

Bluff Road Restoration Project

Habitat Management Plan (May 2017)

Prepared by: Michelle Anderson, Anderson Environmental Consulting LLC and Land Expressions

PREPARED FOR

Avista Utilities and City of Spokane Parks and Recreation Department

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LIST OF ACRONYMS

BMP—Best Management Practices

Dbh-Diameter at breast height

ESA—Endangered Species Act

HMP—Habitat Management Plan

IPaC— Information for Planning and Consultation

NPDES—National Pollutant Discharge Elimination System

NRCS- Natural Resource Conservation Service

OHWL—ordinary high water mark

PHS—Priority Habitat and Species

SMC—Spokane Municipal Code

SMP—Shoreline Management Plan

Sq ft —Square Feet

SWPPP—Stormwater Pollution Prevention Plan

WDFW—Washington Department of Fish and Wildlife

1.0 Introduction

On April 10 and 11, 2017, a non-permitted temporary access road was graded and trees, saplings, shrubs and other vegetation were negatively impacted through approximately 1.3 miles of publicly and privately owned properties below High Bluff Drive. Regulatory agencies, landowners and the Spokane Tribe were consulted and it was agreed that immediate restoration of the road to pre-disturbance conditions (Project) could occur under an emergency Shoreline Exemption but that the complete permitting process would be completed after the restoration effort.

The Project would include restoring the areas damaged by the road cut to the pre-disturbance contours, replacing the native plants, chipping and/or reusing the downed trees on-site, and restoring the trail crossings. The Project would not enhance the existing trail system or expand or construct new trails. Nor would it enhance the existing vegetative diversity. Any required adjustments resulting from the permitting process would be completed in the fall of 2017.

1.1 Regulatory Environment

Portions of the Project are located within 200-ft of Hangman Creek and within the jurisdiction of the City of Spokane Shoreline Master Program (SMP). For the purposes of this Project the 200-ft shoreline jurisdiction was measured from the top of the bluff above Hangman Creek and incorporates the wetlands associated with Hangman Creek.

The majority of the shoreline is designated as Natural Environment Designation with a section of Urban Conservancy Environment.

- The Natural Environment shoreline designation is meant to protect areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. This environment allows only very low intensity uses in order to maintain the ecological functions and ecosystem-wide processes. (SMP 17E.060.650.C.1.a).
- Urban Conservancy Environments are meant to protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses. (SMP 17E.060.650.C.2.a).

The Shoreline regulations require that the damaged or degraded shoreline vegetation be replaced so that there is a no net loss of shoreline ecological functions and requires the replacement of equivalent or greater areas to compensate for the loss. (Spokane Municipal Code (SMC) 17E.060.260). The regulations require a vegetation inventory, an overview of mitigation sequencing, a detailed planting plan showing the location, type and size of all proposed replacement vegetation (SMC 17E.060.270(E)(2)). It also requires the method for removal of any noxious or non-native vegetation to facilitate establishment of the native plant community.

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Section 17E.060.170 City of Spokane Critical Areas Ordinance states that where critical areas conflict with the SMP jurisdiction, the most restrictive applies; however both regulations are consistent and require the protection and no net loss of ecological function. Critical Areas that are near the Project include wetlands, Fish and wildlife conservation areas and geologically hazardous areas due to the steep slopes and sandy soils in sections of the bluff. The wetlands associated with Hangman Creek as well as their buffers are incorporated into the shoreline jurisdiction and the wetland buffer is considered in the assessment of the shoreline ecological function. This Habitat Management Plan with a Vegetation Replacement Plan (Plan) is intended to meet the requirements for both the Critical Areas Ordinance and the SMP.

The Project will require environmental permits including a grading permit, State Environmental Policy Act compliance, a Shoreline Substantial Development Permit, and National Pollutant Discharge Elimination System (NPDES) Construction General Permit coverage. The regulatory agencies including the City of Spokane and Washington Department of Ecology have allowed for the restoration activities to be conducted through Emergency Exemptions in order to repair the site and take advantage of wet spring conditions. Any required adjustments will be completed after the public process and permitting is complete, which would take approximately five months.

1.2 Location and Environmental Setting

The Project is in portions of Section 31, Township 25 North, Range 43 East, paralleling areas east of Hangman Creek and south of High Drive in the City of Spokane, Washington. The Project site includes a combination of City of Spokane Conservation Lands, private lands, a two-track road, and an easement area for Avista's transmission line. Mountain bikers, hikers, trail runners, dog-walkers and other recreationalists use the area via an existing trail network. See Attachment 1 - Vicinity Map.

2.0 Methods

The methodology to determine the pre-construction conditions, to assess Project impacts and to identify restoration and mitigation measures included a combination of field survey, agency consultation, review of aerials photography and investigation of resource databases. The following resources were consulted:

- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) database (May 2017)
- US Fish and Wildlife Service - Information for Planning and Consultation (IPaC) report (May 2017)
- Site Visits (April and May 2017)
- Aerial Photography (Google 2017)
- Natural Resource Conservation Service (NRCS) Web Soil Survey (May 2017)

3.0 Pre-Disturbance and Existing Conditions

3.1.1 Vegetation

The Project is located through an area that was primarily sections of two-track road that began on the far northern end of the Project and that bisected a single track trail network as it moved through the area. The middle portion of the Project was a combination of open pine stand and meadow with scattered shrubs. The two-track road continued on the south end of the Project. The predominant vegetation types were determined by walking the Project site and observing plant communities on the adjacent lands, vegetation that was pushed to the side of the road and also by reviewing photos and aerial photography. See Table 1 Vegetation Observed On-site, for the plant species that were observed immediately adjacent to the Project. This does not constitute a comprehensive list of all plants that may occur in the area but are the plants observed immediately adjacent to the Project site during an early May site visit.

Table 1. Vegetation Observed On-site

Common Name	Scientific Name
Arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>
Baldhip rose	<i>Rosa gymnocarpa</i>
Woods rose	<i>Rosa woodsii</i>
Bare stem biscuitroot	<i>Lomatium nudicaule</i>
Blue elderberry	<i>Sambucus raeseosa</i>
Canada bluegrass*	<i>Poa compressa</i>
Bulbous bluegrass*	<i>Poa bulbosa</i>
Bulbous woodland star	<i>Lithophragma glabrum</i>
Cheatgrass*	<i>Bromus tectorum</i>
Common tansy*	<i>Tanacetum vulgare</i>
Dalmatian toadflax*	<i>Linaria dalmatica</i>
Douglas hawthorn	<i>Crataegus douglasii</i>
Nine leaf biscuitroot	<i>Lomatium triternatum</i>
Idaho fescue	<i>Festuca idahoensis</i>
Death camas	<i>Zigadenus venenosus</i>
Idaho grass widow	<i>Sisyrinchium inflatum</i>
Orchard grass*	<i>Dactylis glomerata</i>
Sierra larkspur	<i>Delphinium glaucum</i>
Ponderosa pine	<i>Pinus ponderosa</i>
Serviceberry	<i>Amelanchier alnifolia</i>
Silky lupine	<i>Lupinus</i>
Snowberry	<i>Symphoricarpus albus</i>
Spotted knapweed*	<i>Centaurea stoebe</i>
Sulfur cinquefoil*	<i>Potentilla recta</i>
Western yarrow	<i>Achillea millefolium</i>

*=introduced non-native species/weeds.

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Plant Communities that are present in the area include:

Open Pine Stands. The open pine stands are dominated by Ponderosa pine (*Pinus ponderosa*) with an understory of grasses, primarily bulbous (*Poa bulbosa*) and Canada bluegrass (*Poa compressa*), Idaho fescue (*Festuca idahoensis*), and forbs such as western yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*).

Shrub Community. Some pine stands have a shrub community understory, primarily consisting of serviceberry (*Amelanchier alnifolia*) and snowberry (*Symphoricarpus albus*).

Grass and Forb Community / Open Areas. There are also areas with few or no trees or shrubs. The existing transmission line right-of-ways are primarily grasses and forbs with clusters of shrubs and older downed trees that were not removed as a part of this Project. See Photo 1 - Photo 6.



Photo 1. Open pine stand

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Photo 2. Pine stand with shrub community



Photo 3. Shrub community with snowberry

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Photo 4. Transmission line right-of-way with grass and forb community and open space

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Photo 5. Grass and forb community



Photo 6. Grass and forb community

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3.1.2 Soils

The USDA Web soils Survey maps the following soil types:

- 3142-Spens very gravelly loamy coarse sand, 15 to 30 percent slopes and
- 3143-Spens very gravelly loamy coarse sand 30 to 65 percent slopes.
- 3120- Marble loamy sand, 0 to 8 percent slopes is present at a much lesser extent located at the north end of the Project.

The existing soil textures are composed of sandy loam at the base of the road, sand on the steeper hill then smaller pockets of clay soils near the upper part of the slope. The City of Spokane Critical Areas Ordinance identifies a section of this road as crossing through a Geologic Hazardous Zone since the area consists of historic landslide deposits. The banks along Hangman Creek are recorded to be eroding in part due the constrained floodplain and sandy soils.

3.1.3 Priority Species and Habitat

This location provides a combination of shoreline functions including recreational use, water quality protection, and wildlife habitat. The WDFW Priority Habitat Species database mapping for the area shows rainbow trout, wetlands, mule deer, and a biodiversity areas. Biodiversity areas were noted to include red-tail hawk, eagle wintering, western bluebirds, furbearer use of river, beaver, and bank swallow use on steep banks. The area could also include coyotes, small mammals, birds, amphibians, and a range of other species.

Rainbow trout could occur in Hangman Creek but not within the Project limits, nor are there drainages in the Project that would drain to Hangman Creek. There are dry gullies that cross the Project; however, there is no evidence of recent flows or scouring indicative of an ordinary high water mark within of the gullies.

An Information for Planning and Consultation (IPaC) report was prepared for the Project, which identified any potential federally listed, threatened or endangered species and designated critical habitat. In the general area Yellow-billed cuckoo (*Coccyzus americanus*), Bull trout (*Salvenus confunctus*) critical habitat and Water howellia (*Howelia aquatialis*) were identified in the report; however, all of these species or critical habitats would occur in riparian areas or in streams or wetlands, which do not occur in the Project area.

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Photo 7. Beaver activity along bluff north of trail

4.0 Impacts

4.1 Summary of Impacts

On April 10 and 11, 2017, a new road was graded through along High Drive Bluff, which is located partially within the shoreline jurisdiction of Hangman Creek. The impacted area included an existing two-track dirt road that was impacted to varying degrees, single-track trails and areas with no road or trail. This resulted in the following impacts:

- Approximately 6,670 feet (ft) of road was graded and approximately 2,640 ft of this roadway included an existing two-track road that was not graded. As a result of the grading, and the future restoration, approximately 180,000 square ft (sq ft) or 4.13 acres of soil was disturbed.
- Approximately 3,100 ft of the roadway (approximately half of the length) was constructed within 200 ft of the top of the bluff next to the creek, which was used to approximate the shoreline jurisdiction.
- Approximately 53 ponderosa pine trees greater than 6 inches diameter at breast height (dbh) were cut down or bulldozed and left on site. Of these, approximately 38 were on land owned by the City of Spokane.
- Approximately 322 trees, saplings and shrubs less than 6 inches dbh were impacted.
- In addition to those listed above, two mature standing trees were also damaged from equipment but were not damaged to the degree that they need removed.
- Recreational trails were impacted by constructing the access road over them or across them.

4.2 Vegetation Impacts

The vegetation that existed on the site was determined by observing the plants adjacent to the roadcut and by reviewing pre-disturbance aerial photography. In addition, the City of Spokane Parks and Recreation Department contracted DRP Forestry LLC to measure trees, timber volumes, and timber values for the timber trespass on the City's property. Trees less than 3 inches or on private lands were not recorded as part of the Forestry survey. Michelle Anderson with Anderson Environmental Consulting LLC also conducted a site visit on April 27, 2017 and recorded downed trees, saplings and shrubs that were visible, measured and estimated sizes and collected GPS information of their locations using a Trimble GeoXT 7000s unit. See **Table 2. Vegetation Impacts.**

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Table 2. Vegetation Impacts

Vegetation Impacts	Plant Size (estimated dbh)	Quantity
Ponderosa pine trees	6 inch dbh or greater	53 based on visual assessment (including 38 on City of Spokane property based on forestry assessment)
Damaged standing trees	6 inches or greater	2
Small trees, saplings and shrubs (public and private lands)	Less than 6 inch	322

Trees, saplings and shrubs were removed by the bulldozer and pushed off the excavated roadway. See and Photo 8 to Photo 10. In addition, soil from the road cuts were pushed to the side burying the adjacent standing vegetation. During an early May site visit, vegetation, including arrowleaf balsamroot and bluegrass were observed emerging within the new road bed. See Photo 11. Regenerating Arrowleaf balsamroot.

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Photo 8. Existing two-track road



Photo 9. Pile of downed small trees

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Photo 10. Downed large trees



Photo 11. Regenerating Arrowleaf balsamroot

4.3 Soil Impacts

Approximately 180,000 sq ft or 4.13 acres of soil was exposed by light blading, cutting slopes, equipment turn around, and from soil being pushed to the side of the road. The soil disturbances ranged from minor disturbance on the northern 0.5 miles of the road where there was no blading or light blading and where the vegetated two-track road bed was still in tack to high disturbance area including a cut bank approximately 4 ft in height in predominantly sandy soils.



Photo 12. Top of bank of Latah Creek north of single track trail

Soil and erosion control Best Management Practices (BMPs) were installed immediately following the road grading to temporarily control construction runoff and to minimize the potential discharge of sediments to adjacent lands or water. The site is being monitored weekly at a minimum weekly and after all storm events. There has been no obvious rilling or erosion that has caused sediment to be transported off site or into Hangman Creek. This is due to the sandy soils that allow the water to infiltrate quickly rather than runoff. In addition to the impacts to soil due to the access road construction, the restoration of the site will also disturb the existing two-track road during temporarily during the restoration. See Attachment 2 – Road Construction Disturbance Areas for photos and

mapping indicating levels of soil disturbance and installed erosion control BMPs.

4.4 Hydrologic and Shoreline Impacts

The Project is within 200 feet of Hangman Creek and is within the shoreline jurisdiction; however, there are no creeks, wetlands, or active drainages located within or adjacent to the limits of the Project site. The road included approximately 3,100 feet within the shoreline jurisdiction but did not impact any shoreline features such as Hangman Creek, wetlands, or active drainages. Portions of the shoreline jurisdiction are also considered to be wetland buffer. There are several purposes of these shoreline regulations including to preserve the public's opportunity to enjoy the shorelines; preserve ecological functions to assure maintenance of water quality, fish and wildlife habitat; maintain and enhance the aesthetic characteristics. (SMP 17E.060.030).

4.4.1 Impacted Ecological Function

As previously described, the Project area includes an existing two-track road on both ends, a transmission line right-of-way and recreational trails. The open pine stands, shrub

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and grass/forb communities provide a range of shoreline and ecological functions including wildlife habitat, water quality functions and recreational use.

The approximately 53 mature trees and 322 shrubs and saplings that were removed provided cover, nest sites, and food sources for wildlife that could occur in the area including deer, coyotes, small mammals, birds, beaver, amphibians, and a range of other wildlife. Grasses and shrubs also provide forage for deer, birds, small mammals, insects and other animals.

The vegetation offered soil stabilization functions. Plant roots bind the soil and reduce erosion and sedimentation potential. Vegetation slows water movement allowing it to infiltrate into the ground and charge the downstream Hangman Creek. It also filters toxicants and uptakes nutrients that may otherwise enter adjacent water ways and wetlands. However, due to the site topography and distance from Hangman Creek, the density of vegetation between the Project and Hangman Creek, the sandy soils and the installation of fiber wattles and silt fence, sediment would not reach Hangman Creek or the adjacent wetlands. The BMPs are being monitored and there is no evidence of soil movement off site.

The area also offers recreational use for mountain bikers, hikers, dog-walkers and runners. Approximately seven single track trail intersections were impacted by the Project and will continue to be impacted until the restoration is complete.

5.0 Restoration and Mitigation

The roadway was previously constructed, with the intent of the Project to restore the site to pre-construction conditions. The Project includes measures to avoid further impacts, to minimize potential impacts and proposes compensatory mitigation to help ensure there is no net loss of ecological functions of the shoreline.

The Project is designed to restore the site to pre-construction disturbance conditions by placing the excavated dirt to restore the original grade, compacting the soil and vegetating the re-contoured slopes with native vegetation.

