to beginning construction.
5. Project Engineer shall be notified 48 hours in advance of any stage of construction. The Engineer shall inspect the Contractor's activities to insure compliance to the Plans. The authority having jurisdiction shall make periodic inspections of the work for conformance to City Regulations.
6. There shall be no deviation from the approved plans unless requested in writing by the Project Engineer and approved in writing by the Agency having jurisdiction.
7. A. Granular materials shall be obtained from a source approved by the Engineer. The contractor shall notify the Engineer of the material source prior to any granular material placement and shall not change material source without approval.
8. Back fill material (if required)shall be placed in maximum lifts of 8" and shall be compacted by mechanical means to 90% of maximum relative density and optimum moisture in accordance with AASHTO T-99 Method D procedure for the determination of 100% relative maximum density of granular materials and in accordance these plans.
9. Construction stakes for each phase of construction shall be in place prior to commencing construction and shall be continuously maintained by the Project Contractor until each phase of construction has been complete and inspected.
10. A copy of the approved plans, specifications and standard drawings shall be on the job site at all times while work is in progress
11. All material remaining after back filling operations have been completed shall be disposed of by the contractor off-site in a manner approved of by the Engineer.
12. Prior to final acceptance of any improvements by the authority having jurisdiction, the Project Engineer shall certify that all improvements have been constructed in accordance with the approved plans and specifications.
13. The contractor shall verify all controlling field dimensions before ordering or fabricating any material.
14. All existing underground utilities and service laterals shall be located and clearly marked prior to construction. It is a the contractor's responsibility to locate and clearly mark all existing underground utilities and features.
15. Aerial map provided by Google Maps. Existing contours per existing Mt. Ashland database, T.J. Bossard archives.

Re-Align Environmental

ENGINEER:
T.J. BOSSARD ENGINEERING, LLC
4139 DRY CREEK ROAD
MEDFORD, OREGON 97504
PH. 541-858-5774
FAX 541-858-2771

REGISTERED PROFESSIONAL ENGINEER 9210 OREGON JULY 22, 1977 TIMOTHY JAY BOSSARD
PRELIMINARY
EXPIRES 12-31-13

MOUNT ASHLAND
PARKING EXPANSION

Figure 4

Parking Lot Site Preparation BMPs

3.2. Phase II - Construction

3.2.1. Ski Run Widening/Clearing

Ski run clearing will occur through ground-based operations. Approximately 4.09 acres of ski run clearing will be logged using hand-falling operations according to the Timber Settlement Agreement. Slash will be broadcast over the site to ensure that the soil surface is protected from tracked vehicle operation. During operations, MASA will ensure that any exposed soils are treated with slash of other stabilizing measures (e.g., straw).

3.2.2 Parking Lot Construction

During construction of the parking lot, the rough grading of the site will include the installation of two surface water collection swales: one along the toe of the newly excavated slope (Northern Swale) and one between the southern limit of the parking lot and the existing road (Southern Swale). The construction of the Southern Swale will include the installation of a culvert (minimum 18" diameter) across the existing road and daylighting into the protected dry swale (see Section 3.1.2).

During the construction phase, the Northern Swale will serve as the primary collection for any surface water emanating from the excavated slope. In order to slow the drainage, rock check dams will be installed along this swale, allowing for retention of sediment as the water progresses through the swale. It is expected that water will infiltrate into this basin, based on MASA's observation that road drainage currently infiltrates efficiently into the weathered granitic parent material. The swale will drain to a rock-lined ditch that will traverse the construction site to a sediment trap. The sediment trap will drain to the 18" culvert and under the road to the dry swale that has been protected with quarry spalls (see Section 3.1.2).

If necessary, the cut slope, which is expected to be 100% rock material, will be stabilized with logs (installed horizontally across the slope) or equivalent (e.g., wattles, straw mulch, matting).

The southern drainage swale will be rough graded into the southern edge of the parking lot construction site to capture any surface water emanating from the parking lot surface. This swale will be lined with gravel to slow surface water velocities and to allow for sediment to settle out. The swale will drain to the sediment trap, described above, and ultimately into the protected dry swale.

Upon establishment of the final grades and installation of the sub-base for the pavement, the rock-lined ditch the drains the Northern Swale will be culverted (18" minimum) and connected to the culvert under the road surface. The Southern Swale will be fine graded to drain to a new catch basin (approximately 6'X6'X6' to allow for sediment retention and removal – see Typical K in Appendix A), which will also receive any drainage from the Northern Swale via the extended culvert. The parking lot and Southern Swale will then be paved

Figure 5 shows the construction phase bmps that will be used on the site.

3.2.3 Re-Contouring of Sonnet and Blossom Ski Runs

During the re-contouring operations, dump trucks will deliver fill material from the parking lot excavation project. A bulldozer will be used to distribute the material and establish the rough grade. Grading of the Blossom trail will include the placement of fill material over the existing work road. A new road will be constructed over the fill material in the same alignment as the existing road, and the road will be fitted with drain dips according to Typical F (see Appendix A) and surfaced with gravel. Upon establishment of the rough grade on the ski trails, water bars will be installed according to Typical H (see Appendix A). The area will be fine graded and seeded with an approved seed mix, including the application of weed-free straw and/or slash for erosion control and soil enhancement. In the event of wet weather, the water quality BMPs, described in Section 3.0 will be implemented.

3.2.4. Watershed Restoration Projects

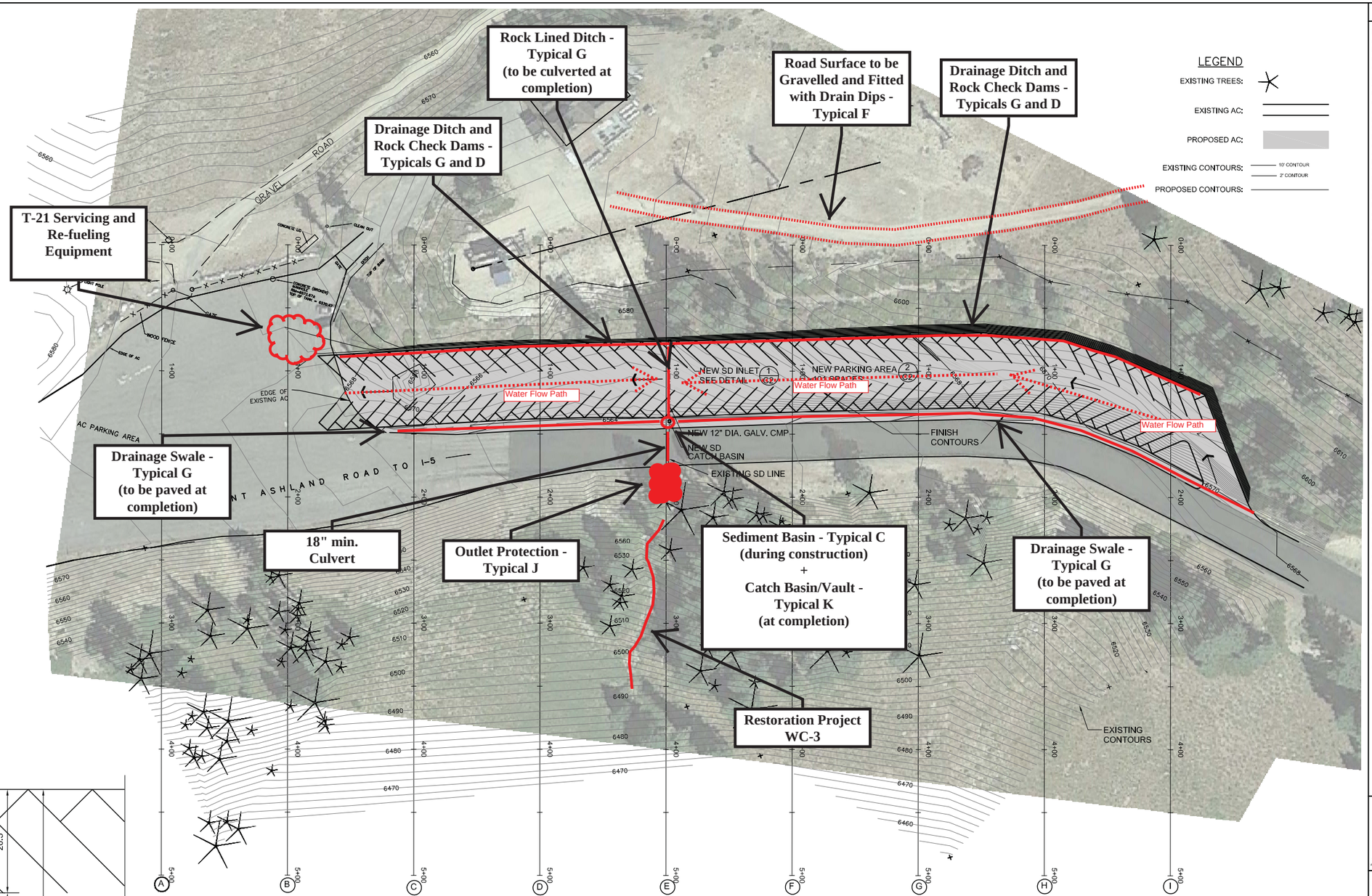
In addition to and concurrent with expanded ski terrain and facilities, MAA proposes the development and implementation of various watershed restoration projects, including structural and non-structural erosion and sediment controls. Watershed restoration is a component of the Aquatic Conservation Strategy of the Northwest Forest Plan (see page B-12). These watershed restoration projects are designed to assist in maintaining or improving the trend toward watershed recovery in the Ashland Creek (WA), Neil Creek (WN), Cottonwood Creek (WC), and Grouse Creek (WG) subwatersheds. The following presents a brief description of each project. As described in Section 1.2 of the 2013 Annual Operating Plan/ Summer Work Plan, as-built drawing will be prepared for each restoration project following completion of construction to document site specific conditions. The location of each watershed restoration project is presented in Figure 6.

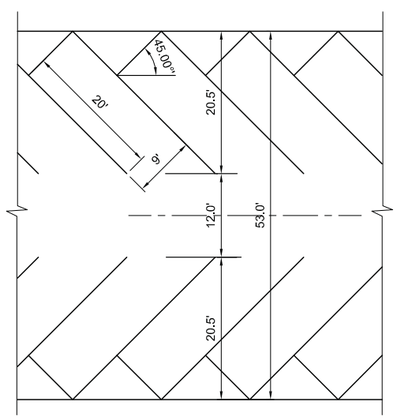
WA-1 Windsor Run

Sediment is being mobilized about half way up the Windsor Lift and Run and transported down slope to an ephemeral stream near the headwaters of the East Fork of the East Fork of Ashland Creek. This project will revegetate the existing ski run and place LWM perpendicular to the slope to retain sediment.

WA-3 Pistol Run

Sediment is being mobilized in the Pistol Run and transported toward an intermittent stream in the Pumphouse Creek drainage near the bottom terminal of the Ariel Chairlift. This project will revegetate bare areas of the ski run and place LWM and/or large rocks in a cross-slope orientation to retain sediment.





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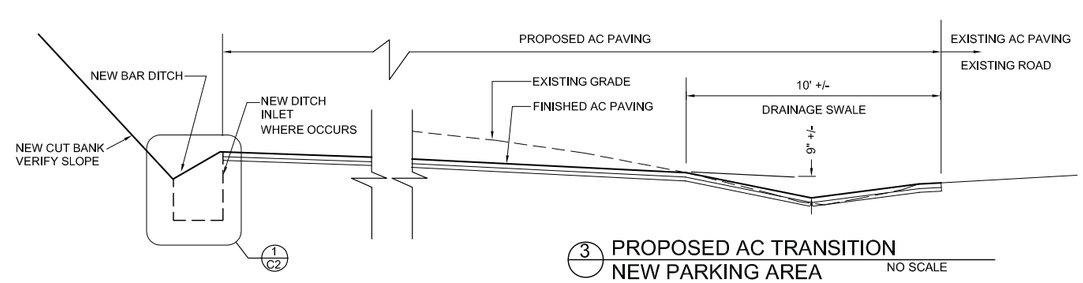

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5. Project Engineer shall be notified 48 hours in advance of any stage of construction. The Engineer shall inspect the Contractor's activities to insure compliance to the Plans. The authority having jurisdiction shall make periodic inspections of the work for conformance to City Regulations.
6. There shall be no deviation from the approved plans unless requested in writing by the Project Engineer and approved in writing by the Agency having jurisdiction.
7. A. Granular materials shall be obtained from a source approved by the Engineer. The contractor shall notify the Engineer of the material source prior to any granular material placement and shall not change material source without approval.
8. Back fill material (if required)shall be placed in maximum lifts of 8" and shall be compacted by mechanical means to 90% of maximum relative density and optimum moisture in accordance with AASHTO T-99 Method D procedure for the determination of 100% relative maximum density of granular materials and in accordance these plans.
9. Construction stakes for each phase of construction shall be in place prior to commencing construction and shall be continuously maintained by the Project Contractor until each phase of construction has been complete and inspected.
10. A copy of the approved plans, specifications and standard drawings shall be on the job site at all times while work is in progress.
11. All material remaining after back filling operations have been completed shall be disposed of by the contractor off-site in a manner approved of by the Engineer.
12. Prior to final acceptance of any improvements by the authority having jurisdiction, the Project Engineer shall certify that all improvements have been constructed in accordance with the approved plans and specifications.
13. The contractor shall verify all controlling field dimensions before ordering or fabricating any material.
14. All existing underground utilities and service laterals shall be located and clearly marked prior to construction. It is a the contractor's responsibility to locate and clearly mark all existing underground utilities and features.
15. Aerial map provided by Google Maps. Existing contours per existing Mt. Ashland database, T.J. Bossard archives.

Re-Align Environmental

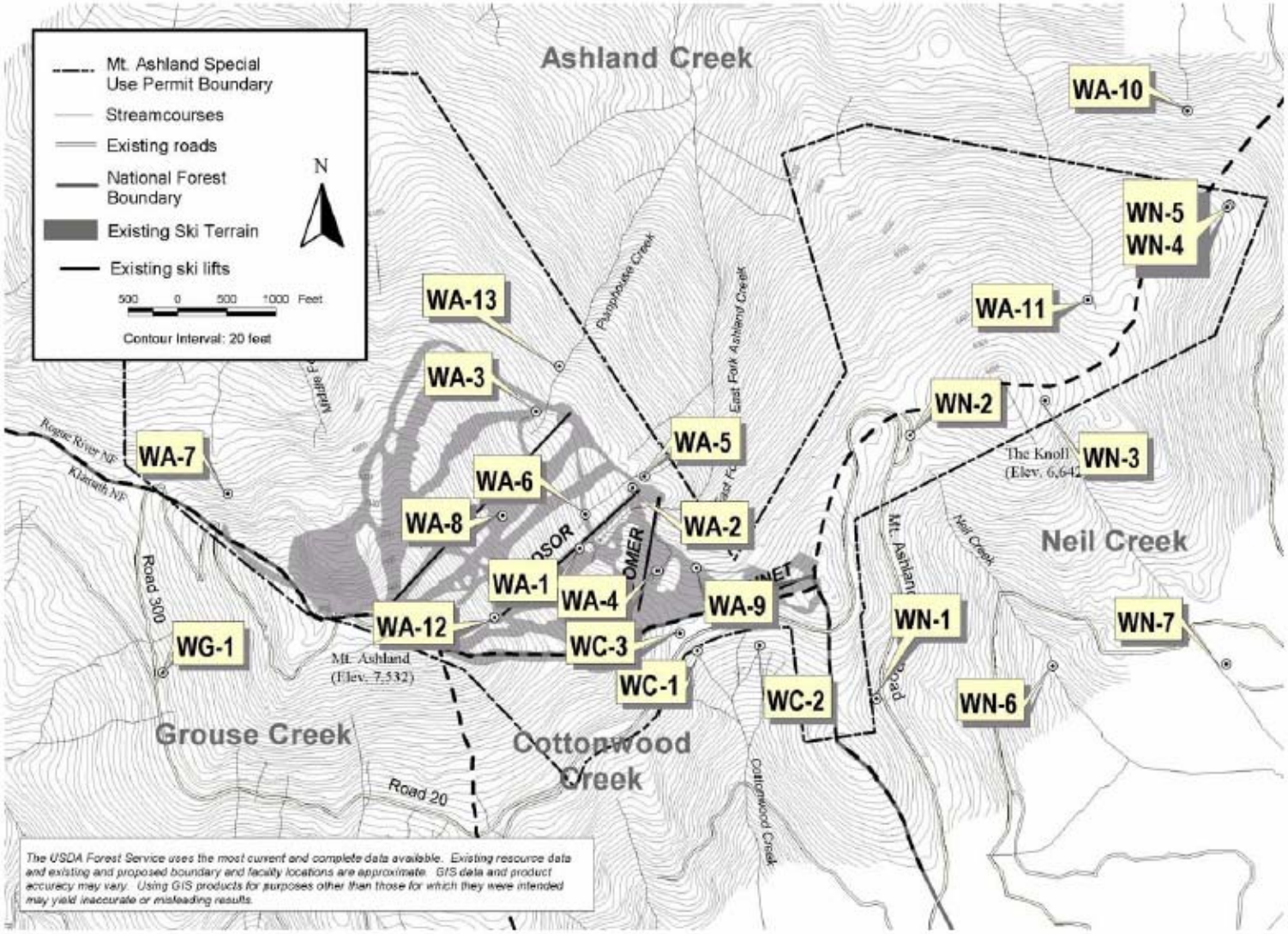
ENGINEER:
T.J. BOSSARD ENGINEERING, LLC
4139 DRY CREEK ROAD
MEDFORD, OREGON 97504
PH. 541-858-2774
FAX 541-858-2771

REGISTERED PROFESSIONAL ENGINEER 9210 OREGON JULY 22, 1971 TIMOTHY JAY BOSSARD
PRELIMINARY
EXPIRES 12-31-13

MOUNT ASHLAND
PARKING EXPANSION

Figure 5
Parking Lot
Construction BMPs

Figure 2-2: Watershed Restoration Project Locations



WA-4 Dan's Run

The ephemeral stream in Dan's Run is incised due to lack of riparian vegetation and sediment input from the up-gradient upland areas. The uplands will be stabilized by planting vegetation and by placing SWM in a cross-slope orientation to retain sediment. The stream channel will be stabilized by SWM jams every 50 feet and individual SWM every 10 feet.