BMPs including sediment and erosion control BMPs have already been implemented in order to minimize erosion and sedimentation until the restoration component of the Project can be completed. Additional erosion and sediment control BMPs will be implemented during and after the Project, as necessary, and will follow the recommendations outlined in the Ecology Eastern Washington Stormwater Manual and as described in the Stormwater Pollution Prevention Plan (SWPPP) that will be prepared. The Project will also involve a maintenance and monitoring plan to ensure that the success criteria as outlined in this HMP, are met. See Attachment 3 - Planting Plan and Attachment 4 - Grading Plan for detail.

5.1 Avoidance

Environmental controls will be implemented to avoid future site damage include:

1. The property boundaries were surveyed and mapped. Restoration areas and other sensitive areas where equipment should not enter are clearly marked using signage, high visibility paint and other materials and are indicated on the plan sheets.
2. The newly constructed road/restoration site will not be used for future transmission line maintenance or to access the golf course construction.
3. The existing two-track road will be gated at the City's northern boundary.
4. All construction will occur only on the previously disturbed ground.
5. Turnaround areas will be designated and will also occur in already disturbed areas.

5.2 Measures to minimize harm

Measures to minimize harm that will be implemented during the restoration Project include:

1. Temporary sediment and erosion control measures were implemented in mid-April, which included straw wattles, straw, and silt fence. These BMPs are currently being monitored weekly and will continue to be maintained and monitored until the site is stabilized and there is at least 70 percent coverage by grass/forbs.
2. Silt fence, flagging and highly visible soluble paint will be placed to keep operators out of unauthorized areas.
3. Equipment and material will be staged and stockpiled in the substation to minimize site disturbance.
4. Damaged trees that will remain standing have been flagged and indicated so that there is no further damage to them.
5. Signage has been and will continue to be installed near trail crossings to keep trail users out of the construction area and restoration site. This will help ensure public safety and protect the restoration site.
6. Signage will be placed to temporarily delineate the trail and direct recreational trail users safely over the disturbed roadbed until the site is fully restored.

5.3 Restoration Construction Sequence

The Bracher property will be restored but will have a slightly different phasing based on the request of the landowner. The road on the Bracher property will be restored by re-grading to the pre-construction conditions and reseeding; however the trees and shrubs that were downed will be left in place, on-site. After grading, the bare ground will be reseeded with a grass mix specified by the landowner; however, no forbs or native trees will be replaced unless authorized by the landowner. Replanting will occur during the fall of 2017. Grading and environmental controls and monitoring will be consistent with the remainder of the Project.

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The following is a description of the restoration sequencing for the remainder of the Project.

1. After environmental controls are in place, the smaller trees and stumps will be chipped and some of the chips may be used on-site. Remaining logs will be scored or treated in a manner to minimize risk of pine bark beetles. Some smaller trees will be stockpiled for use in the restoration design.
2. Beginning on the west end of the Project, the soil that was pushed downslope will be transferred back to onto the existing road and re-contoured to its original pre-construction grade using an excavator or backhoe. Hand tools may be used as necessary to uncover buried plants adjacent to the road roadbed or in areas with minor disturbance.
3. Since there is very little suitable soil in the sandy sections, topsoil may be imported and placed over the surface in these areas.
4. The soil will be compacted sufficiently to stabilize it but not to the degree that it will inhibit plant growth.
5. Existing on-site rocks and large downed trees (approximately 38 trees) will be placed to simulate a natural landscape and to provide wildlife habitat. The downed trees will also be placed to direct trail users through the restoration site and towards the continuing single-track trails.
6. The newly re-contoured areas will be replanted as shown in Attachment 3 - Planting Plan. Plants will be placed to simulate the open areas and vegetation in the adjacent undisturbed areas.
7. The area will be hydroseeded with grass/forb seed mix, bonded fiber matrix and tacifier as sections are completed. Hydroseeding in sections will help minimize the impact of equipment.
8. Signage and available wood chips will be re-installed to clearly delineate the recreational trail for users.
9. Erosion and sediment control measures will be adjusted to accommodate the new contours and will be monitored and maintained until the site is stabilized and there is at least 70 percent coverage by grass/forbs.

5.4 Revegetation Plan

Spokane Municipal Code requirements for re-vegetation within the Shoreline Jurisdiction are a 2:1 ratio. In Non-shoreline jurisdiction areas, the ratio is 1:1. The shoreline regulations outline requirements for the caliper sizes for replacement plants requiring a 4 inch caliper replacement plant for trees 6 inches dbh or greater but allows flexibility for smaller stock to be planted at increase ratios. For this Project approximately half of the Project passes through the shoreline jurisdiction. Approximately 50 percent of the impacted area in the shoreline is considered minor disturbance and the remaining area is considered moderate to high impact. See Attachment 2 - Road Construction Disturbance Areas .

The plants will be replaced at an average 3:1 ratio over the entire site (in both the shoreline and non-shoreline jurisdiction) to compensate for the potential loss from having no-irrigation, wildlife browsing and other potential causes for mortality. The ratios and

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coverage will be planned and spaced to ensure long-term compatibility with the surrounding vegetation and environment and will over the long-term result in a no net loss of ecological function due to the vegetation removal. Planting at a higher ratio than 3:1 would result in a condition inconsistent and denser than the surrounding environment.

The replacement plants will be 6 inch to 10 inch plugs. This smaller stock is expected to be more successful in non-irrigated conditions compared to larger (ie 5 gallon) stock. In addition grasses and forbs will be replaced through hydroseeding.

Whenever possible, protection, such as, 'Tubex' tubes and stakes will be used to increase plant survivability. Soil and compost may be added to supplement the poor soil conditions and increase the water holding capacity to support the plants. See Attachment 3 - Planting Plan for the locations of the plants.

5.4.1 Planting Communities

The plant selection simulates the impacted vegetative communities. While there is a riparian corridor and wetlands below the bluff, adjacent to Hangman Creek, these were not affected by the Project and therefore diverse riparian species are not represented in these communities. Three primary plant communities that are based on the plants adjacent to the Project, will be used in the restoration. See Table 3. Planting Areas.

- **Open Pine Community** - These areas will include primarily Ponderosa pine spaced between 15 and 30 feet apart with an understory of serviceberry and snowberry and occasional hawthorns. The groundcover will be a native grass and forb mix. The downed trees will be placed to provide woody debris/habitat. See Photo 1. Open pine stand for an adjacent representation of this community.
- **Shrub Community** - These areas are primarily snowberry, serviceberry with small amounts of hawthorn. While there are occasional occurrences of other shrubs such as baldhip rose only the dominant species will be planted in these areas. The shrub communities will also be seeded with the native grass/forb mix. See Photo 2. Pine stand with shrub community and Photo 3. Shrub community with snowberry for adjacent representations of this community.
- **Grass and Forb Community** - These areas will be an open meadow area and will be hydroseeded with a native grasses including Idaho fescue, wheatgrasses, Sandberg bluegrass, and Prairie Junegrass. The mix will also include the dominant native forbs such as arrowleaf balsamroot, western yarrow, and silky lupine. The restoration on the Bracher property, which is outside of the shoreline jurisdiction, will receive a wilderness mix application at their request.

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Table 3. Planting Areas

Planting Community	Planting Area (sqft)/(ac)
Community 1-Open Pine Stand	54,840/1.3
Community 2-Shrub Areas	5,490/0.1
Community 3-Grass/Forb	42,965/1.0

The trees 6 inches dbh or greater that were impacted will be replaced with the pine trees that are at least 20 feet from other pine trees and installed in clusters to simulate the adjacent environmental setting. Since the pre-construction conditions included a two-track roadway, the site will be restored to those conditions and any disturbance on the sides will be reseeded or replanted to match the adjacent conditions. See Photo 1, Representative Open Pine Stand and Attachment 1. Planting Plan.

Plant stock will be primarily 6 inch to 10 inch plugs from a locally available source. The smaller native plant stocks will be more suited to the dry, non-irrigated conditions and are more likely to survive compared to larger nursery stock with large root systems (i.e. five-gallon plants). See Table 4. Planting .

Table 4. Planting Details

Common Name	Scientific Name	Minimum Spacing between plants	Total Plants (entire Project)
Community 1- Pine Stand*			
Ponderosa pine	<i>Pinus ponderosa</i>	15-30 ft between pines	1125
Serviceberry	<i>Amelanchier alnifolia</i>	15-30 ft between plants	120
Snowberry	<i>Symphoricarpus albus</i>	10-15 ft between plants	75
Grass/Forb Mix	See Community 3 below		
* Plant in clusters and leave open space to match adjacent vegetation			
Community 2-Shrub Area			
Serviceberry	<i>Amelanchier alnifolia</i>	15-30 ft between plants	80
Snowberry	<i>Symphoricarpus albus</i>	10-15 ft between plants	50
Douglas hawthorn	<i>Crataegus douglasii</i>	15-30 ft between plants	50
Grass/forb Mix	See Community 3 below		
* Plant in clusters and leave open space to match adjacent vegetation			

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Table 5. Grass/Forb Community

Common Name	Scientific Name	Percent of Total
Idaho fescue	<i>Festuca idahoensis</i>	25
Sandberg's bluegrass	<i>Poa sandbergii</i>	15
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	15
Prairie junegrass	<i>Koeleria macrantha</i>	15
Streambank wheatgrass	<i>Elymus lanceolatus psammophilus</i>	15
Arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>	7
Western Yarrow	<i>Achillea millefolium</i>	1
Silky lupine	<i>Lupinus sp.</i>	4

Note: Hydroseeded at 40 pounds per acre over 40,381 sq ft.

The restoration on the Bracher property, which is outside of the shoreline jurisdiction, will receive a wilderness mix as requested by the landowner. This is the only area where this mix will be applied. See Table 7. Wilderness Mix.

Table 6. Wilderness Mix

Common Name	Scientific Name	Percent of Total
Alkar tall wheatgrass	<i>Thinopyrum ponticum</i>	9
Alsike clover	<i>Trifolium hybridum</i>	10
Climax timothy	<i>Phleum pratense</i>	15
Delar small burnet	<i>Sanguisorba minor</i>	10
Ginger bluegrass	<i>Poa pratensis</i>	14
Gulf annual ryegrass	<i>Lolium multiflorum</i>	10
Lincoln smooth brome grass	<i>Bromus inermis</i>	5
Minimus hard fescue	<i>Festuca trachyphylla</i>	15
Rush intermediate wheatgrass	<i>Thinopyrum intermedium</i>	10

Note: Hydroseed at 25 pounds per acre over 18,260 sq ft.

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5.5 Schedule

The following schedule in Table 7. Schedule of Restoration Tasks is anticipated:

Table 7. Schedule of Restoration Tasks

Task	Responsible Agency	Start	Finish
Emergency Temporary Erosion Control Measures	Avista	April 2017	Completed April 22, 2017
Shoreline Emergency Exemption	Avista	April 2017	Until Shoreline Substantial Development Permit obtained
Shoreline Substantial Development Permit & SEPA	Avista	May 2017	September 2017
NPDES CGP Permitting	Avista	May 2017	Until soil is stabilized
Chip/remove small downed vegetation and restore pre-disturbance grades	Avista Contractor	May 15, 2017	June 2, 2017
Plant and Hydroseed*	Avista Contractor	May 2017	Fall 2017
Install signage & BMPS	Avista Contractor	April 2017	Until plants are established
Maintenance	City of Spokane Parks and Recreation Department	May 2017	Until success criteria are met (5-7 years)
Monitoring and Reporting	City of Spokane Parks and Recreation Department	May 2017	Until success criteria are met (5-7 years)

* Note: The Bracher property will be hydroseeded in spring of 2017 but will be planted if authorized by the landowner. All other areas of the Project will be planted first in the spring of 2017 with replacement plantings in the fall of 2017.

5.6 Success Criteria, Maintenance and Monitoring

5.6.1 Success Criteria

The goal of the restoration and planting is to restore the area to its pre-disturbance condition to the highest degree possible and to blend it with the surrounding environment. This will be done by restoring the pre-construction grades, establishing native cover that will stabilize soils, reseeding the two-track roads where they are disturbed, reestablishing the existing trails and directing trail users away from the restored area, replacing the affected wildlife habitat and function, and minimizing the establishment and spread of non-native plant species, including noxious weeds. The site will be determined successful if the following criteria are met:

- **The grass/forbs provide approximately 70 percent ground cover after 1 year.**
- **Seventy percent or more of the planted trees and shrubs will be established after 5 years. Naturally establishing species in the disturbed areas will also be counted as part of the percentage.**
- **Non-native invasive species in the newly restored areas will be controlled to allow native plant establishment.**

5.6.2 Monitoring

The City of Spokane will complete the monitoring through initial Project completion in accordance with their Plant Establishment Plan (Monitoring Plan). This plan will include monitoring, proposed maintenance activities, and adaptive management procedures.

In addition, the entire Project will be visually inspected by the City for erosion control effectiveness and plant survival from the beginning of the restoration Project through the fall of 2017. Photos will be taken to document site conditions, and if any corrections are needed, they will be made within one week of identification.

After construction, monitoring points will be established where vegetation is representative of the sites. Plant survival and ground cover will be visually estimated and recorded within a 100-ft section of the restoration Project once per year during summer or early fall. Annual reports will be prepared from 2018 to 2022, which will consist of photo documentation at the monitoring locations, replanting or adaptive management recommendations, and implemented adaptive management measures if needed. Reports will be submitted to Ecology and the City of Spokane Planning Department at the end of each calendar year. A final report will be prepared at the end of 2024. If success criteria are met before the end of seven years, then monitoring will not be required after it is met.

Bluff Road Restoration Project

Monitoring Schedule:

2017

- May 2017 to end of the initial restoration effort in June 2017 - Avista will monitor weekly.
- Beginning June 2017 to end of August 2017 - City will monitor twice per week.
- Beginning of September 2017-end of November 2017-Avista will monitor once per month.

2018-2024

- From 2018 to 2022 the City will monitor once per month from March through November in accordance with the City of Spokane's Monitoring Plan.
- The City will complete a final inspection in 2024.

5.6.3 Maintenance

The sites will be planted and seeded during the spring of 2017, with all dead plants replaced in the fall of 2017, when adequate soil moisture is available since the site will not be irrigated. The City will maintain the site until the ground cover and plant survival requirements are met.

The City will maintain the erosion control measures, such as silt fencing and straw wattles until the grass/forb mix is established, the soil is stabilized, and the measures are no longer needed. Maintenance of the erosion control measures, if necessary, will be completed within one week of identification. Additional erosion control monitoring will occur in the event of heavy rainfall. 'Tubex' tree shelters will decompose over time, but may be removed during the monitoring phase, once the plants are established.

Non-native invasive species are present in the land immediately adjacent to the Project and include noxious weeds, bluegrass, pasture grasses and cheatgrass. It is not possible to keep all weeds from reestablishing within the disturbed areas; however, weed establishment and spread will be controlled by reseeding bare soils, reducing disturbance areas and mechanically and/or chemically controlling weeds sufficiently to allow for native plant establishment.

All maintenance activities specific to erosion and non-native invasive species control will be included in the annual reports identified under Section 5.6.2 Monitoring.

Bluff Road Restoration Project

Attachment 1 - Vicinity Map

Bluff Road Restoration Project

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

BLUFF ROAD RESTORATION

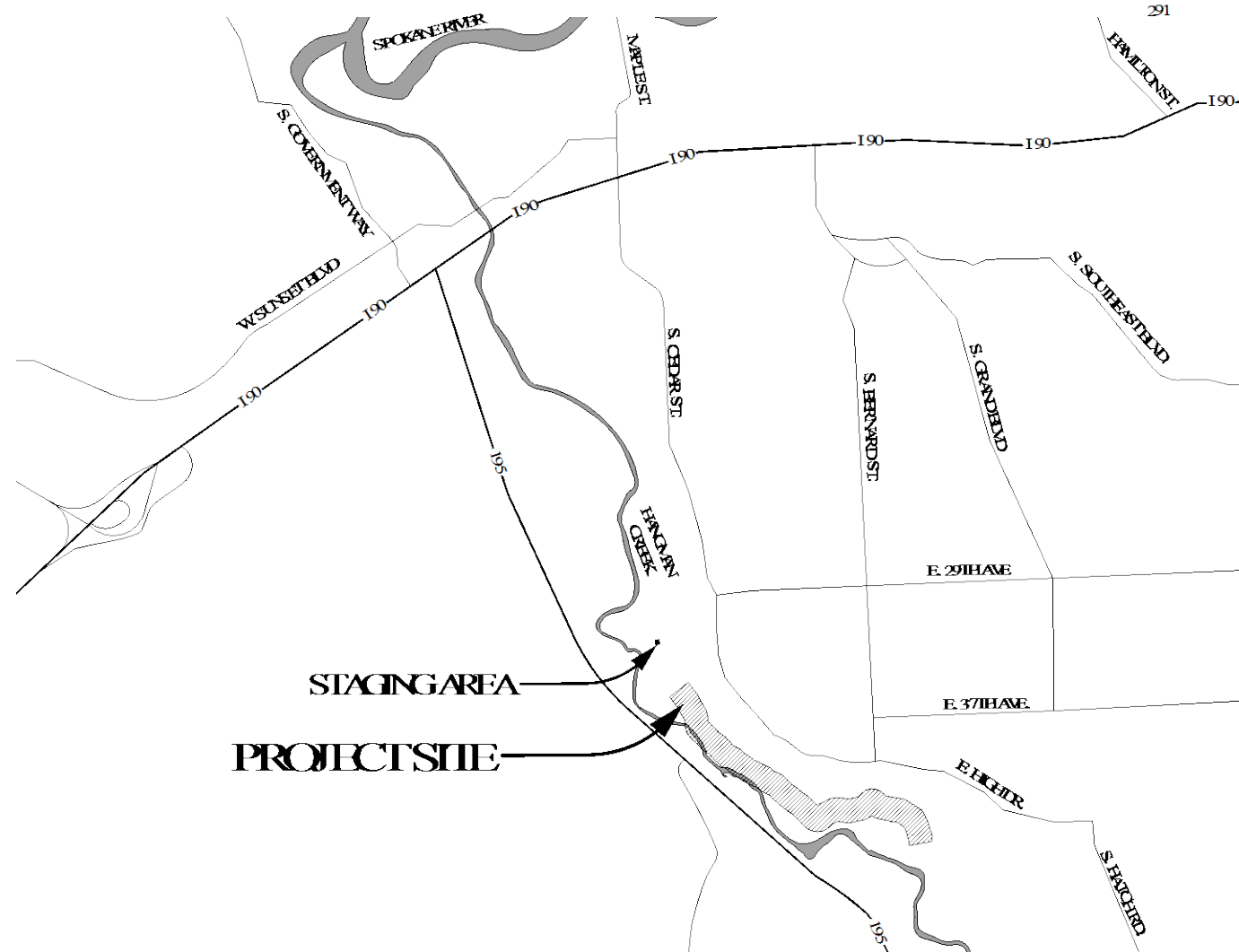
AVISTACORPORATION
1411 EAST MISSION AVE
SPOKANE, WA 99220

CITY OF SPOKANE
808 W SPOKANE FALLS BLVD
MEAD, WA 99201

LANDEXPRESSIONS
5615 E DAYME SPOKANE RD
MEAD, WA 99021

**ANDERSON ENVIRONMENTAL
CONSULTING LLC**
14234 N NORMEY RD
N NEMLE FALLS, WA 99026

COFFMAN ENGINEERS
10 N POST ST #500
SPOKANE, WA 99201

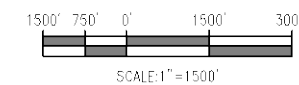


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05-12-17

DRAWING INDEX

COVER SHEET	L0.0
PLANTING PLAN	L1.1
PLANTING PLAN	L1.2
PLANTING PLAN	L1.3
PLANTING PLAN	L1.4
PLANTING PLAN	L1.5
PLANTING PLAN	L1.6
PLANTING PLAN	L1.7

LOCATION MAP



BLUFF ROAD RESTORATION	
PLANTING PLAN	
AVISTA CORPORATION SPOKANE, WASHINGTON	
1" = 1500' SCALE	05.12.17 DATE
DESIGN: DN	CHECKED: _____
DRAWN: RQ	NOTED: _____
CHECKED: _____	NOTED: _____
APPROVED: _____ DATE: _____	
MFG. DWG. NO.: _____	
DWG NO: 1P00	

NO	DATE	REVISION	BY	CHKD

5/12/2017 4:40 PM
Avista Bluff Road_Permit_Sheet_Set.dwg

GEN AUTOCAD DWG

Bluff Road Restoration Project

Attachment 2 - Road Construction Disturbance Areas

DISTURBANCE AREAS

- MINOR:**
Characteristics of minor disturbance areas, as indicated, are those areas which received no to little change in grades or soil redistribution through the road building process; although, there may be high vegetation disturbance. Generally, cross slope cuts will be under 1'-0" in height.
- MODERATE**
Characteristics of moderate disturbance areas, as indicated, are those areas that received from between 1' and 3' in soil cutting and/or fill material deposition. Substantial disturbance and removal of existing vegetation and the 'duff layer' of organic material that, along with plant materials, supports the natural erosion control process.
- HIGH**
Characteristics of high disturbance areas, as indicated, are those areas that experienced more than 3' high cuts and/or fill depositions. These areas, not only have great effects on the existing vegetation layer and plant material, but now the surrounding slopes have been heavily relocated/modified to the point where the existing slopes may not be easily recognizable.

CURRENT CONDITION IMAGERY



1. EXISTING ROAD CONDITIONS



2. BEGINNING OF NEW BLUFF ROAD



3. MODERATE ROAD CUT/FILL



4. HIGH ROAD CUT/FILL



5. MODERATE ROAD CUT/FILL

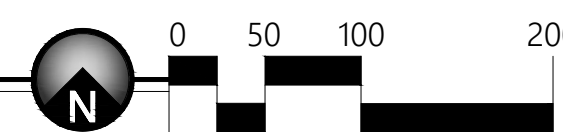


LEGEND

- HANGMAN CREEK
- 200' SHORELINE JURISDICTION
- 200' BLUFF RIDGE SETBACK
- TRANSMISSION LINES (NO TREES)
- PARCEL BOUNDARY
- EXISTING TRAIL
- CONSTRUCTION / EQUIPMENT TURNAROUND (1)
- IMAGERY SYMBOL

NOTE:
1. CONSTRUCTION / EQUIPMENT TURNAROUNDS WILL BE FIELD LOCATED IN OPEN AREAS, TO MINIMIZE FURTHER BLUFF DAMAGES.

SITE DISTURBANCE AREAS
SCALE: 1" = 100' - 0"



L1.1

CITY OF SPOKANE
PARKS AND RECREATION

BLUFF ROAD RESTORATION PLAN

BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

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Mead, WA 99021
P. 509 466-6683 F. 509 466-7494
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MAY 12 2017

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177006

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CURRENT CONDITION IMAGERY



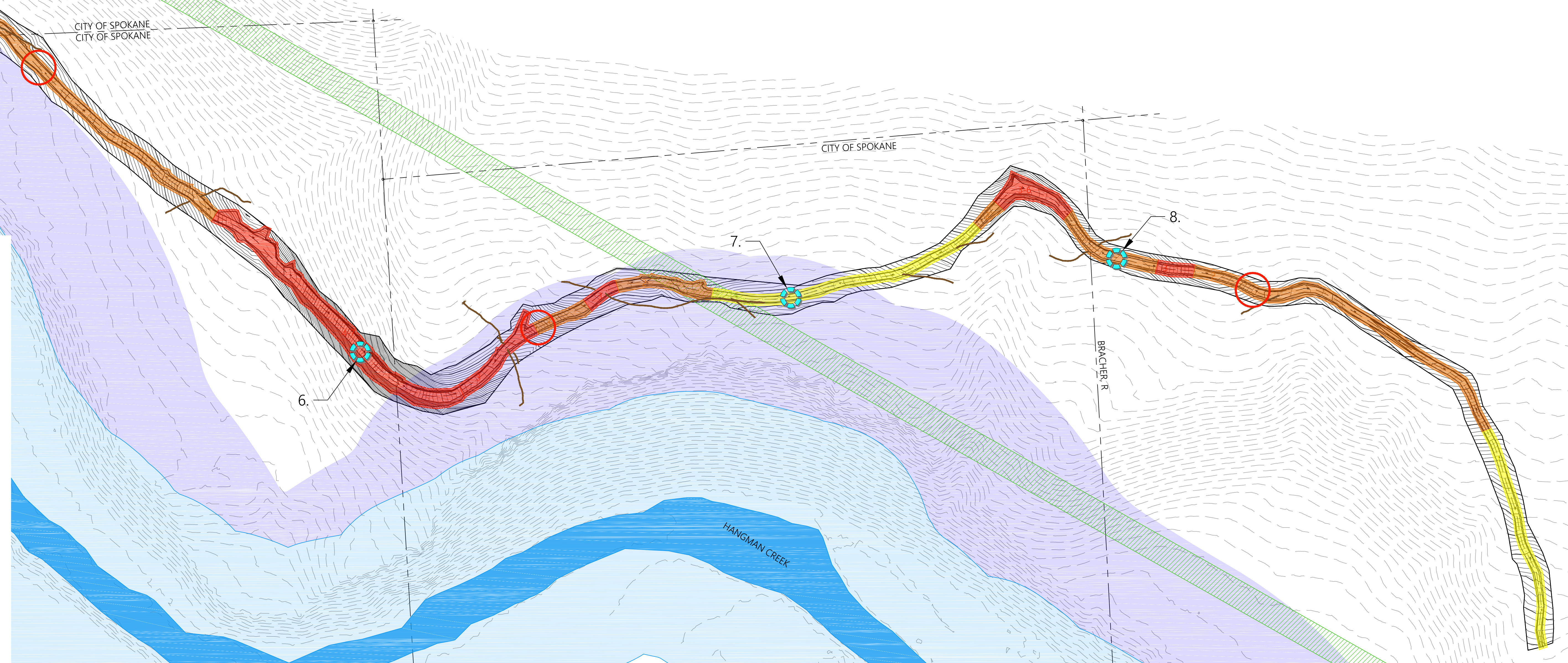
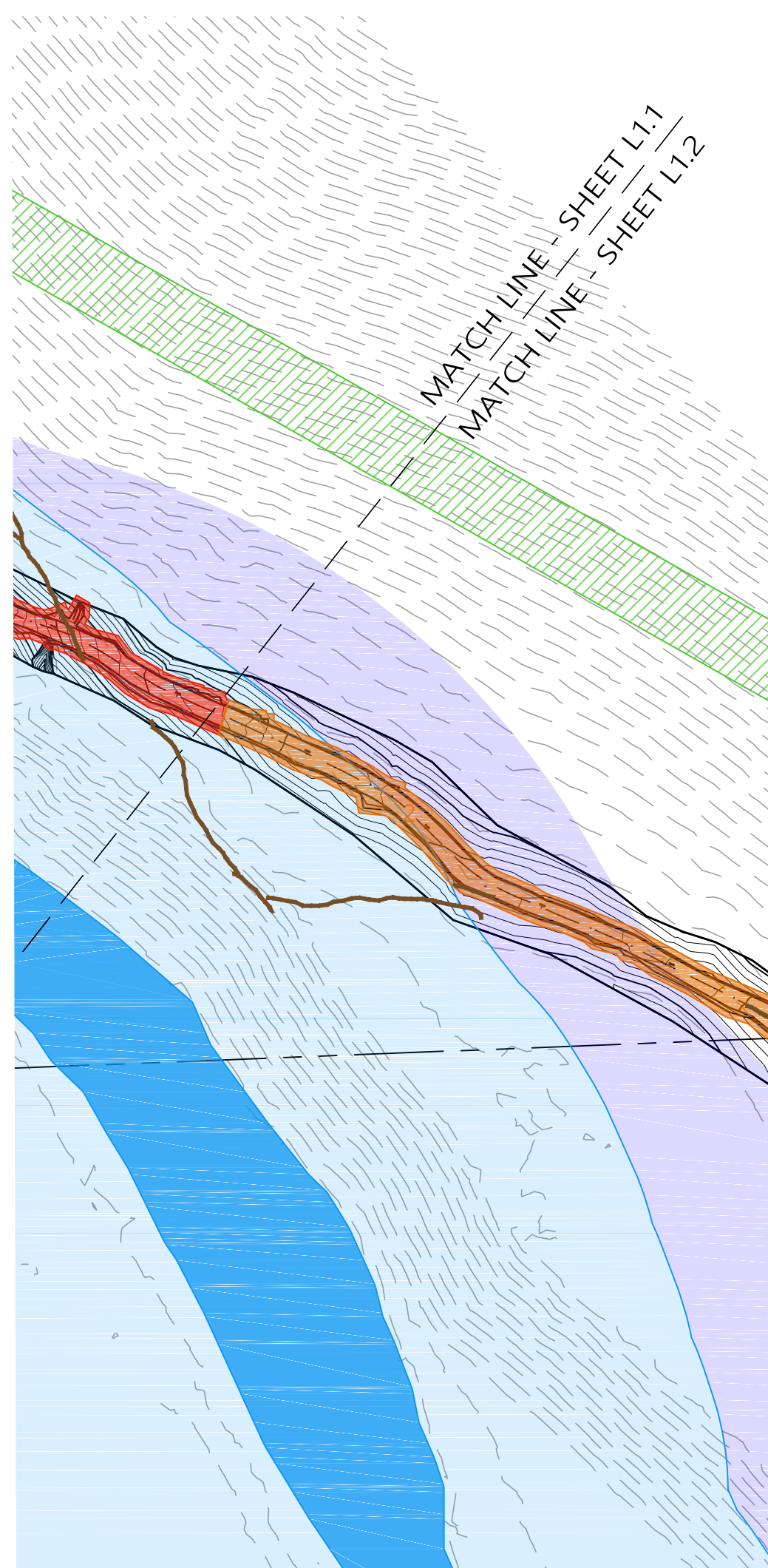
6. HIGH ROAD CUT/FILL



7. MINOR ROAD CUT/FILL



8. MODERATE ROAD CUT/FILL

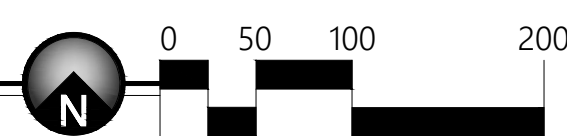


LEGEND

- HANGMAN CREEK
- 200' SHORELINE JURISDICTION
- 200' BLUFF RIDGE SETBACK
- TRANSMISSION LINES (NO TREES)
- PARCEL BOUNDARY
- EXISTING TRAIL
- CONSTRUCTION / EQUIPMENT TURNAROUND (1)
- IMAGERY SYMBOL

NOTE:
1. CONSTRUCTION / EQUIPMENT TURNAROUNDS WILL BE FIELD LOCATED IN OPEN AREAS, TO MINIMIZE FURTHER BLUFF DAMAGES.

SITE DISTURBANCE AREAS
SCALE: 1" = 100' - 0"