WA-6 Betwixt Run

The intermittent stream west of the Windsor Lift becomes incised where it is crossed by the Betwixt Run. Sediment that is mobilized on the run is also being transported to the stream. All bare soil areas near this stream will be revegetated. The stream will be stabilized with one SWM jam at the north side of the ski run. LWM and SWM will be placed in the stream every 10 feet in an alternating fashion 50 feet up and down stream of Betwixt.

WA-7 Second Bowl

Rilling and gully erosion is present on the steep slopes of the "2nd Bowl' in areas where natural forest cover is not very dense. The gully erosion is natural, but large amounts of sediment are being transported to an intermittent stream. This project will spread native grass seeds and mulch on all bare mineral soil areas proximate to the erosion areas and gullies. LWM and SWM will be placed in the gullies approximately every 15 feet in an alternating fashion (dependent on slope gradients) to retain sediment and reduce the chance of continued channel incision.

WA-8

Several rills have formed in the Lower Tempest Run and near the Ariel Chairlift. These uplands will be stabilized by planting grass and by placing LWM perpendicular to the slope to retain sediment. SWM and/or rock will be placed in the rills every 15 to 25 feet depending on slope gradients.

WA-10 Bull Gap Creek

To aid in overall watershed improvement, a previously harvested clear cut area (circa mid-60s) in the upper end of Bull Gap Creek, a tributary to Ashland Creek, will be restored. While most of the unit is stocked with young conifers, portions of the riparian area within the unit will be planted with native riparian vegetation for establishment of streamside shading.

WA-11 West Fork Bull Gap Creek

Rilling and gully erosion is present on the slopes of a meadow near the junction of proposed Runs 1A and 3 at an elevation of approximately 6,250 feet. The gully erosion is natural, but large amounts of sediment are being transported to an intermittent stream. This project will spread native grass seeds and mulch on all bare mineral soil areas proximate to the erosion areas and gullies. LWM will be placed in the gully approximately every 15 feet to retain sediment and reduce the chance of continued channel incision.

WA-12 Big T Bar Terminal

This site was the location of the “Big T-Bar” top terminal. Installed in 1963, the terminal was crushed by snow creep in 1974 and was replaced by the Windsor Chairlift in 1978, slightly down slope from the T-Bar location. This excavated site has a lack of vegetation and could benefit from vegetation planting including trees, as it is now not a designated run. This project will place LWM perpendicular to the slope to reduce sediment movement. In addition, native grass seed or plugs along with conifers will be planted and mulched.

WA-13 Pumphouse Creek

Sediment transport occurs in Pumphouse Creek, a tributary to the East Fork of Ashland Creek. A sediment trap will be constructed to retain sediment runoff from ski runs and the maintenance road before it enters this intermittent stream. Sediment collected will be measured at least once annually by the Forest Service and then transported off-site by MAA employees.

WN-1 South Ridge

Soil rilling and sediment transport occurs in the steep areas directly upslope of the Access Road below the proposed snowplay area. This project will seed and mulch all bare soil areas proximate to the erosion areas and gullies. LWM and SWM will be placed in the gullies every 10 feet in an alternating fashion to retain sediment and reduce the chance of continued channel incision.

WN-2 Drainfield Service Road

Sediment transport and deposition is occurring along a 100-foot stretch of Road 2000195, which provides access to the wastewater treatment plant and drainfield cells. This project will stabilize the disturbed areas near the road with grass seed and mulch, install drain dips on the road every 50 feet, and spread gravel on the entire length of the road.

WN-3 East Ridge

Soil rilling and gully formation occurs in the open meadow in proposed Run 1 east of the Knoll at approximately 6,500 feet in elevation. This project will spread native grass seed and mulch all bare soil areas proximate to the erosion areas and gullies. SWM will be placed in the gullies every 10 feet in an alternating fashion to retain sediment and reduce the chance of continued channel incision.

WN-4 Bull Gap Trail (#1)

Soil rilling and sediment transport are occurring at the upper hairpin corner of the Bull Gap Trail. The old roadbed at this location will be graded to divert water toward the outside edge of the road and a ditch will be constructed with rock check dams approximately every 20 feet. A rock apron 6 feet by 15 feet will be constructed at the outlet of the ditch.

WN-5 Bull Gap Trail (#2)

In conjunction with Project WN-4, this project will install water bars in the old roadbed every 50 feet for 200 feet along the roadway in both directions from the hairpin corner of the Bull gap Trail. Fill slopes of the road will be armored with 2 to 4 inch rock below the outlet of each water bar.

WN-6 Neil Creek

A previously harvested unit (circa early 80s) lies within the headwaters of Neil Creek and below Forest Service Road 2080. Within the riparian area, all overstory trees were removed and the riparian area will benefit from planting of native vegetation to increase shade. This project will also add instream LWM for diversity and complexity of fish habitat.

WN-7 East Fork Neil Creek

Another previously harvested unit (circa early 80s) lies within the headwaters of the East Fork of Neil Creek, below Forest Service Road 2080, and north of project WN-6. Within this riparian area, all overstory trees were also removed and the riparian area will benefit from planting of native vegetation to increase shade.

WC-1 Cottonwood Meadow

Several large gullies formed on the south side of the main parking lot above the headwaters of Cottonwood Creek after the ski area was constructed in 1963. Previous restoration and erosion control efforts have improved the watershed condition but further efforts are needed. The head cutting of the gullies is due to lack of vegetative cover and over-steepened fillslopes. This project will seed and mulch all bare soil areas proximate to the gullies. LWM and/or large rock will be placed in the gullies every 10 feet in an alternating fashion. An erosion control mat or wood chips will be placed on the fill-slope of the Access Road in this area.

WC-3 Existing Parking Lot

The cut and fill slopes of the existing parking lot are contributing to increased sediment yield to streams and wetlands in Cottonwood Meadow. A combination of erosion control BMPs will be used to minimize sediment sources and to remove sediment from stormwater runoff to the greatest extent practicable before it enters the streams and wetlands.

WG-1 Road 300

Several gullies have formed in the area just above Road 300 near its junction with Road 20. These gullies are transporting sediment to several headwater springs located below Road 20 and have eliminated a substantial amount of habitat for plant species. The sediment transport has also contributed to degradation of the Pacific Crest National Scenic Trail. This project will place LWM and native rock in the gullies every 10 feet in an alternating fashion on several sites. An erosion control mat or wood chips will be placed on the fill-slope of Road 300 where large areas of bare soil are exposed or where soil rilling is observed.

3.3. Phase III- Site Stabilization and Closure

Following the completion of project activities in 2013, the projects sites will be closed.

3.3.1. Ski Run Widening/Clearing

Ski runs tree removal areas will be inspected jointly by MASA and the USFS. Inspections will focus on identifying areas of concern (e.g., excessive slash loading or bare soils resulting from logging operations). MASA and the USFS will develop strategies to correct problems onsite.

3.3.2 Parking Lot Construction

Closure of the parking lot installation will take place once the cut slope has been stabilized, if necessary, and the stormwater drainage system (Northern Swale and rock check dams, Southern Swale, Catch Basin, and Outlet Protection) are functioning properly, followed by a joint inspection by MASA and the USFS.

3.3.3 Re-Contouring of Sonnet and Blossom Ski Runs

Closure of the ski trail re-grade project will take place once the site has been properly treated with water bars and the soil surface has been seeded and covered with straw mulch followed by a joint inspection by MASA and the USFS. To the extent possible, silt fencing/wattles will be retained for inspection during the spring/summer of 2014.

3.3.4. Watershed Restoration Projects

Watershed restoration project sites will be closed following a joint inspection by MASA and the USFS. These inspections will be used to verify that structural and non-structural erosion control measures were constructed appropriately onsite. Corrective measures to address any problems noted during inspections will be implemented prior to site closure.

The construction site will be closed when the following conditions are met.

- All construction activities have been completed.
- All disturbed soils have been stabilized.
- Appropriate temporary erosion and sediment control structures have been removed from the site.
- Equipment and fuels storage areas have been removed from the site

Once the USFS has verified that the site is stabilized, they will provide MASA with a letter indicating the construction is completed and all measures contained within this SWPCP/ECP have been satisfied for 2013.

4.0 Monitoring

Monitoring of the project activities consists of three phase; Pre-Activity, Construction, and Post-construction monitoring. Pre-Activity monitoring will verify that all Structural BMPs required for tree clearing activities have been properly implemented onsite. Construction monitoring consists of BMP inspections during construction activities and the implementation of watershed restoration projects. Post-construction monitoring involves verifying site stabilization measures are in place and functioning properly prior to site closure. A summary of the monitoring requirements for 2013 project activities described in this SWPCP/ECP is found in Table 3.