L1.2

CITY OF SPOKANE
PARKS AND RECREATION

BLUFF ROAD RESTORATION PLAN

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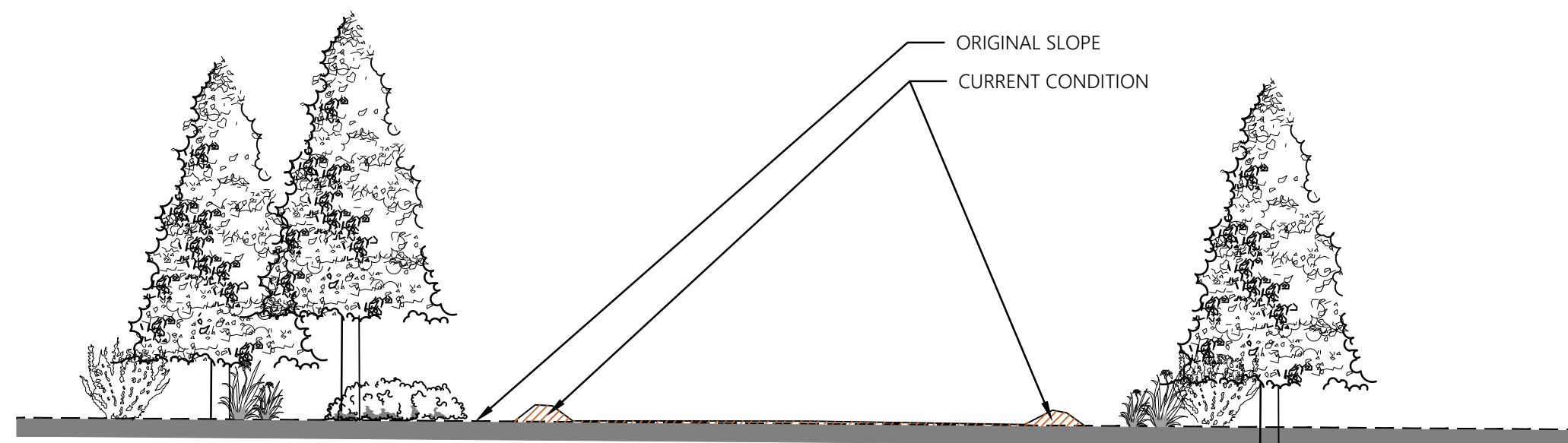
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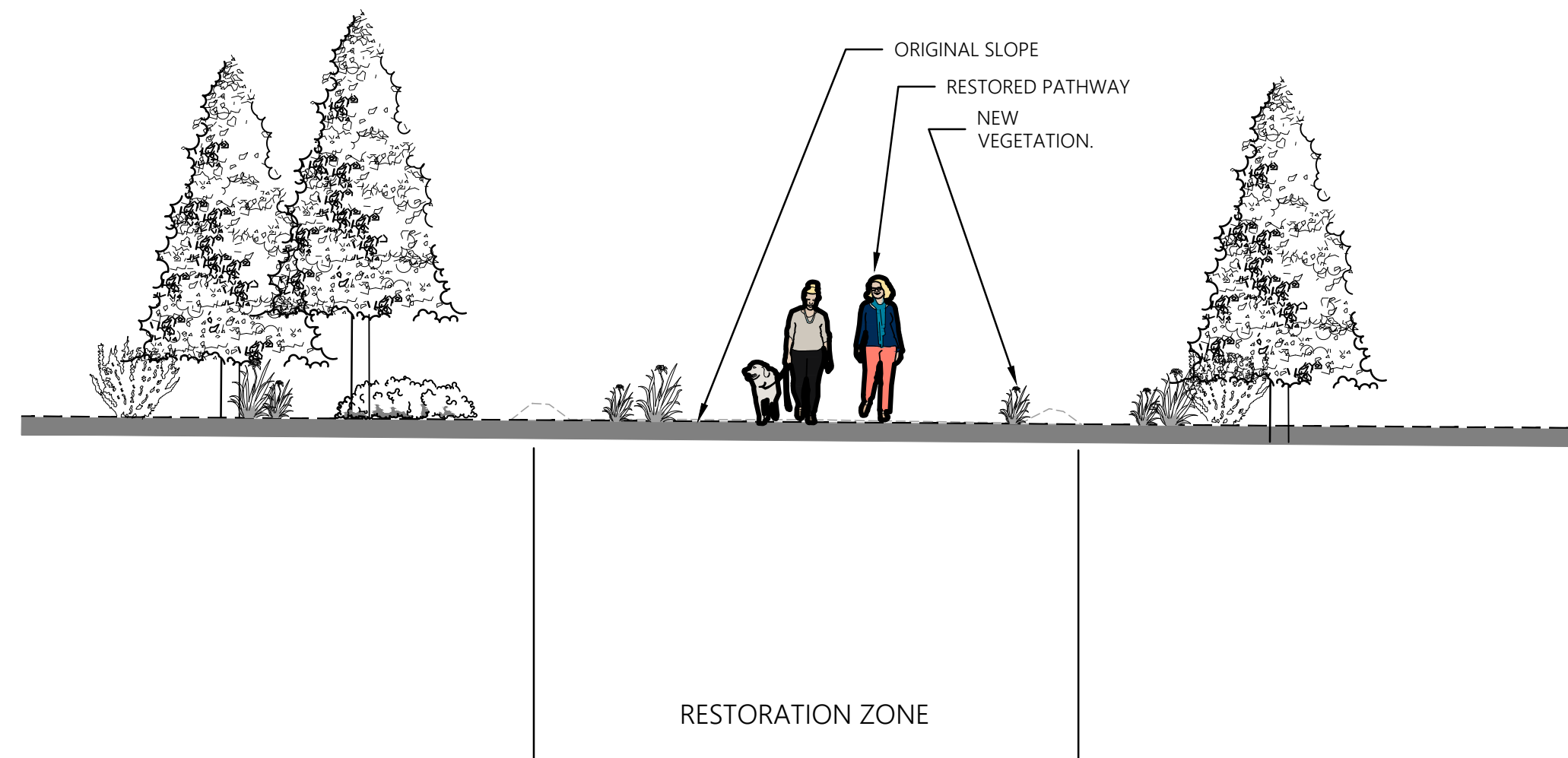
MINOR DISTURBANCE - CURRENT CONDITIONS



NOTES:

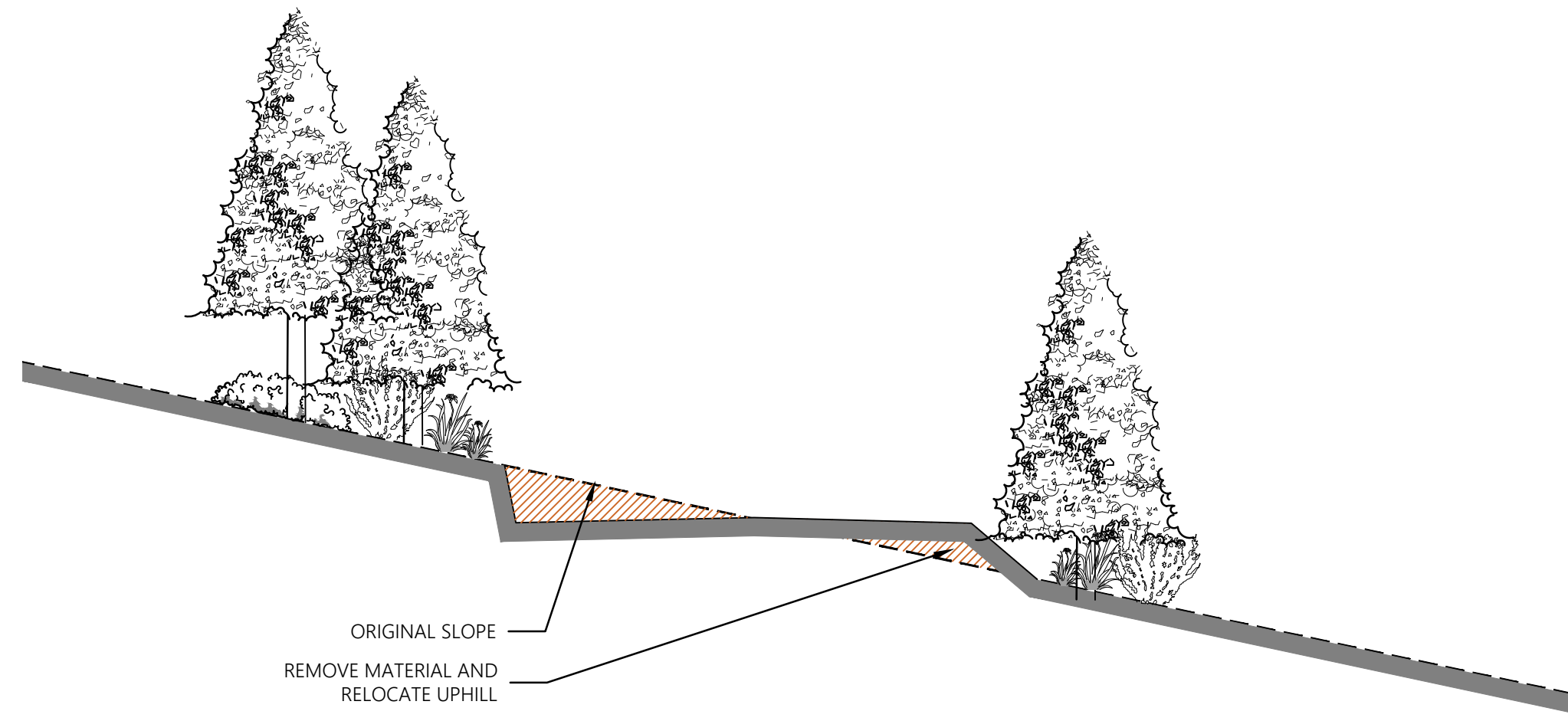
1. ALL DISTURBED AREAS WILL BE SEEDED WITH A NATIVE SEED MIX TO MATCH EXISTING VEGETATION.
2. WEED FREE TOPSOIL WILL BE IMPORTED, IF NEEDED, THAT IS BLENDED TO MATCH EXISTING SOIL, WITH A WEED FREE COMPOST ADDED TO IMPROVE PLANT SURVIVABILITY.
3. ALL PLANTS SHOWN REPRESENT A 10 YEAR GROWTH SIZE.

MINOR DISTURBANCE - RESTORATION

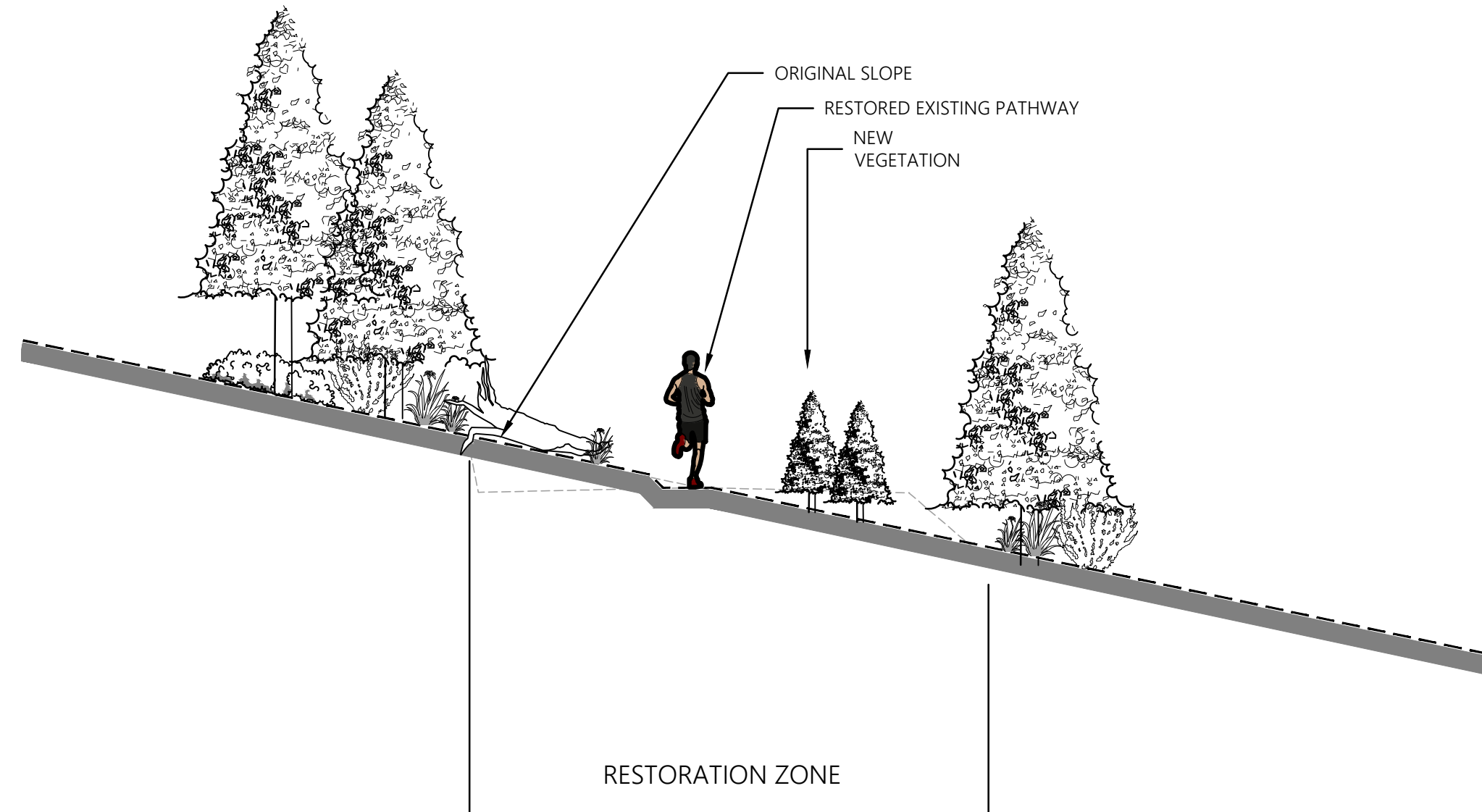


The primary locations of minor disturbance occurs at the North and South ends of the road. These areas are at little risk for further erosion, as adjacent vegetation is relatively still intact. Repair will consist of minor grading of the soil accumulations and/or cuts. Where applicable, pedestrian trail crossings will be restored to pre-existing conditions.

MODERATE DISTURBANCE - CURRENT CONDITIONS

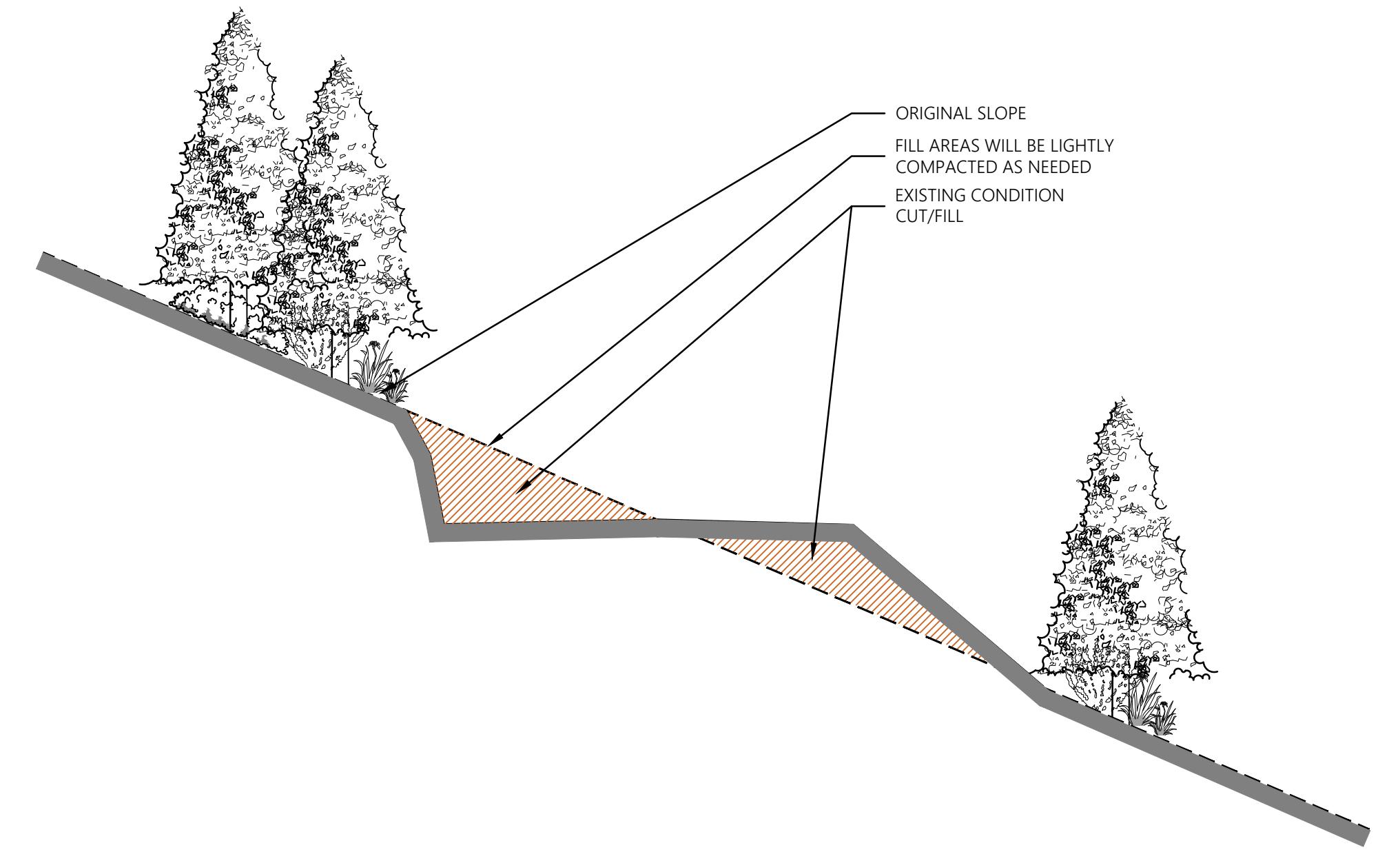


MODERATE DISTURBANCE - RESTORATION

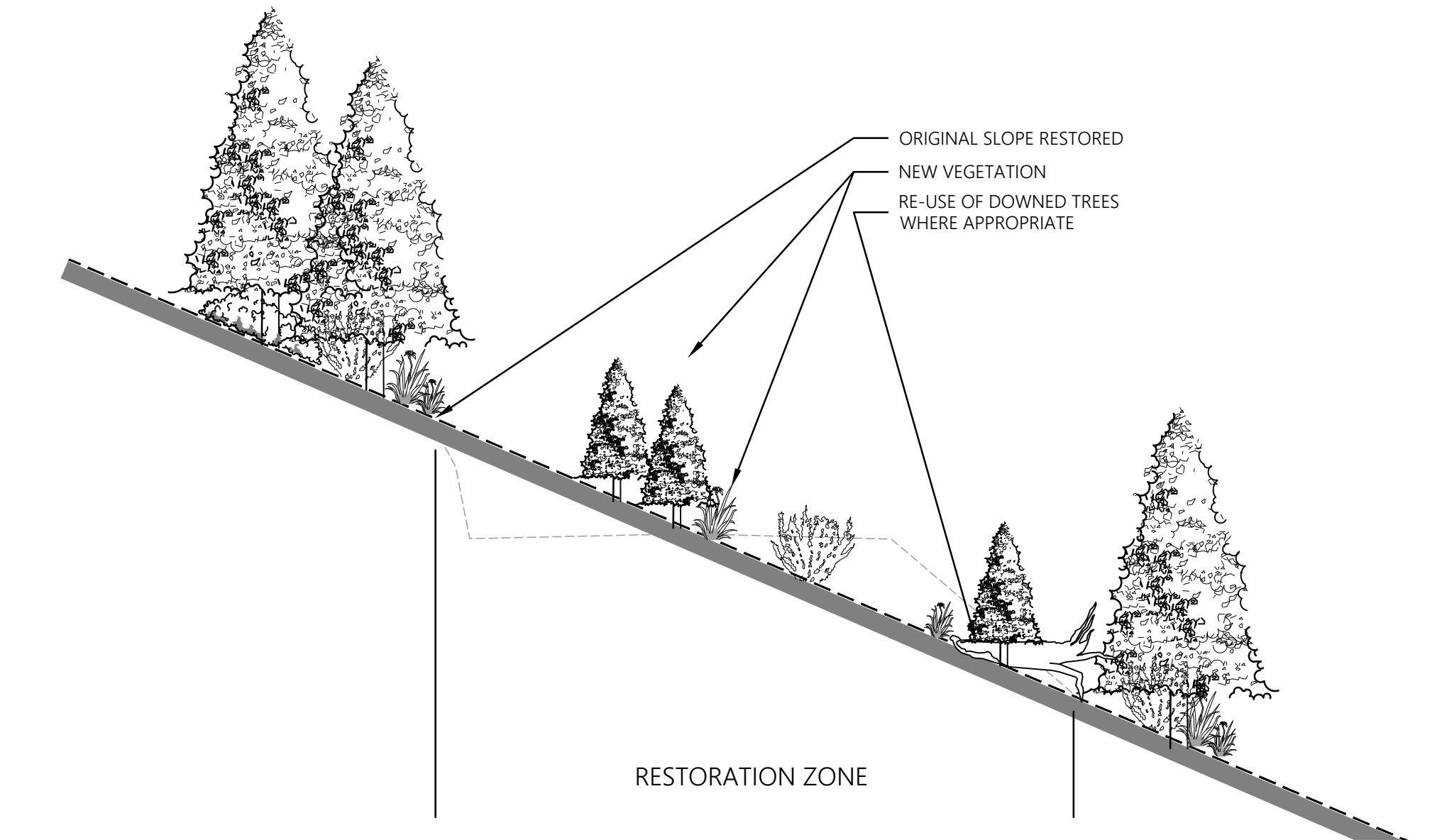


Repair will consist primarily of the redistribution of current fill soils 'uphill' to the cut areas to bring the natural slope back into position. These soils will be lightly compacted as they are reintroduced to their permanent location in order to secure the soil. Heavy compaction will not be allowed. Additional soils may be necessary to completely restore the existing slope to its prior condition. The intent is to mimic the existing soil profile as closely as possible, with the use of a more organic soil that will aid in the seeding and germination process. Specific erosion control measure will be implemented, where necessary; such as wattles, silt fences, and existing downed logs.

HIGH DISTURBANCE - CURRENT CONDITIONS

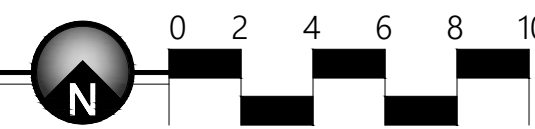


HIGH DISTURBANCE - RESTORATION



Repair for the high disturbance areas, will follow the same process as the previous descriptions, but will be more extensive to address the additional soil. Soils will be lightly compacted again, and stabilized in lifts as necessary to prevent over compaction. Specific erosion control measure will be implemented, where necessary; such as wattles, silt fences, and existing downed logs.

EXISTING & RESTORED CONDITIONS



L2.0

CITY OF SPOKANE
PARKS AND RECREATION

BLUFF ROAD RESTORATION PLAN

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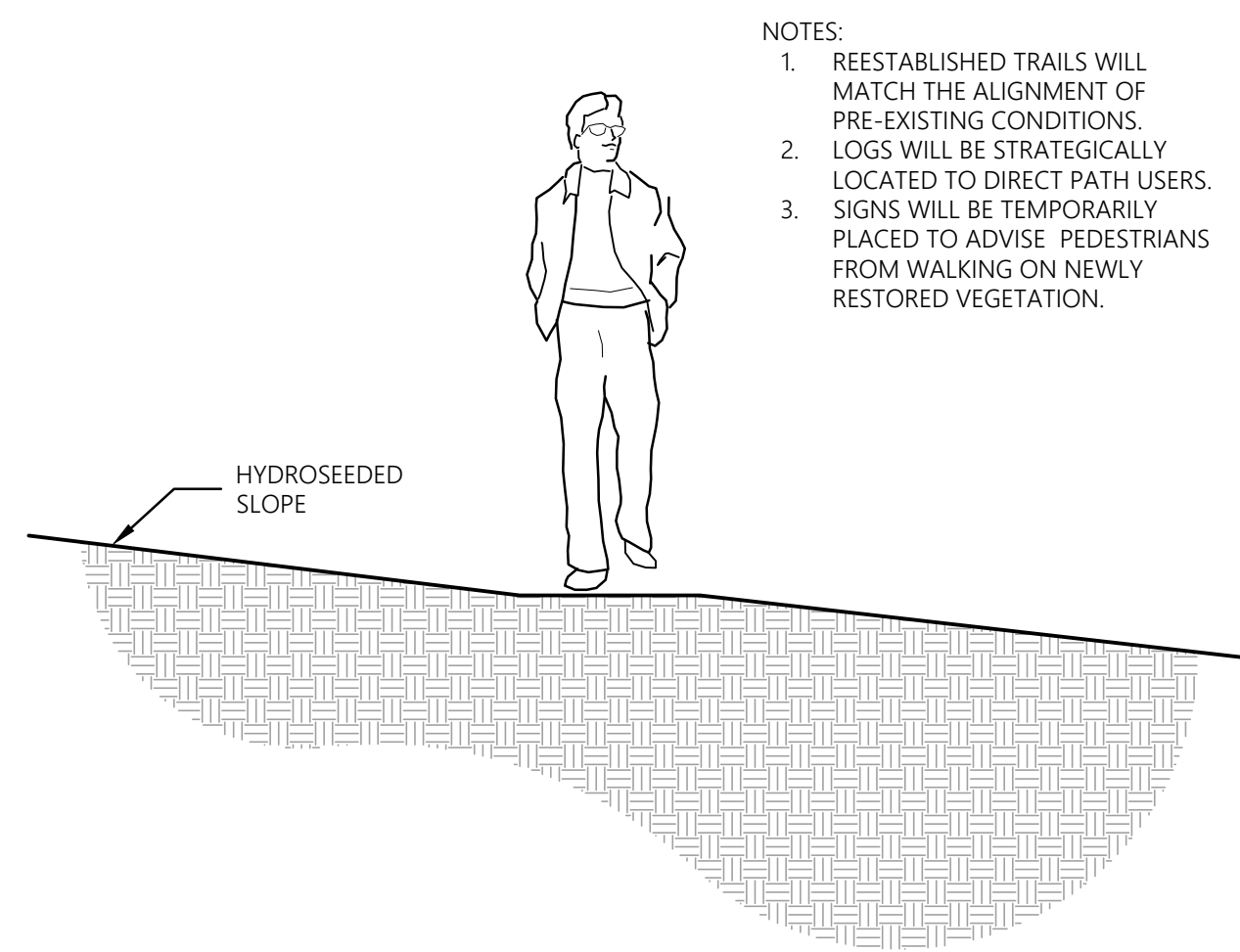
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171006

TRAIL RESTORATION - DETAIL

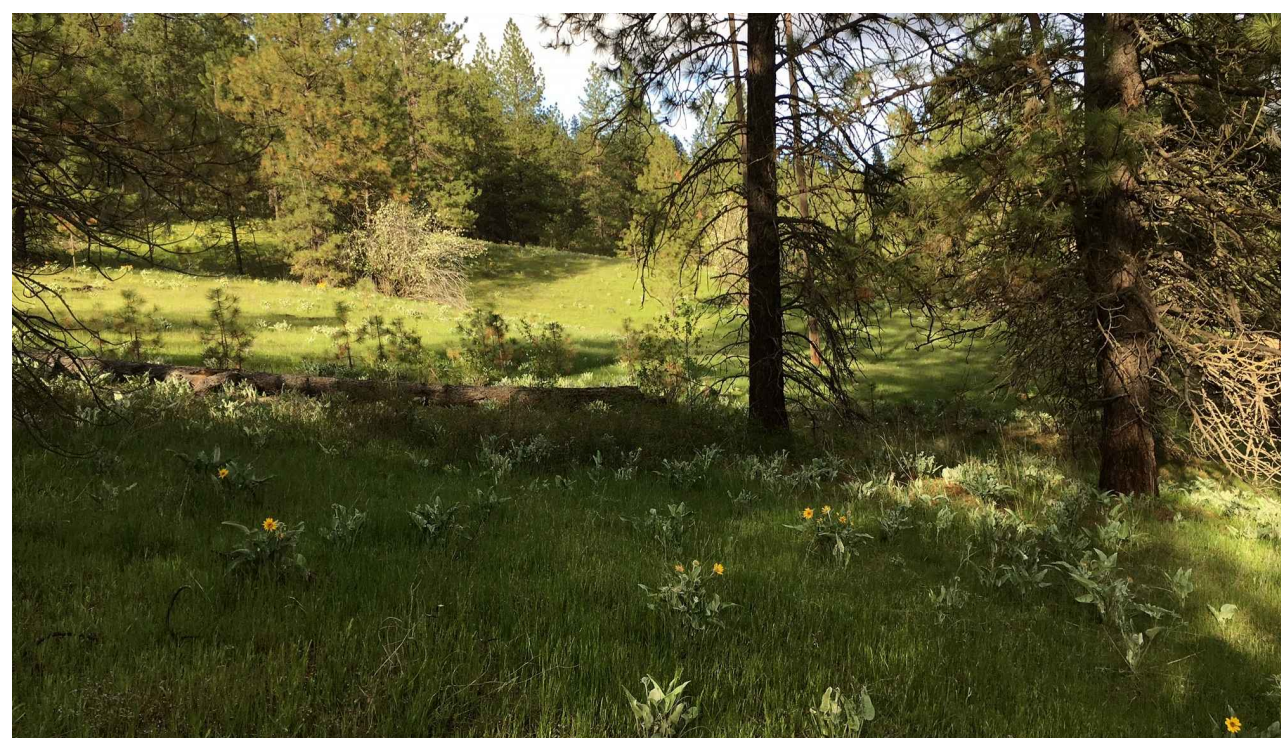


MANAGEMENT OF DOWNED TREES

- Fallen trees that are 6" and smaller will be chipped or used to supplement natural erosion control measures on site. The chips will be broadcast and dispersed accordingly.
- Fallen trees bigger than 6" will be utilized on the site. They will be used for wildlife habitat, erosion control, and to direct trail users. The trees will be longitudinally trunk scored to help prevent pine beetles.
- The root wads and stumps will be relocated or removed as appropriate.



'TUBEX' PLANT SHELTER

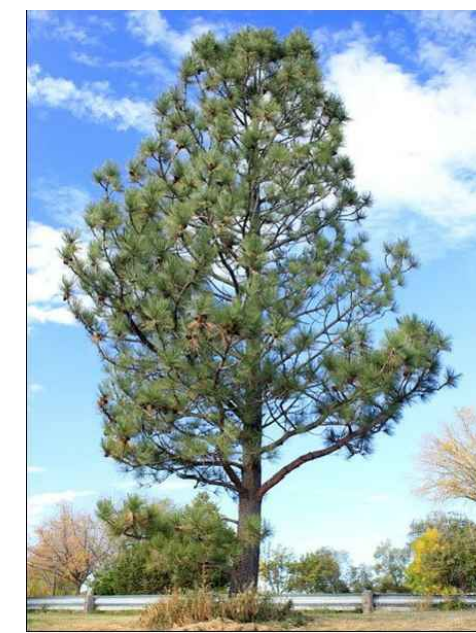


EXISTING CONDITIONS

NEW VEGETATION *Images Shown at Mature Size

Plant material represented in the following three communities will be consistent with the existing vegetation adjacent to disturbed area:

- Community 1 "Open Pine Stand" *Includes Grass/Forb Mix



PONDEROSA PINE



SERVICEBERRY



SNOWBERRY

- Community 2 "Shrub Areas" *Includes Grass/Forb Mix



SERVICEBERRY



DOUGLAS HAWTHORN



SNOWBERRY

- Community 3 "Grass/Forb Mix"



IDAHO FESCUE



SANDBERG BLUEGRASS



BLUEBUNCH WHEATGRASS



PRAIRIE JUNEGRASS



STREAMBANK WHEATGRASS



ARROWLEAF BALSAMROOT



YARROW



SILKY LUPINE

Trees, shrubs, grasses, and forbs will be planted at an approximately 3:1 ratio and will be planted to match the surrounding environment. This will replace the ecological function of the previous vegetation.

Spokane Municipal Code requirements for re-vegetation within the Shoreline Jurisdiction are a 2:1 ratio. In Non-shoreline jurisdiction areas, the ratio is 1:1. However, due to possible mortality and the timing of the year; as well as the desire to simulate the open pine stands that exist, the final tree/shrub replacement will be equal to, or exceed 3:1, depending on site conditions.

The plants will be 6" to 10" plugs. This smaller stock is expected to be more successful in non-irrigated conditions compared to larger (ie 5 gallon) stock. Whenever possible, protection, such as, 'Tubex' tubes and stakes will be used to increase plant survivability.

The re-vegetated areas will be monitored in accordance with the Plant Establishment Plan, and replanting, if necessary, is to occur between Oct. 1 and Nov. 15th of 2017.

Seed germination for natural grasses will also be monitored and documented. Reseeding will occur in the fall, based on the success of the spring seeding and as otherwise needed. Any bare areas will be reseeded.

PERMITTING

Permit obtained:

- Exemption for the Shoreline Substantial Development Permit issued by the City of Spokane
- Grading Permit issued by the City of Spokane

Permits needed:

- Shoreline Substantial Development and SEPA checklist are processed concurrently with the City of Spokane (3-4 month process)
- General Construction Stormwater Permit processed with the Department of Ecology (1-2 months after SEPA determination)

RESTORATION CONSTRUCTION SEQUENCE

Work will be completed in sections and all equipment is intended to be kept on the existing road cut and turnarounds.

In an effort to take advantage of wet spring conditions, and the current soil moisture, bluff restoration will begin May 15 and is expected to last until early June for complete. This immediate action will help ensure the greatest survivability of existing flora by the removal of road material covering the vegetation.

- Set up construction trailer and fence area at 3515 S Inland Empire Way (Avista substation)
- Install all necessary site/construction signage and fencing
- Chip all newly downed trees (wood) 6" or smaller
- Remove or relocate stumps and root wads as appropriate
- Collect logs to use at onsite location
- Replace and appropriately compact cut and fill areas
- Place additional imported topsoil where needed
- Restore trail crossings to prior conditions
- Plant trees and shrubs
- Protect restored areas at cross trails
- Seed native grasses
- Install access gate at north end of project
- Start maintenance and monitoring phase

MAINTENANCE AND MONITORING

After initial project completion, monitoring will be conducted by the City of Spokane, in accordance with their Plant Establishment Plan. This plan may include detailed monitoring recommendations and proposed maintenance activity,

A photo inspection will take place upon project completion for erosion control effectiveness and plant survivability. Monitoring will occur according to the following schedule:

2017	June: weekly July - Sept: every other week Sept - Nov: once per month
2018-2022	March - Nov: once per month, in accordance with the City of Spokane's Plant Establishment Plan
2024	7th year follow up inspection

Erosion control measures and remedial action, if necessary, are to be addressed within 1 week of identification. Additional erosion control monitoring will occur in the event of heavy rainfall.

'Tubex' tree shelters will decompose over time, but may be removed during the monitoring phase, once tree establishment has occurred.

Weed Control Program:

Invasive weeds that exist in the adjacent landscape, such as dalmation toadflax, knapweed, sulfur cinquefoil, rush skeletonweed, common bugloss, if identified in the disturbed areas will be controlled through spot spraying and/or mechanical control, to help ensure the establishment of the native vegetation.