Table 3:
Summary of Monitoring Requirements for the
Mt. Ashland Ski Area Expansion SWPCP/ECP

Parameter/Object	Location	Frequency	Method of Monitoring	Monitoring Term	Responsibility
Pre-Activity Phase					
Structural BMPs	Landing and Staging Area	Once	Visual Inspection	Prior to Construction	MASA/USFS
Construction Phase					
Restoration Project Monitoring	Individual Project Sites	Weekly	Visual Inspection	Construction Phase	MASA/USFS
Mitigation Measure Tracking	Site wide	Weekly	Visual Inspection		
Structural BMPs	All structural BMPs on-site	Daily	Visual Inspection		
Equipment and Fuel Storage	Staging Area	Daily	Visual Inspection		
Post-Construction Phase					
Site Closure Inspections	Tree removal operations, individual restoration project sites	Once	Visual Inspection	After Construction	MASA/USFS
Parking Lot Stormwater Facilities – remaining capacity and/or need for muck-out	New Parking Lot	Once Annually	Visual Inspection	Annually After construction	MASA/USFS

4.1. Pre-Activity Monitoring

A pre-construction inspection of structural BMPs will be performed by the USFS and MASA (with oversight and administrative assistance from Re-Align Environmental) before any construction can be initiated for each individual project element. The purpose of the pre-construction inspection is to ensure that all of the structural BMPs identified in Section 3.1 – Site

Preparation have been installed and are working properly prior to construction. If the structural BMPs have not been installed correctly or simply are not working properly, a Site Inspection Report containing corrective actions will be developed by the USFS and submitted to MASA. MASA will then be responsible for implementing the corrective measures onsite. A follow-up inspection will then occur to verify that BMPs are working properly. Once all BMPs have been verified, the USFS will provide MASA with a notice to proceed for construction activities.

4.2. Construction Monitoring

Construction monitoring consists of BMP inspections during construction activities and the implementation of watershed restoration projects. The following monitoring and maintenance practices will be used to maintain the structural and non-structural BMPs on the construction site:

- Rock check dams shall be "mucked out" once sediment has accumulated to one-half the height of the check dam. Material will be placed with spoil storage for that area.
- Sediment traps shall be "mucked out" once sediment has accumulated to one-half the depth of the sediment trap. Material will be placed with spoil storage for that area.
- Seeding and mulching shall be inspected for bare spots, washouts, and problem areas until vegetation is established.
- Fuel/oil containment areas should be inspected daily for leaks and spills.

4.3. Post-Construction Monitoring

Once construction activities are completed, the project site will be stabilized to minimize any future erosion. Appropriate structural erosion control BMPs will be removed following proper site stabilization. Long term construction monitoring will be carried out as long as deemed necessary by the USFS (with administrative assistance from Re-Align Environmental).

4.4. Site Closure and Inspection

A post-construction inspection will be performed by MASA and the USFS to determine if the construction site has been stabilized properly. If the construction site has not been stabilized property, a Site Inspection Report containing corrective actions will be provided to MASA from the USFS. Once the site has been determined to be stabilized by the USFS, MASA will receive documentation that the SWPCP has been carried out to completion from USFS.

5.0 Contingency Measures

All members of the SWPCP/ECP team have the authority to identify and implement contingency BMPs when site inspections indicate that some BMP structures or policies are not functioning properly, or are not effectively minimizing sediment leaving the Construction site. Contingency measures for this project include, but are not limited to:

> **Scenario:** A steep slope is becoming a problem area and soil erosion and/or slope failure is occurring.

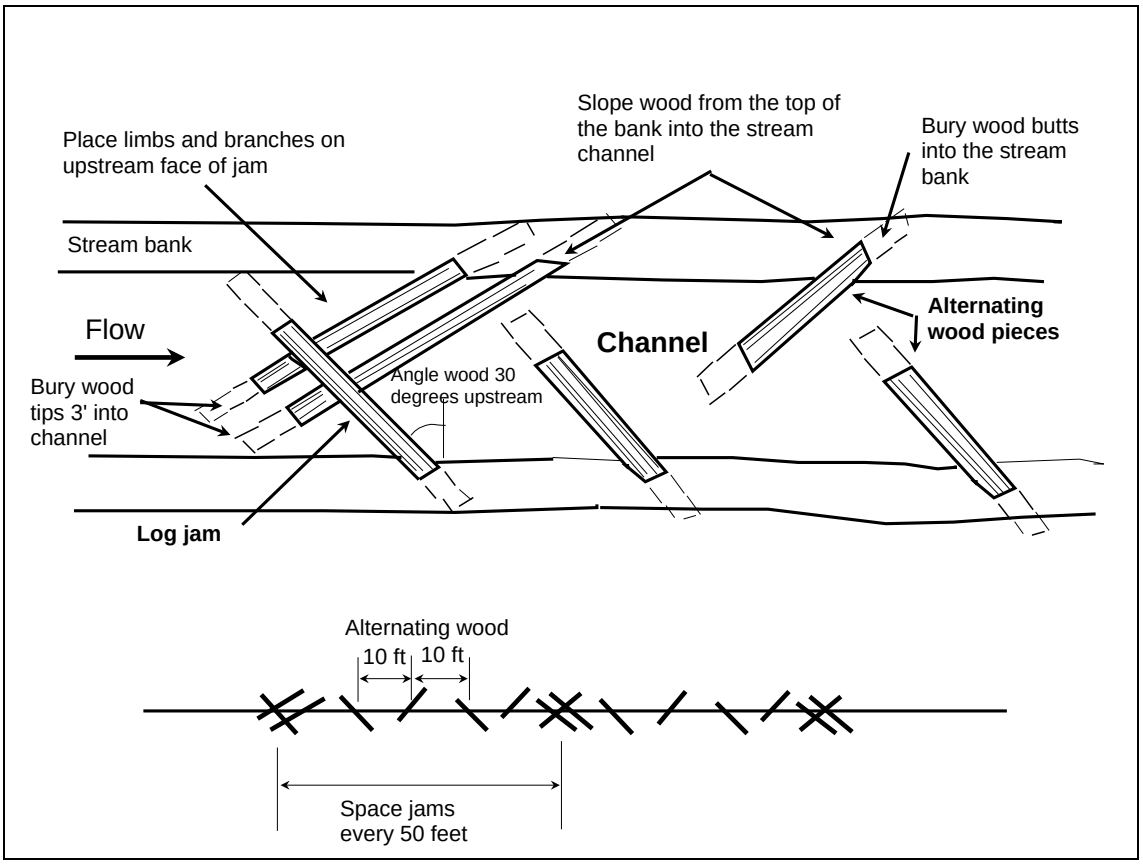
Contingency BMPs: Immediately notify the USFS and they will perform an inspection of the problem area to determine the cause of the soil instability and recommend contingency BMPs. These contingency BMPs may include actions such as: (1) install diversion ditches at the top of the slope to keep water away from the sediment source, (2) stabilizing the soil with coir cloth or jute erosion control mat, and (3) cover the steep slope with 6 mil plastic sheeting and sandbar

Scenario: Sediment is not being effectively removed from stormwater as it leaves the Construction site.

Contingency BMPs: Immediately notify the USFS and they will perform an inspection of the problem area and recommend contingency BMPs. These contingency BMPs may include actions such as: (1) suspend operations, (2) immediately identify and stabilize all significant sediment sources, (3) inspect all water bars, rock check dams, and sediment traps and maintain if necessary, (4) install another sediment trap at the southeast corner of the construction site, and use a trash pump and filter sock to dewater the pooled areas of the site and the sediment traps.