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Bluff Road Restoration Project

Attachment 3 - Planting Plan

0'0d1

BLUFF ROAD RESTORATION

AVISTA CORPORATION

1411 EAST MISSION AVE.
SPOKANE, WA 99220

CITY OF SPOKANE

808 W. SPOKANE FALLS BLVD.
MEAD, WA 99201

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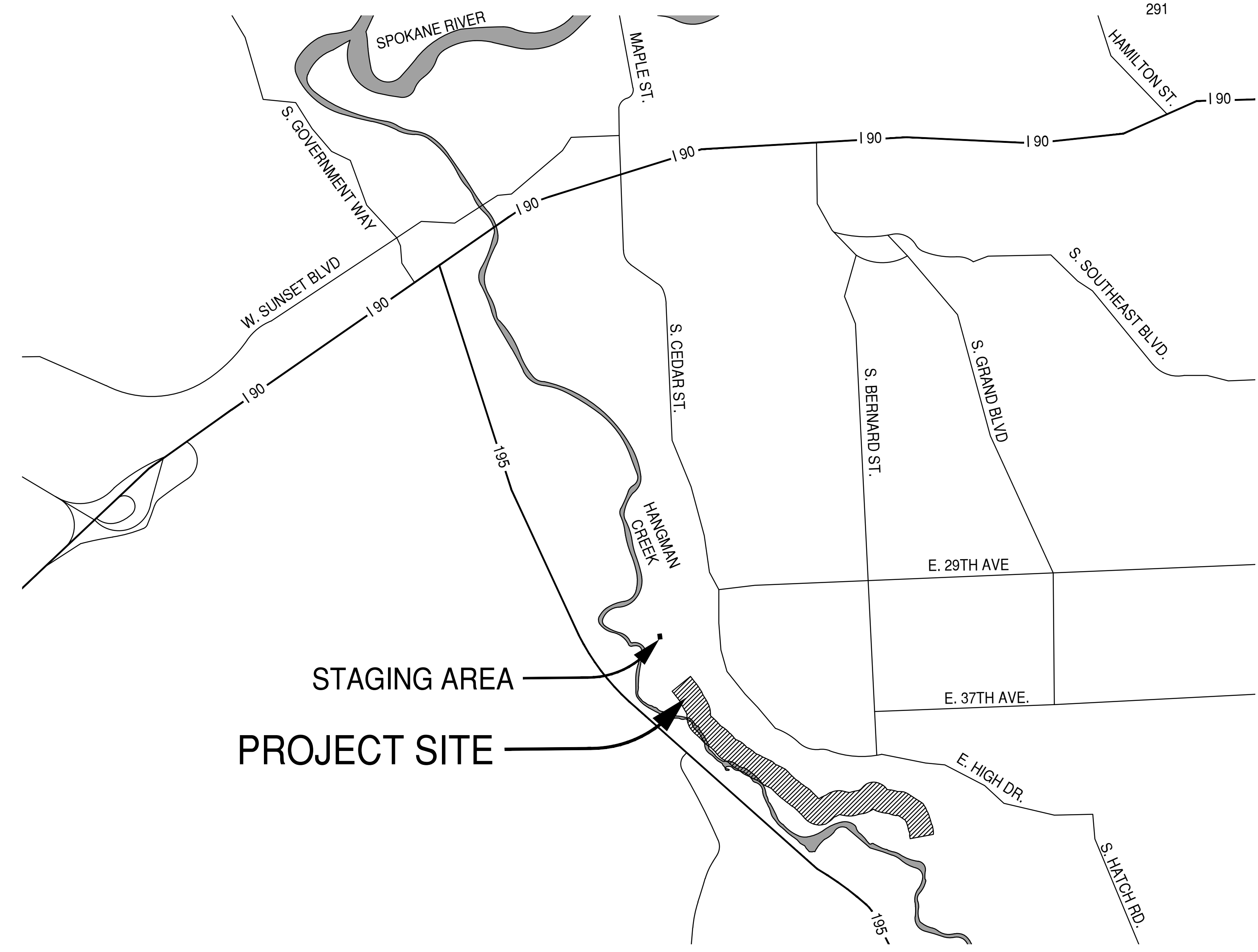
5615 E. DAY MT. SPOKANE RD.
MEAD, WA 99021

ANDERSON ENVIRONMENTAL CONSULTING LLC

14234 N TORMEY RD.
NINE MILE FALLS, WA 99026

COFFMAN ENGINEERS

10 N. POST ST. #500
SPOKANE, WA 99201

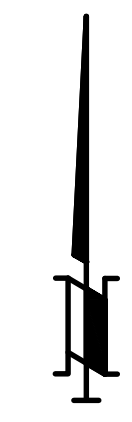
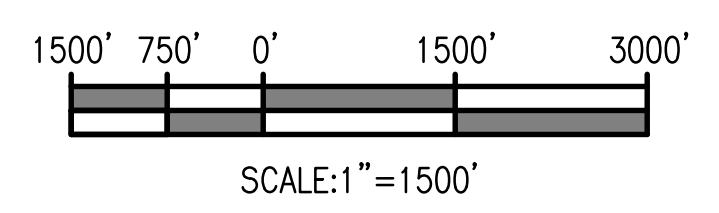


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05-12-17

DRAWING INDEX

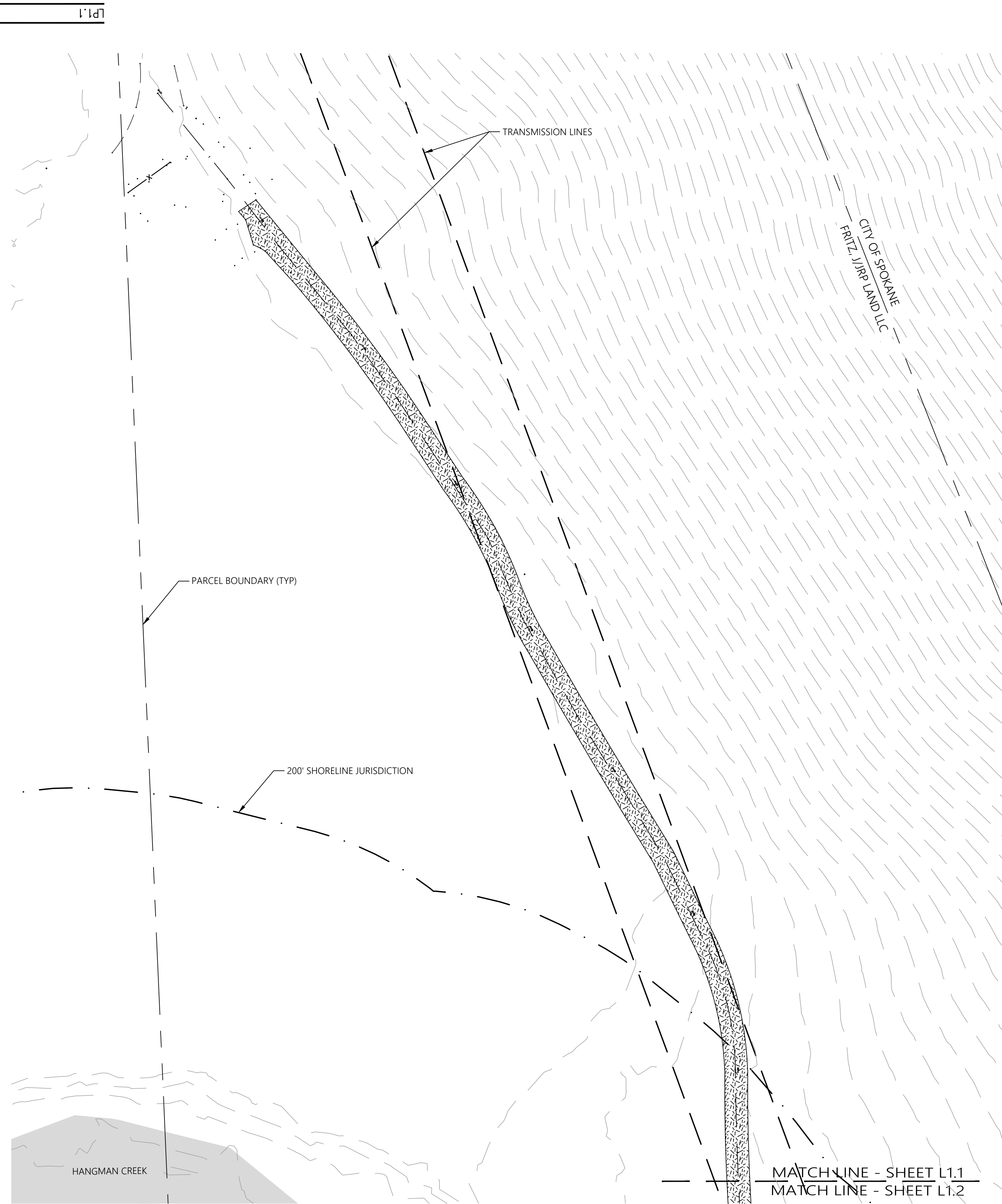
COVER SHEET	L0.0
PLANTING PLAN	L1.1
PLANTING PLAN	L1.2
PLANTING PLAN	L1.3
PLANTING PLAN	L1.4
PLANTING PLAN	L1.5
PLANTING PLAN	L1.6
PLANTING PLAN	L1.7

LOCATION MAP



BLUFF ROAD RESTORATION	
PLANTING PLAN	
AVISTA CORPORATION SPOKANE, WASHINGTON	
1" = 1500'	05.24.17
SCALE	DATE
DESIGN DN	CHECKED
DRAWN RQ	NOTED
CHECKED	NOTED
MFG. DWG. NO.:	
DWG. NO.: LP0.0	
APPROVED	
DATE	

NO	DATE	REVISION	BY	CHKD



PLANT SCHEDULE

SYMBOL	PLANT COMMUNITY	SIZE
	COMMUNITY A - PINE STAND AMELANCHIER ALNIFOLIA / SERVICEBERRY PINUS PONDEROSA / PONDEROSA PINE SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	COMMUNITY B - SHRUB AREA AMELANCHIER ALNIFOLIA / SERVICEBERRY CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	GRASS/FORB MIX ACHILLEA MILLEFOLIUM / WESTERN YARROW BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT ELYMUS LANCEOLATUS PSAMMOPHILUS / STREAMBANK WHEATGRASS FESTUCA IDAHOENSIS / IDAHO FESCUE KOELERIA MACRANTHA / PRAIRIE JUNEGRASS LUPINUS SP. / SILKY LUPINE POA SANDBERGII / SANDBERG'S BLUEGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	1% - Hydroseed 7% - Hydroseed 15% - Hydroseed 29% - Hydroseed 15% - Hydroseed 4% - Hydroseed 15% - Hydroseed 15% - Hydroseed
	WILDERNESS MIX ALKAR TALL WHEATGRASS ALSIKE CLOVER CLIMAX TIMOTHY DELAR SMALL BURNET GINGER BLUEGRASS GULF ANNUAL RYEGRASS LINCOLN SMOOTH BROMEGRASS MINIMUS HARD FESCUE RUSH INTERMEDIATE WHEATGRASS	9% - Hydroseed 10% - Hydroseed 15% - Hydroseed 10% - Hydroseed 14% - Hydroseed 10% - Hydroseed 5% - Hydroseed 15% - Hydroseed 10% - Hydroseed

LANDSCAPE NOTES:

- WEED FREE TOPSOIL WILL BE IMPORTED, IF NEEDED, THAT IS BLENDED TO MATCH EXISTING SOIL, WITH A WEED FREE COMPOST ADDED TO IMPROVE PLANT SURVIVABILITY.
- CONTRACTOR TO LEAVE TRACK MARKS FROM EQUIPMENT TO HELP COLLECT WATER FOR SEED GROWTH.

PLANTING NOTES:

- PLANTING PLAN WAS DEVELOPED BASED ON A HOLISTIC APPROACH TO MIMIC THE EXISTING SITE CONDITIONS.
- PLANT QUANTITIES AND DENSITIES WILL BE FIELD LOCATED TO MATCH ADJACENT SITE CONDITIONS, IN ACCORDANCE TO THE PLANTING PLAN.
- PLUGS WILL BE PLANTED TO INCREASE PLANT SURVIVABILITY IN A NATURAL SETTING. LARGER PLANT STOCK WILL HAVE A GREATER MORTALITY RATE, IN A NATURAL SETTING WITHOUT IRRIGATION. THE SEED BANK WITHIN THE EXISTING SOIL WILL PROVIDE NATURAL REGENERATION OF PONDEROSA PINE AND OTHER NATIVE SPECIES OVER TIME.
- GENERAL PLANT PLUG SIZES WILL RANGE FROM 6"-10" IN HEIGHT.
- ALL PLANTS WILL BE INITIALLY WATERED IN, AT THEIR TIME OF PLANTING.
- 'TUBEX' PLANT SHELTERS SHALL BE PLACED AROUND PLANTS AT THEIR TIME OF PLANTING.
- HYDROSEED MIX, DEFINED ON PLANS, TO BE APPLIED AT A RATE OF 40 LBS PER ACRE, WITH BONDED FIBER MATRIX TACIFIER (OR APPROVED EQUAL). TACIFIER WILL BOND FIBERS TO THE SOIL FOR INCREASED EROSION CONTROL.



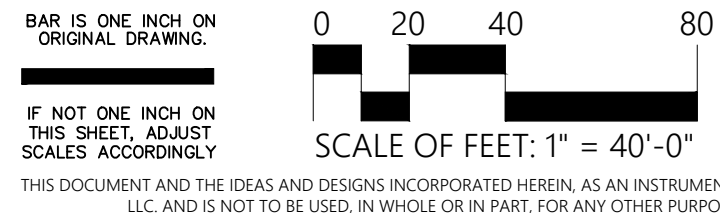
BLUFF ROAD RESTORATION

PLANTING PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	05.24.17	APPROVED
SCALE	DATE	
DESIGN DN	CHECKED	DATE
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CHECKED	NOTED	MFG. DWG. NO.:

DWG. NO.: LP1.1



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NO	DATE	REVISION	BY	CKD
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LP1.2



PLANT SCHEDULE

SYMBOL	PLANT COMMUNITY	SIZE
	COMMUNITY A - PINE STAND AMELANCHIER ALNIFOLIA / SERVICEBERRY PINUS PONDEROSA / PONDEROSA PINE SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	COMMUNITY B - SHRUB AREA AMELANCHIER ALNIFOLIA / SERVICEBERRY CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	GRASS/FORB MIX ACHILLEA MILLEFOLIUM / WESTERN YARROW BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT ELYMUS LANCEOLATUS PSAMMOPHILUS / STREAMBANK WHEATGRASS FESTUCA IDAHOENSIS / IDAHO FESCUE KOELERIA MACRANTHA / PRAIRIE JUNEGRASS LUPINUS SP. / SILKY LUPINE POA SANDBERGII / SANDBERG'S BLUEGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	1% - Hydroseed 7% - Hydroseed 15% - Hydroseed 29% - Hydroseed 15% - Hydroseed 4% - Hydroseed 15% - Hydroseed 15% - Hydroseed
	WILDERNESS MIX ALKAR TALL WHEATGRASS ALSIKE CLOVER CLIMAX TIMOTHY DELAR SMALL BURNET GINGER BLUEGRASS GULF ANNUAL RYEGRASS LINCOLN SMOOTH BROMEGRASS MINIMUS HARD FESCUE RUSH INTERMEDIATE WHEATGRASS	9% - Hydroseed 10% - Hydroseed 15% - Hydroseed 10% - Hydroseed 14% - Hydroseed 10% - Hydroseed 5% - Hydroseed 15% - Hydroseed 10% - Hydroseed



BLUFF ROAD RESTORATION

PLANTING PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

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CHECKED	NOTED	MFG. DWG. NO.:

DWG. NO.: LP1.2

BAR IS ONE INCH ON ORIGINAL DRAWING.