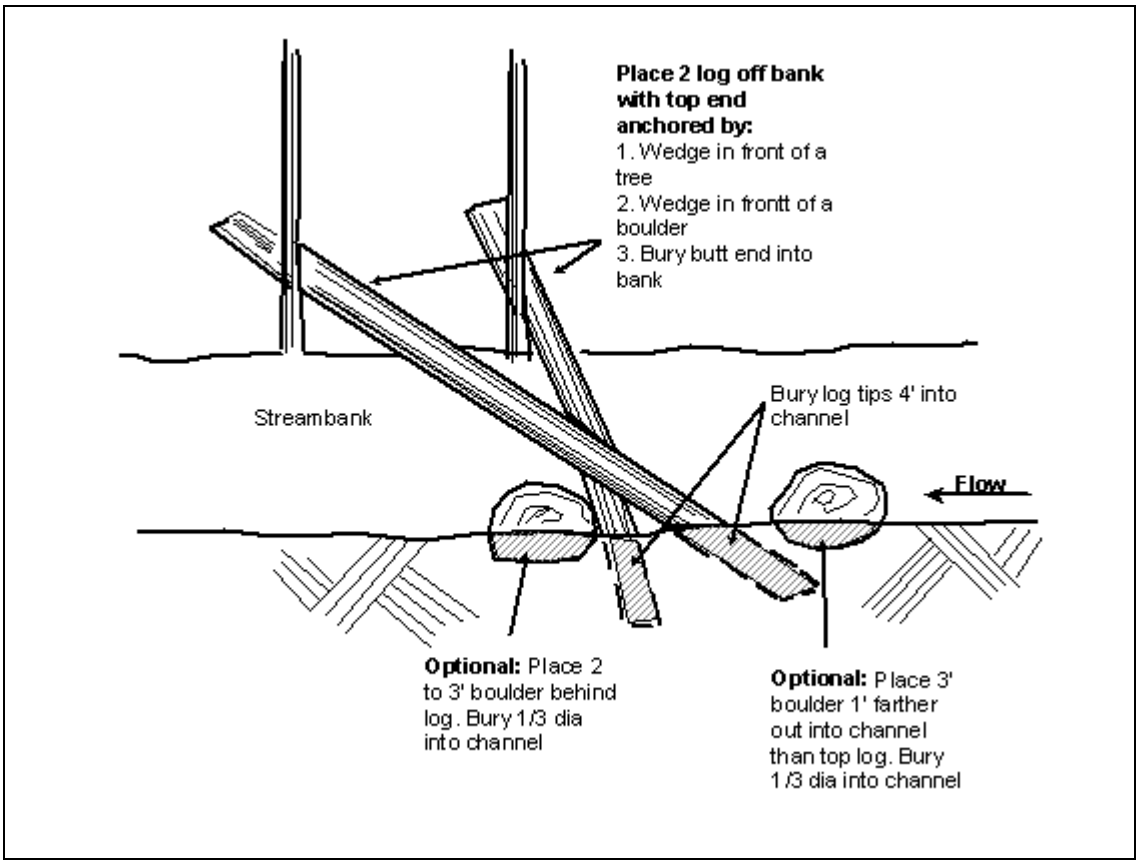
Appendix A - Typicals

Typical A Small Woody Material Single Piece Placement



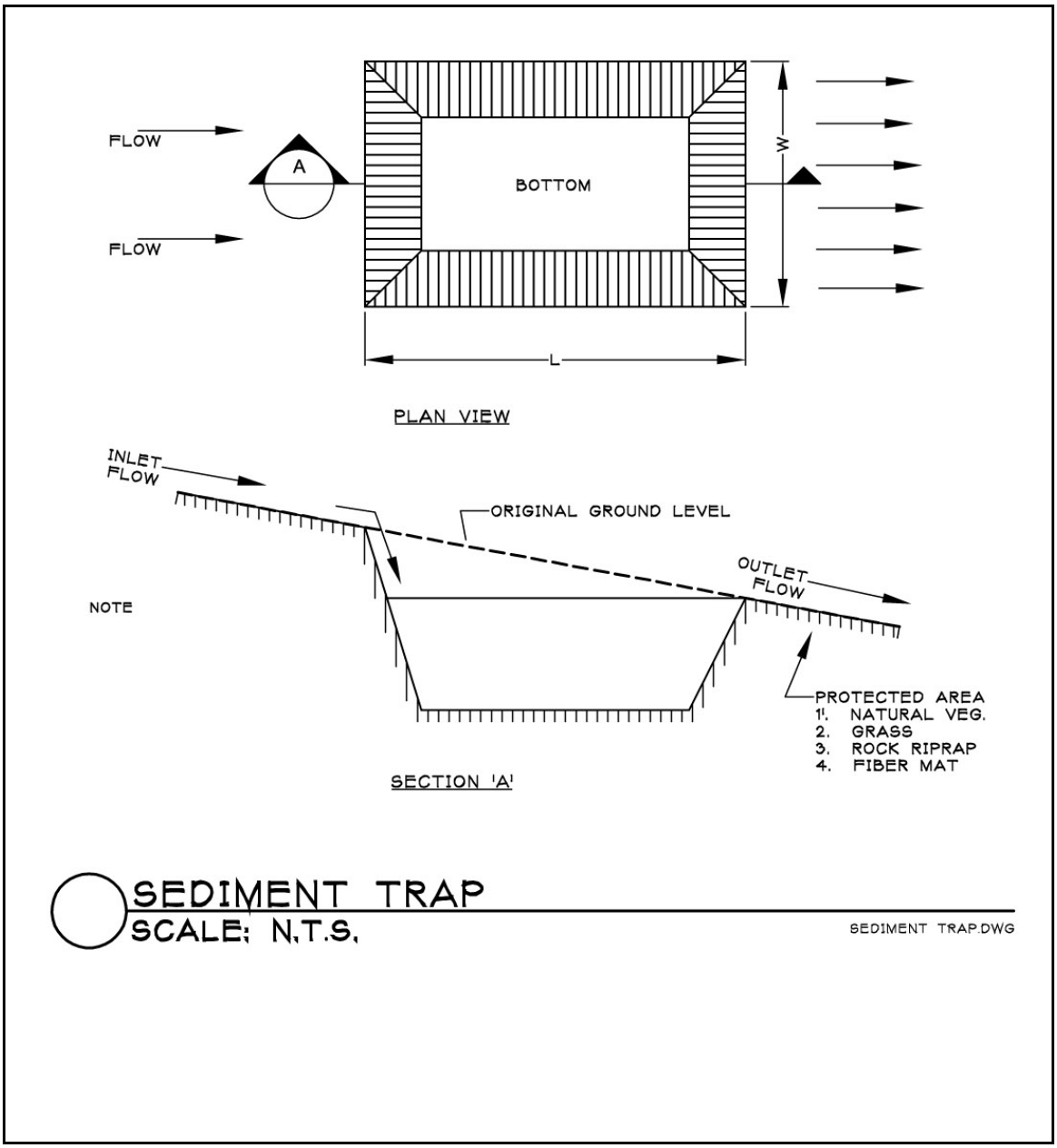
Source: Chris Park, USFS Hydrologist

Typical B Large Woody Material Single Piece Placement

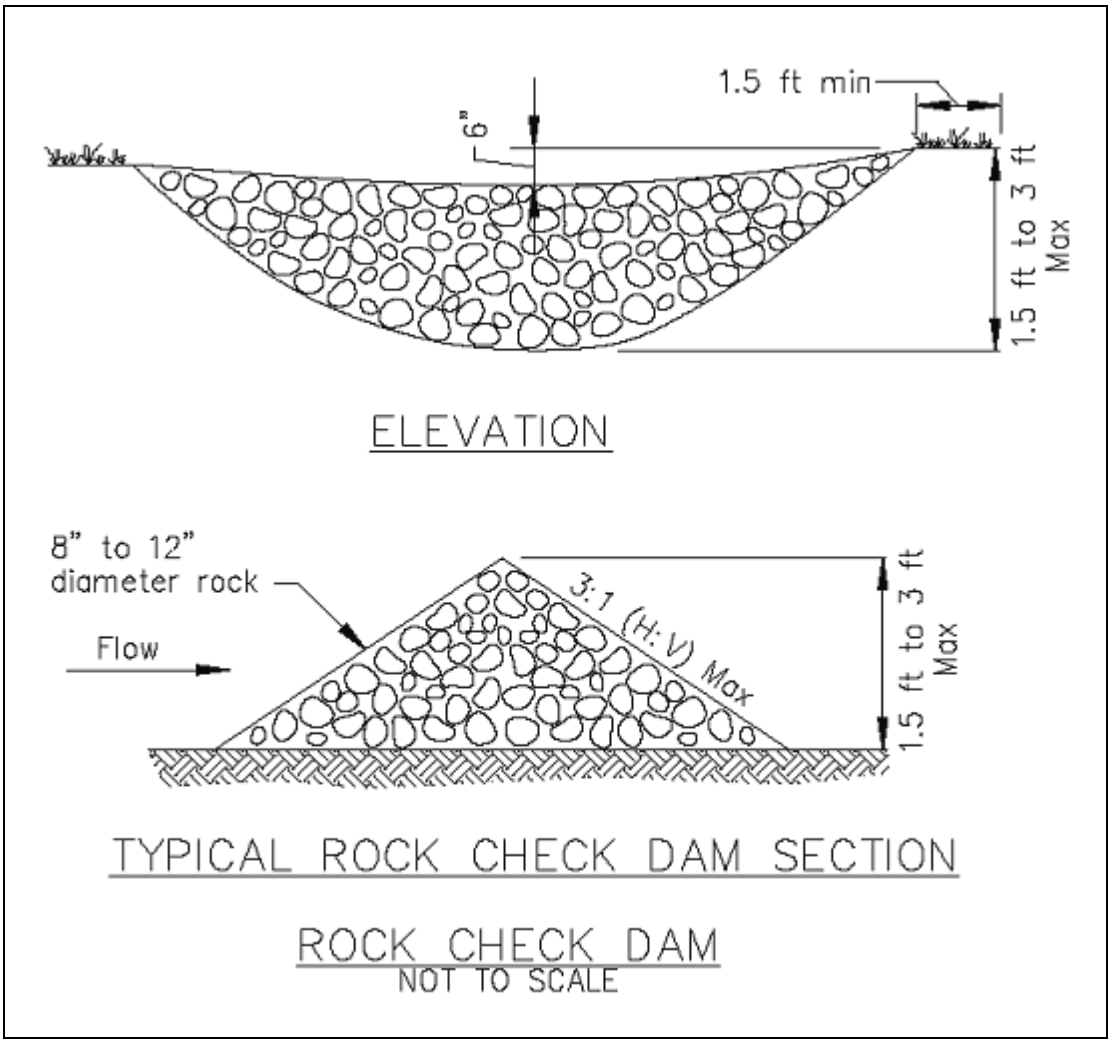


Source: Chris Park, USFS Hydrologist

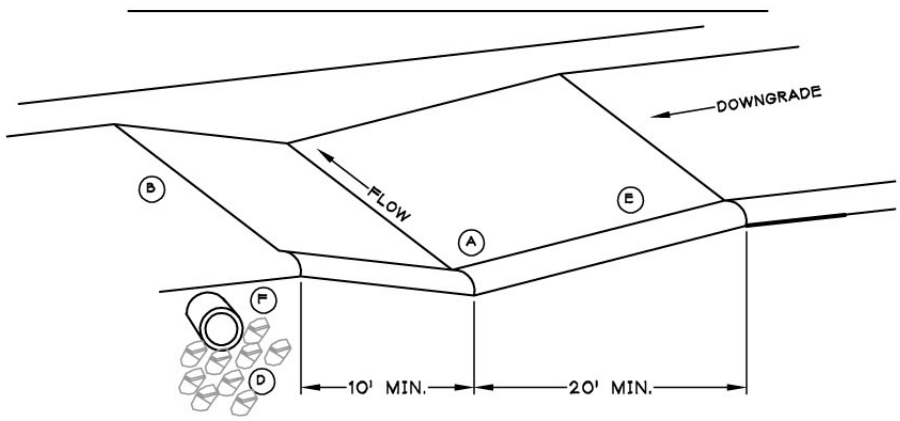
Typical C Sediment Basin/Trap



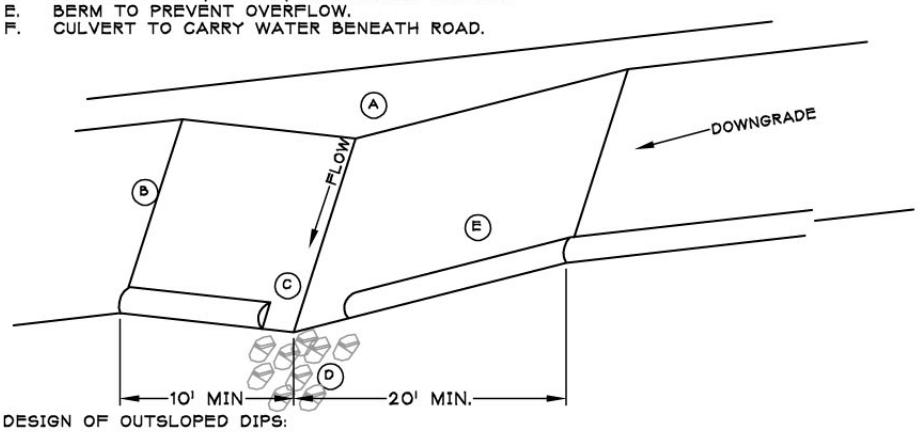
Typical D Rock Check Dams



Typical F Drain Dips



DESIGN OF INSLOPE DIPS:
A TO C THIS SLOPE IS 4-6 INCHES, TO ASSURE LATERAL FLOW.
B. NO MATERIAL ACCUMULATED AT THIS POINT, MAY REQUIRE SURFACING TO PREVENT CUTTING.
C. WIDEN FOR DITCH AND PIPE INLET.
D. PROVIDE ROCK (RIP RAP) TO PREVENT EROSION.
E. BERM TO PREVENT OVERFLOW.
F. CULVERT TO CARRY WATER BENEATH ROAD.



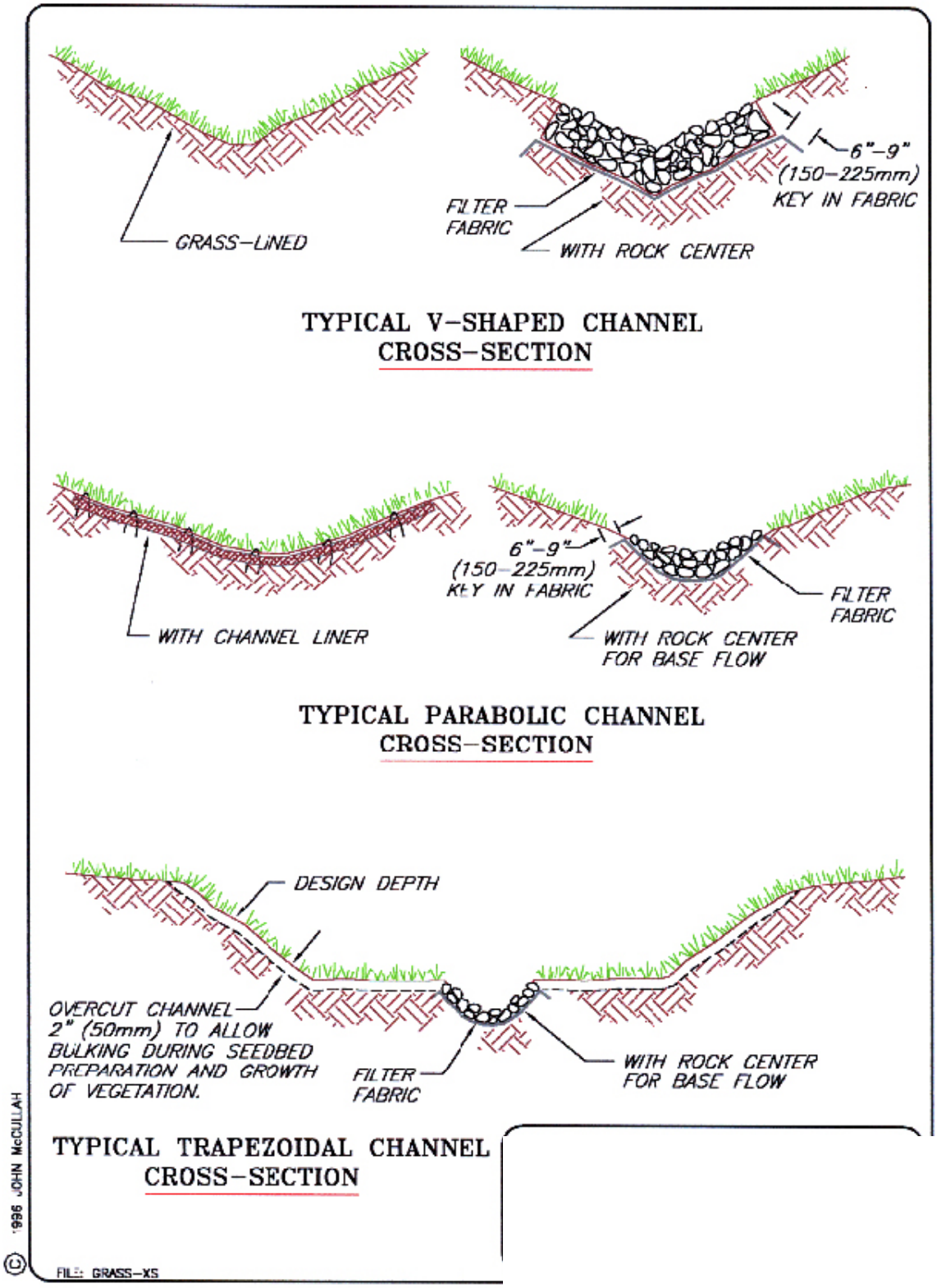
DESIGN OF OUTSLOPED DIPS:
A TO C THIS SLOPE IS 4-6 INCHES, TO ASSURE LATERAL FLOW.
B. NO MATERIAL ACCUMULATED AT THIS POINT, MAY REQUIRE SURFACING TO PREVENT CUTTING.
D. PROVIDE ROCK (RIP RAP) TO PREVENT EROSION.
E. BERM TO PREVENT OVERFLOW.

DRAINAGE DIPS
SCALE: N.T.S.

DRAINAGE DIPS

Re-Align Environmental

Typical G Drainage Ditch



Typical H Waterbars

Note:

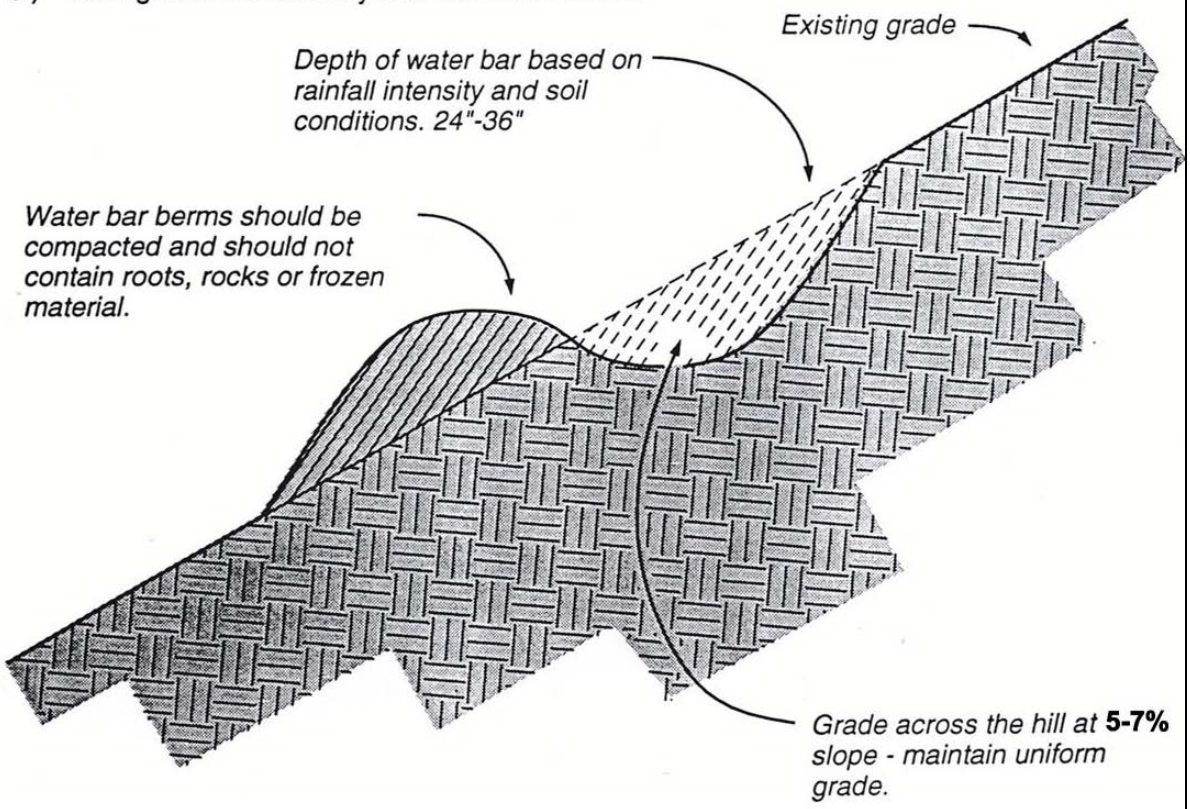
1.) Locate water bars carefully. Divert water into natural drainages or undisturbed ground.

2.) Water bars on ski slopes will be guided by the following specifications:

Grade (%)	**<10%**	**10-20%**	**20-40%**	**>40%**
Spacing (ft.)	**200'-500'**	**100'-200'**	**60'-100'**	**50'**

3.) Sediment traps should be constructed at the end of all water bars.

4.) Revegetate immediately after soil disturbance.



Typical I Erosion Control Mat/Armoring

FIGURE D.4.B WATERWAY INSTALLATION

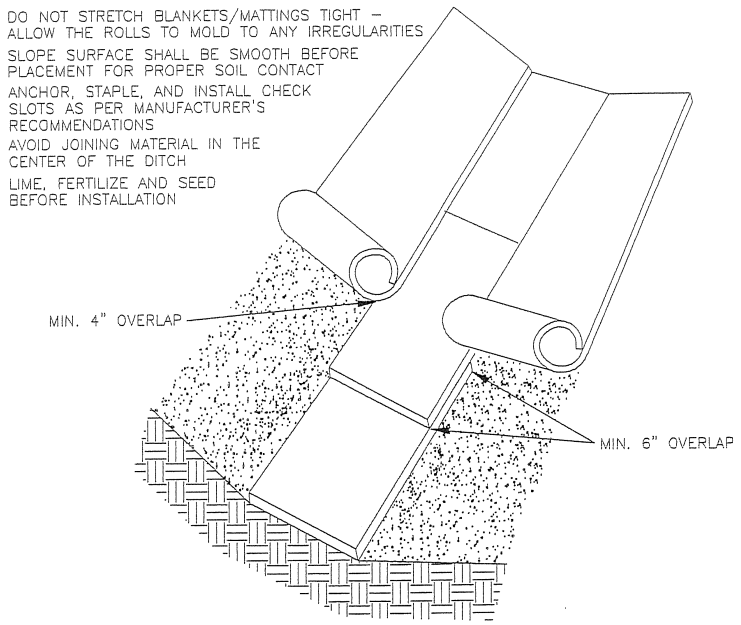
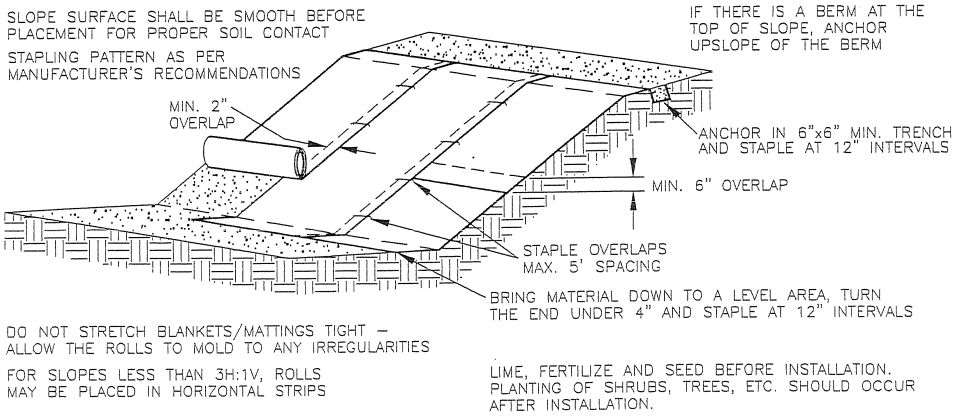
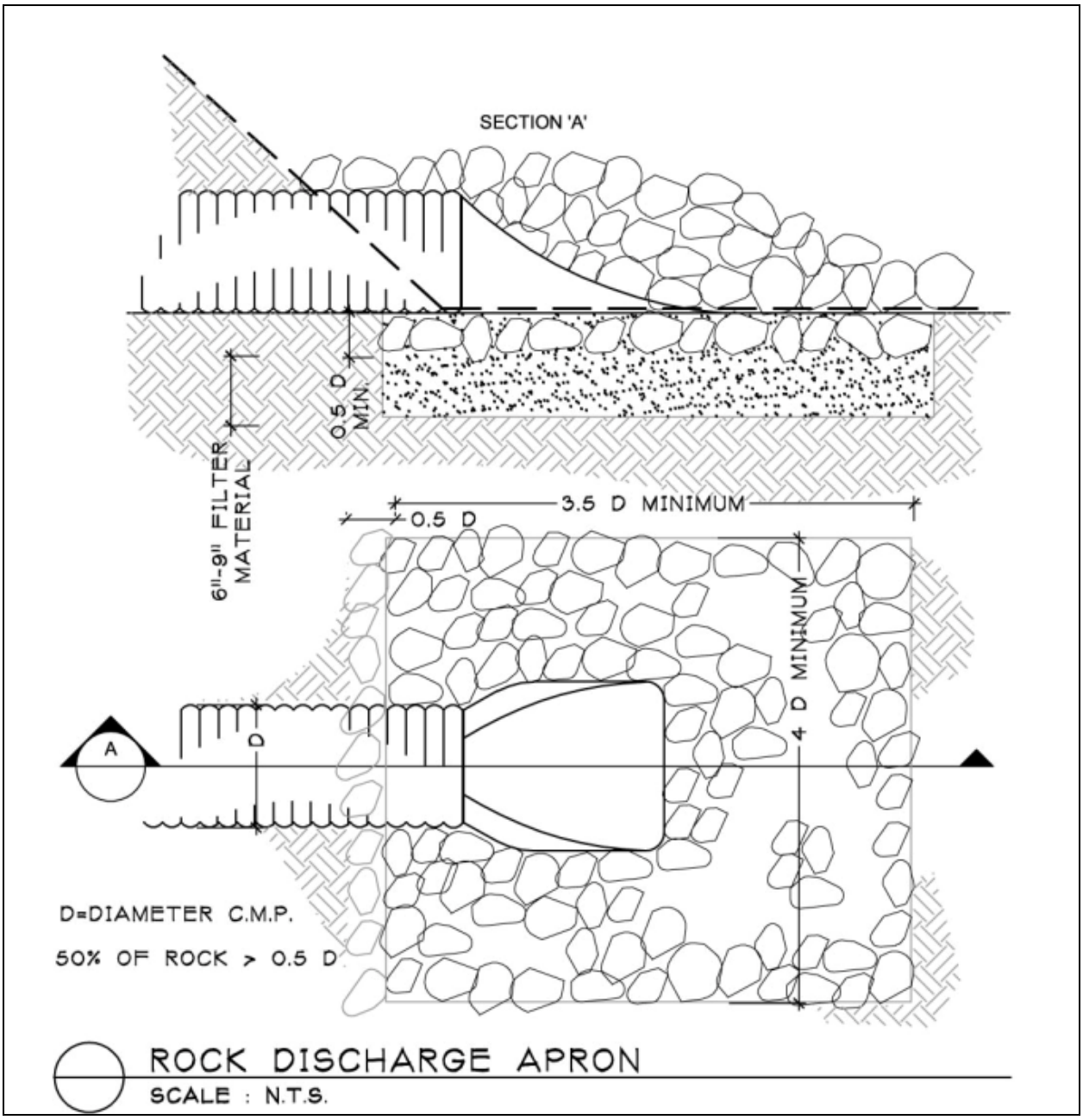


FIGURE D.4.C SLOPE INSTALLATION



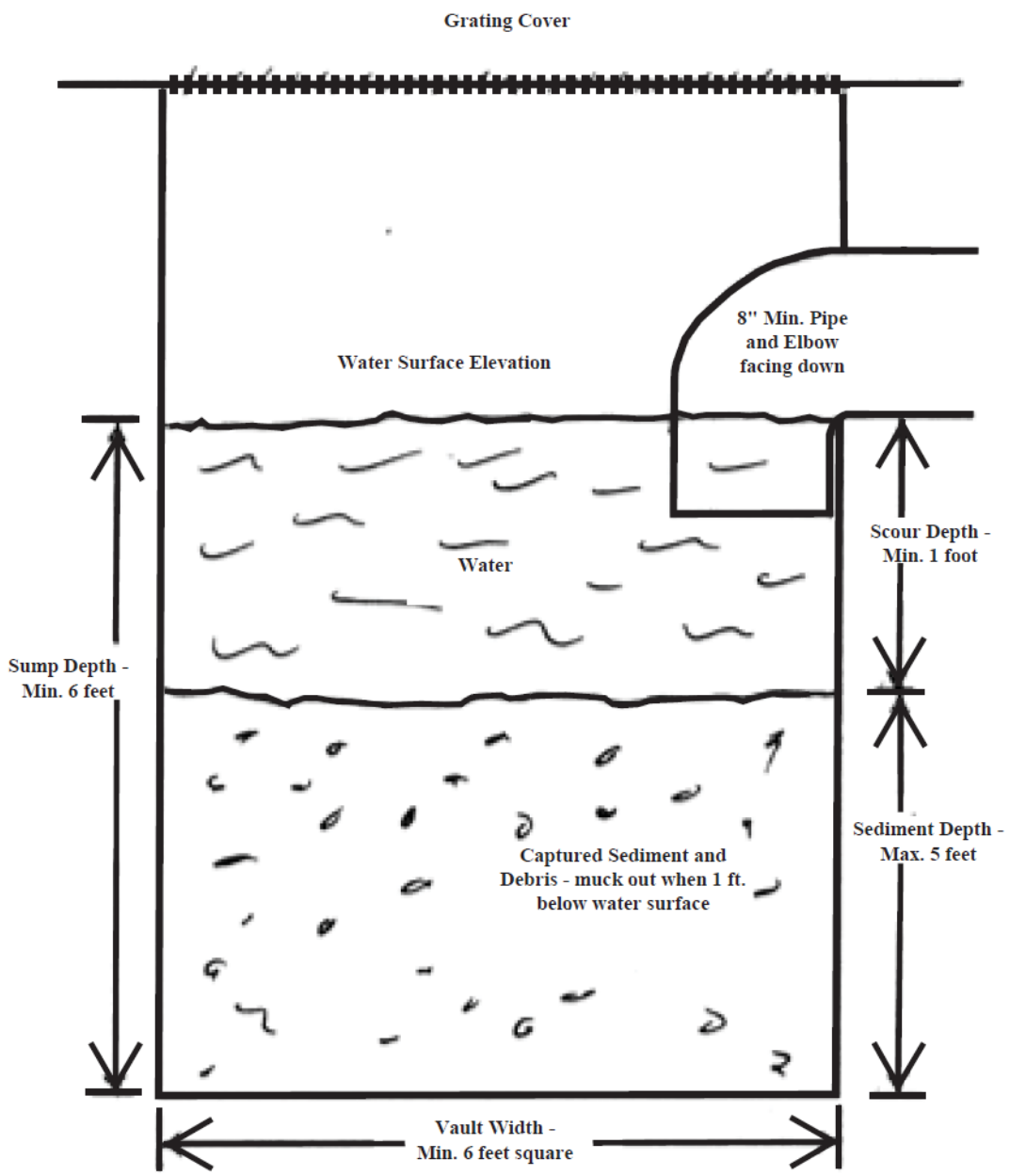
Re-Align Environmental

Typical J Rock Apron/ Outlet Protection

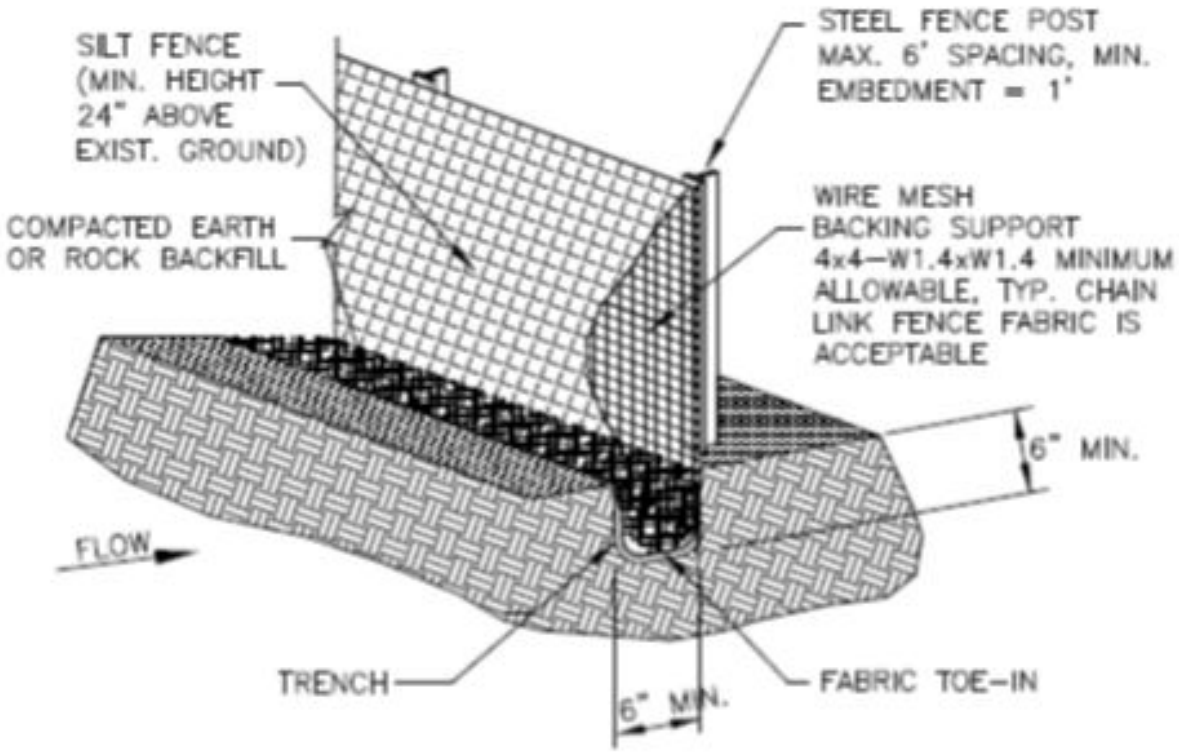


Re-Align Environmental

Typical K – Catch Basin/Vault

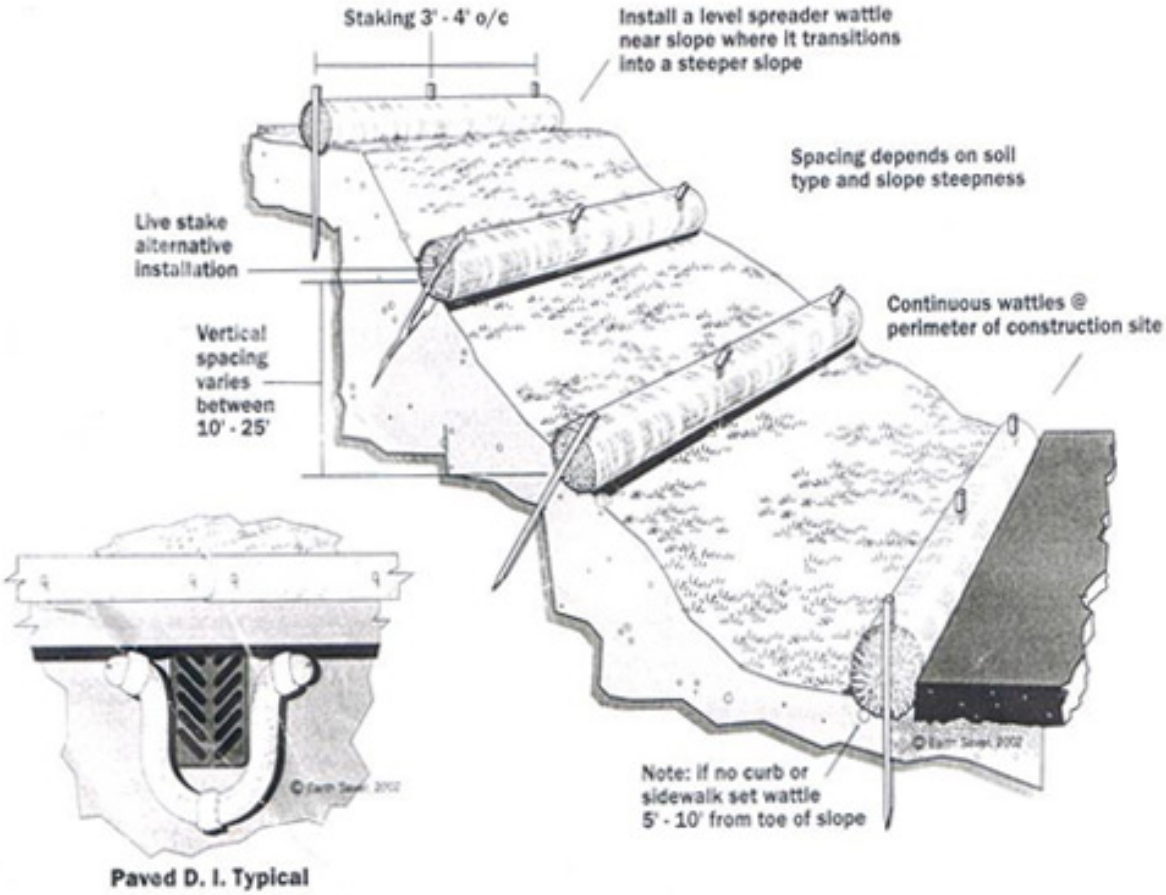


Typical L – Silt Fence



Re-Align Environmental

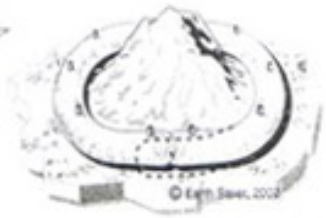
Typical M – Wattle



Paved D. I. Typical

Paved D.I. (Alt. Steep Slope)

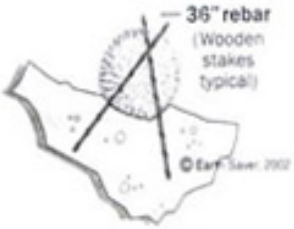
Typical Check Dam Application



Stock Pile Containment

Typical 9-inch Center Staking

Alt. 9", 12" & 20" No Furrow - Rope Restraint



20-inch Staking