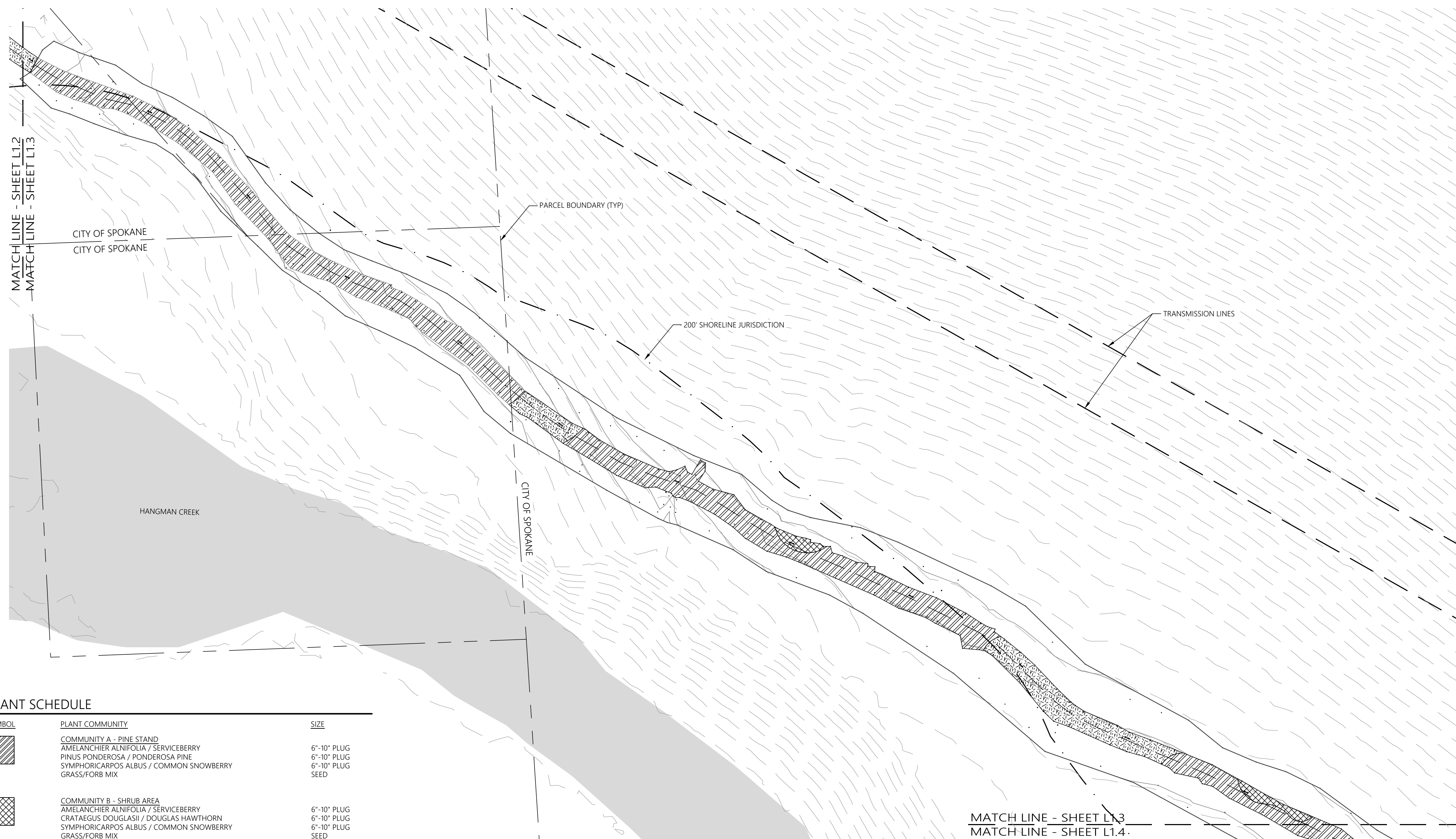
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALE OF FEET: 1" = 40'-0"

0 20 40 80

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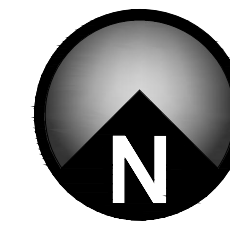
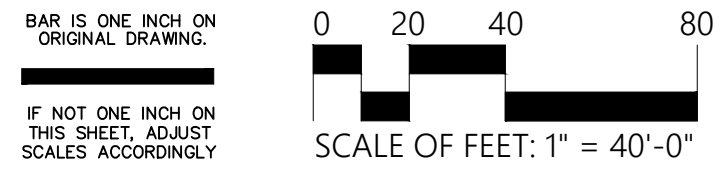


PLANT SCHEDULE

SYMBOL	PLANT COMMUNITY	SIZE
	COMMUNITY A - PINE STAND AMELANCHIER ALNIFOLIA / SERVICEBERRY PINUS PONDEROSA / PONDEROSA PINE SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	COMMUNITY B - SHRUB AREA AMELANCHIER ALNIFOLIA / SERVICEBERRY CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	GRASS/FORB MIX ACHILLEA MILLEFOLIUM / WESTERN YARROW BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT ELYMUS LANCEOLATUS PSAMMOPHILUS / STREAMBANK WHEATGRASS FESTUCA IDAHOENSIS / IDAHO FESCUE KOELERIA MACRANTHA / PRAIRIE JUNEGRASS LUPINUS SP. / SILKY LUPINE POA SANDBERGII / SANDBERG'S BLUEGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	1% - Hydroseed 7% - Hydroseed 15% - Hydroseed 29% - Hydroseed 15% - Hydroseed 4% - Hydroseed 15% - Hydroseed 15% - Hydroseed
	WILDERNESS MIX ALKAR TALL WHEATGRASS ALSIKE CLOVER CLIMAX TIMOTHY DELAR SMALL BURNET GINGER BLUEGRASS GULF ANNUAL RYEGRASS LINCOLN SMOOTH BROMEGRASS MINIMUS HARD FESCUE RUSH INTERMEDIATE WHEATGRASS	9% - Hydroseed 10% - Hydroseed 15% - Hydroseed 10% - Hydroseed 14% - Hydroseed 10% - Hydroseed 5% - Hydroseed 15% - Hydroseed 10% - Hydroseed

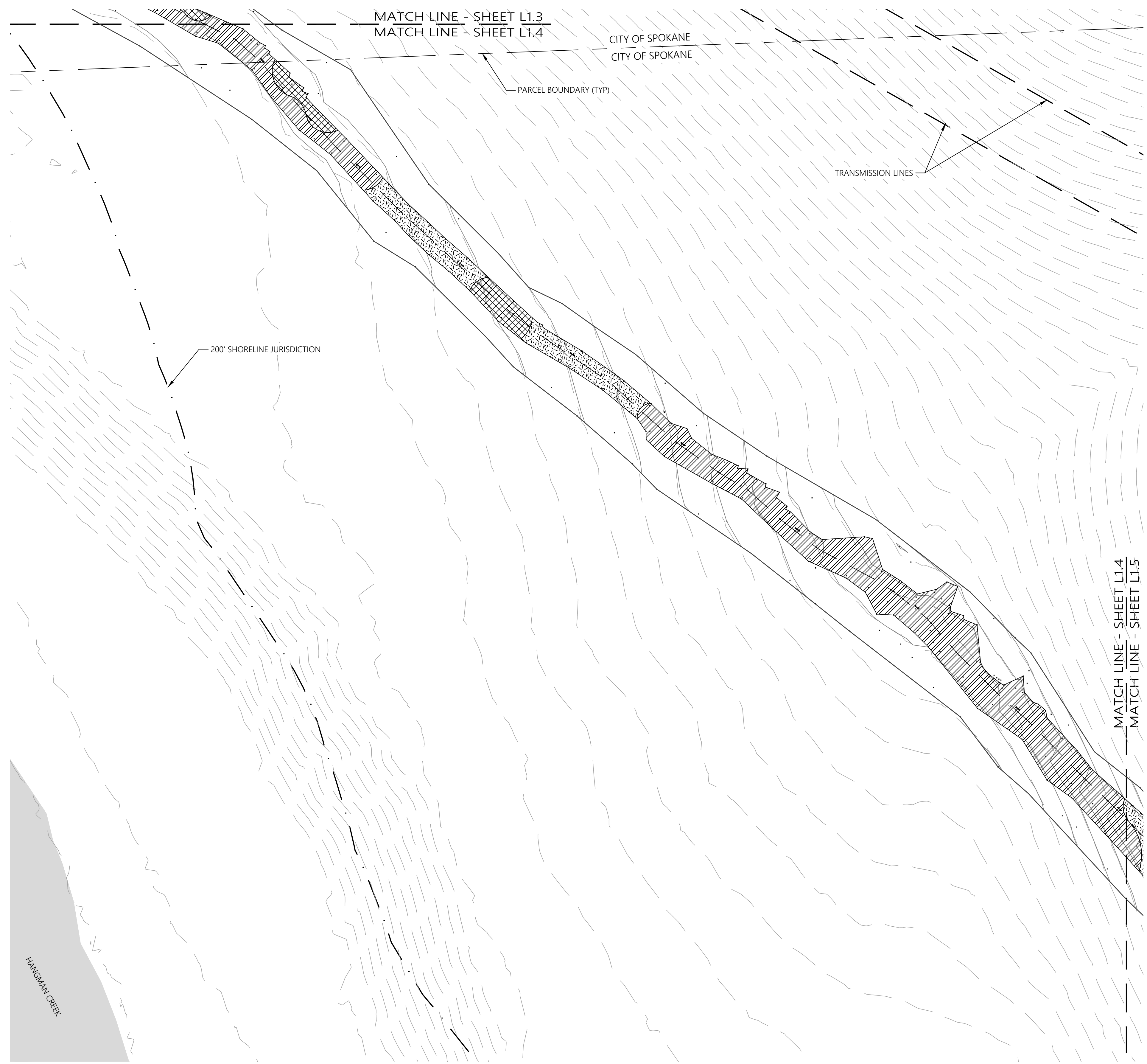


MATCH LINE - SHEET L1.3
MATCH LINE - SHEET L1.4



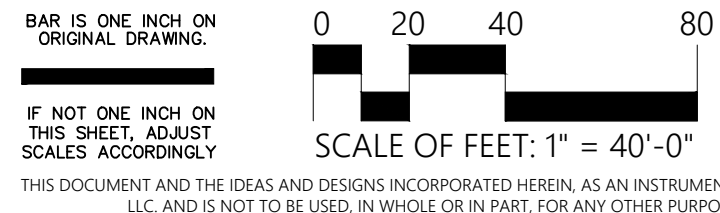
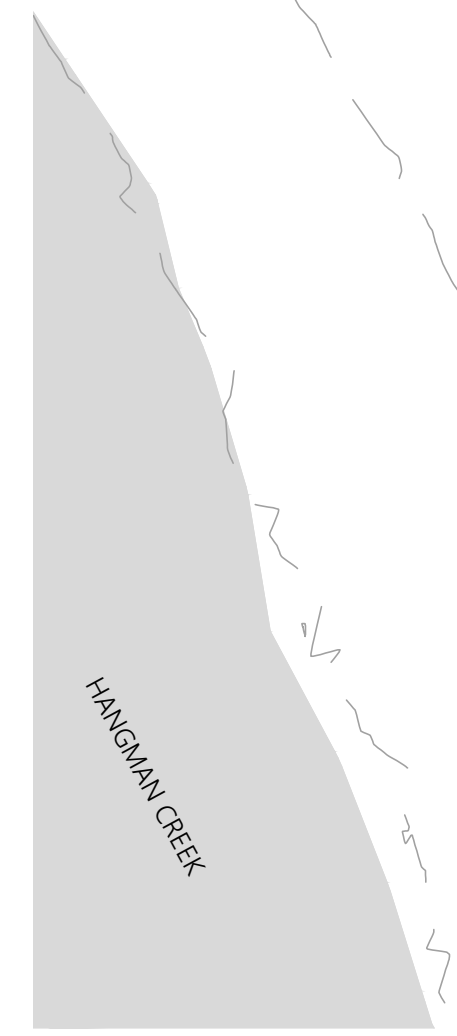
BLUFF ROAD RESTORATION			
PLANTING PLAN			
AVISTA CORPORATION SPOKANE, WASHINGTON			
1" = 40' SCALE	05.24.17 DATE	APPROVED	
DESIGN DN	CHECKED	DATE	
DRAWN RQ	NOTED	MFG. DWG. NO.:	
CHECKED	NOTED	DWG. NO.: LP1.3	

NO	DATE	REVISION	BY	CKD
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PLANT SCHEDULE

SYMBOL	PLANT COMMUNITY	SIZE
	COMMUNITY A - PINE STAND AMELANCHIER ALNIFOLIA / SERVICEBERRY PINUS PONDEROSA / PONDEROSA PINE SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	COMMUNITY B - SHRUB AREA AMELANCHIER ALNIFOLIA / SERVICEBERRY CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	GRASS/FORB MIX ACHILLEA MILLEFOLIUM / WESTERN YARROW BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT ELYMUS LANCEOLATUS PSAMMOPHILUS / STREAMBANK WHEATGRASS FESTUCA IDAHOENSIS / IDAHO FESCUE KOeleria MACRANTHA / PRAIRIE JUNEGRASS LUPINUS SP. / SILKY LUPINE POA SANDBERGII / SANDBERG'S BLUEGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	1% - Hydroseed 7% - Hydroseed 15% - Hydroseed 29% - Hydroseed 15% - Hydroseed 4% - Hydroseed 15% - Hydroseed 15% - Hydroseed
	WILDERNESS MIX ALKAR TALL WHEATGRASS ALSKE CLOVER CLIMAX TIMOTHY DELAR SMALL BURNET GINGER BLUEGRASS GULF ANNUAL RYEGRASS LINCOLN SMOOTH BROMEGRASS MINIMUS HARD FESCUE RUSH INTERMEDIATE WHEATGRASS	9% - Hydroseed 10% - Hydroseed 15% - Hydroseed 10% - Hydroseed 10% - Hydroseed 14% - Hydroseed 10% - Hydroseed 5% - Hydroseed 15% - Hydroseed 10% - Hydroseed



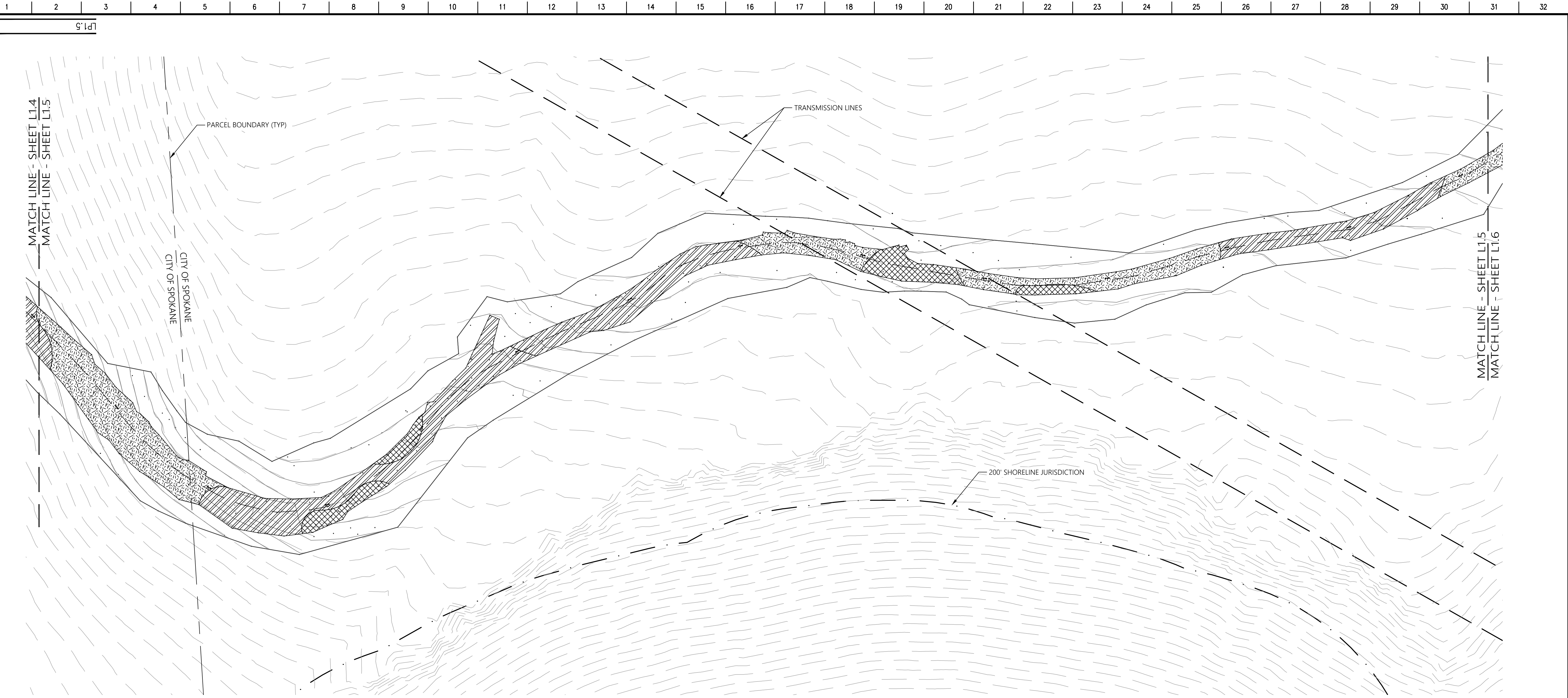
BLUFF ROAD RESTORATION

PLANTING PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	05.24.17	APPROVED
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CHECKED	NOTED	MFG. DWG. NO.:

DWG. NO.: LP1.4



PLANT SCHEDULE

SYMBOL	PLANT COMMUNITY	SIZE
	COMMUNITY A - PINE STAND AMELANCHIER ALNIFOLIA / SERVICEBERRY PINUS PONDEROSA / PONDEROSA PINE SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	COMMUNITY B - SHRUB AREA AMELANCHIER ALNIFOLIA / SERVICEBERRY CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	GRASS/FORB MIX ACHILLEA MILLEFOLIUM / WESTERN YARROW BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT ELYMUS LANCEOLATUS PSAMMOPHILUS / STREAMBANK WHEATGRASS FESTUCA IDAHOENSIS / IDAHO FESCUE KOELERIA MACRANTHA / PRAIRIE JUNEGRASS LUPINUS SP. / SILKY LUPINE POA SANDBERGII / SANDBERG'S BLUEGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	1% - Hydroseed 7% - Hydroseed 15% - Hydroseed 29% - Hydroseed 15% - Hydroseed 4% - Hydroseed 15% - Hydroseed 15% - Hydroseed
	WILDERNESS MIX ALKAR TALL WHEATGRASS ALSIKE CLOVER CLIMAX TIMOTHY DELAR SMALL BURNET GINGER BLUEGRASS GULF ANNUAL RYEGRASS LINCOLN SMOOTH BROMEGRASS MINIMUS HARD FESCUE RUSH INTERMEDIATE WHEATGRASS	9% - Hydroseed 10% - Hydroseed 15% - Hydroseed 10% - Hydroseed 14% - Hydroseed 10% - Hydroseed 5% - Hydroseed 15% - Hydroseed 10% - Hydroseed



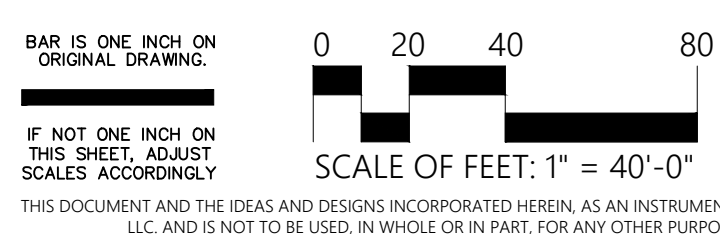
BLUFF ROAD RESTORATION

PLANTING PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

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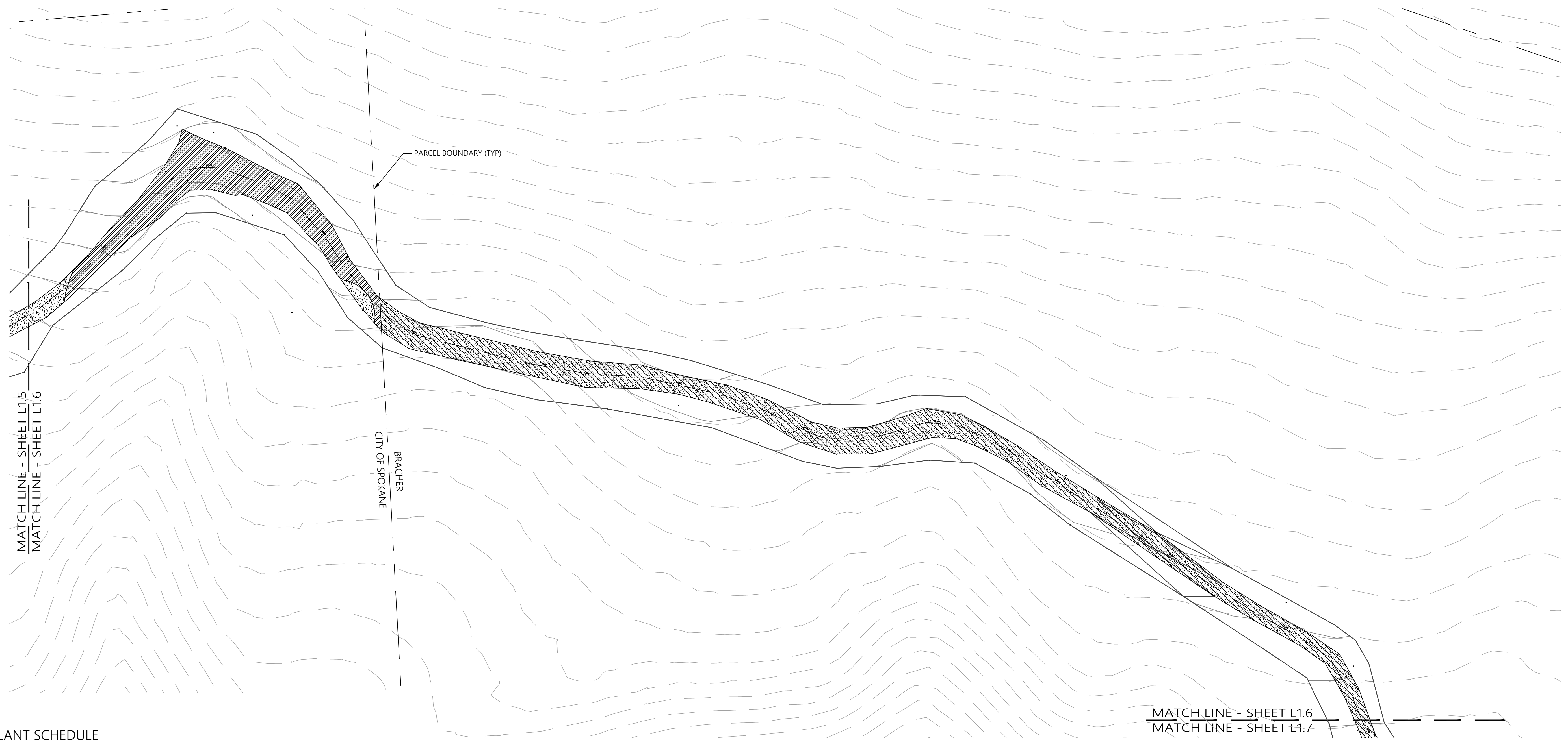
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9' 1d1



PLANT SCHEDULE

SYMBOL	PLANT COMMUNITY	SIZE
	COMMUNITY A - PINE STAND AMELANCHIER ALNIFOLIA / SERVICEBERRY PINUS PONDEROSA / PONDEROSA PINE SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	COMMUNITY B - SHRUB AREA AMELANCHIER ALNIFOLIA / SERVICEBERRY CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG 6"-10" PLUG 6"-10" PLUG SEED
	GRASS/FORB MIX ACHILLEA MILLEFOLIUM / WESTERN YARROW BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT ELYMUS LANCEOLATUS PSAMMOPHILUS / STREAMBANK WHEATGRASS FESTUCA IDAHOENSIS / IDAHO FESCUE KOELERIA MACRANTHA / PRAIRIE JUNEGRASS LUPINUS SP. / SILKY LUPINE POA SANDBERGII / SANDBERG'S BLUEGRASS PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	1% - Hydroseed 7% - Hydroseed 15% - Hydroseed 29% - Hydroseed 15% - Hydroseed 4% - Hydroseed 15% - Hydroseed 15% - Hydroseed
	WILDERNESS MIX ALKAR TALL WHEATGRASS ALSIKE CLOVER CLIMAX TIMOTHY DELAR SMALL BURNET GINGER BLUEGRASS GULF ANNUAL RYEGRASS LINCOLN SMOOTH BROMEGRASS MINIMUS HARD FESCUE RUSH INTERMEDIATE WHEATGRASS	9% - Hydroseed 10% - Hydroseed 15% - Hydroseed 10% - Hydroseed 14% - Hydroseed 10% - Hydroseed 5% - Hydroseed 15% - Hydroseed 10% - Hydroseed

MATCH LINE - SHEET L1.6
MATCH LINE - SHEET L1.7



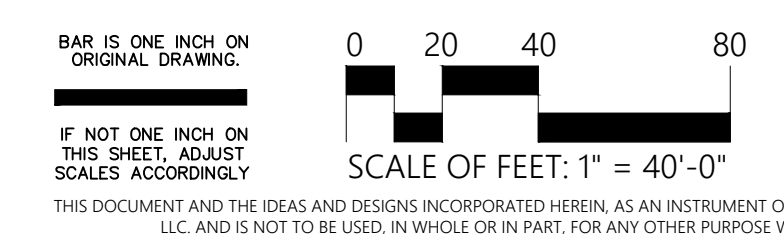
BLUFF ROAD RESTORATION

PLANTING PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

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DWG. NO.: LP1.6

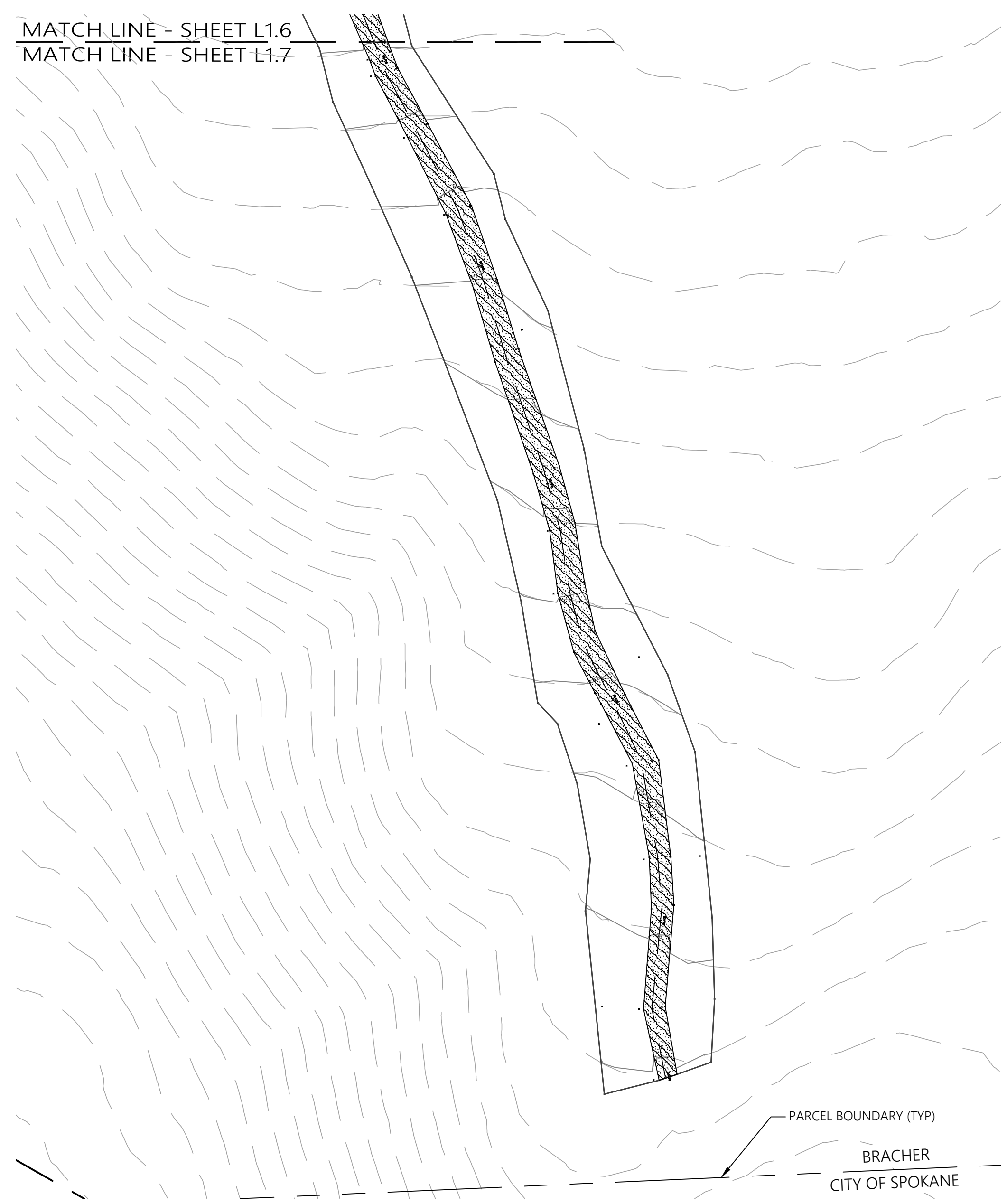


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NO	DATE	REVISION	BY	CKD

L1d1

MATCH LINE - SHEET L1.6
 MATCH LINE - SHEET L1.7



PLANT SCHEDULE - TOTAL PROJECT

SYMBOL	PLANT COMMUNITY	SIZE	QTY
	COMMUNITY A - PINE STAND		
	AMELANCHIER ALNIFOLIA / SERVICEBERRY	6"-10" PLUG	80
	PINUS PONDEROSA / PONDEROSA PINE	6"-10" PLUG	1,150
	SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG SEED	115
	COMMUNITY B - SHRUB AREA		
	AMELANCHIER ALNIFOLIA / SERVICEBERRY	6"-10" PLUG	52
	CRATAEGUS DOUGLASII / DOUGLAS HAWTHORN	6"-10" PLUG	50
	SYMPHORICARPOS ALBUS / COMMON SNOWBERRY GRASS/FORB MIX	6"-10" PLUG SEED	78
	GRASS/FORB MIX		40,381 SF
	ACHILLEA MILLEFOLIUM / WESTERN YARROW	1% - Hydroseed	
	BALSAMORHIZA SAGITTATA / ARROWLEAF BALSAMROOT	7% - Hydroseed	
	ELYMUS LANCEOLATUS PSAMMOPHILLUS / STREAMBANK WHEATGRASS	15% - Hydroseed	
	FESTUCA IDAHOENSIS / IDAHO FESCUE	29% - Hydroseed	
	KOELERIA MACRANTHA / PRAIRIE JUNEGRASS	15% - Hydroseed	
	LUPINUS SP. / SILKY LUPINE	4% - Hydroseed	
	POA SANDBERGII / SANDBERG'S BLUEGRASS	15% - Hydroseed	
	PSEUDOROEGNERIA SPICATA / BLUEBUNCH WHEATGRASS	15% - Hydroseed	
		WILDERNESS MIX	
ALKAR TALL WHEATGRASS		9% - Hydroseed	
ALSIKE CLOVER		10% - Hydroseed	
CLIMAX TIMOTHY		15% - Hydroseed	
DELAR SMALL BURNET		10% - Hydroseed	
GINGER BLUEGRASS		14% - Hydroseed	
GULF ANNUAL RYEGRASS		10% - Hydroseed	
LINCOLN SMOOTH BROMEGRASS		5% - Hydroseed	
MINIMUS HARD FESCUE		15% - Hydroseed	
RUSH INTERMEDIATE WHEATGRASS		10% - Hydroseed	

PARCEL BOUNDARY (TYP)
 BRACHER
 CITY OF SPOKANE



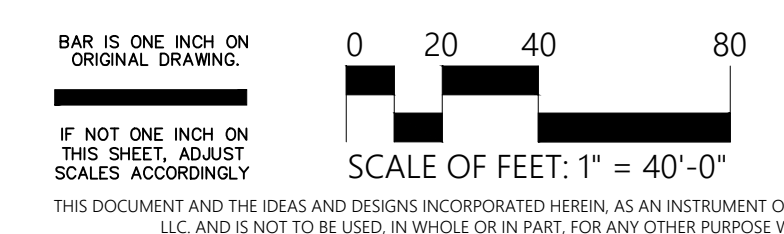
BLUFF ROAD RESTORATION

PLANTING PLAN

AVISTA CORPORATION
 SPOKANE, WASHINGTON

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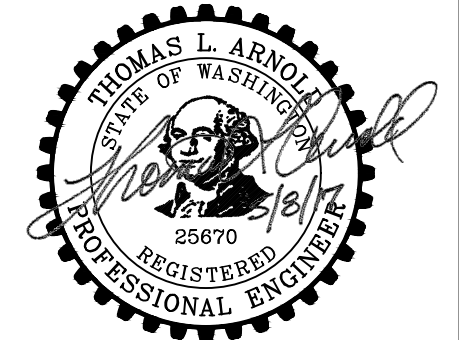
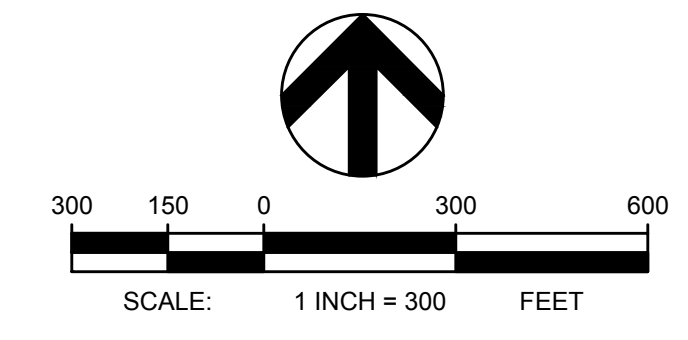
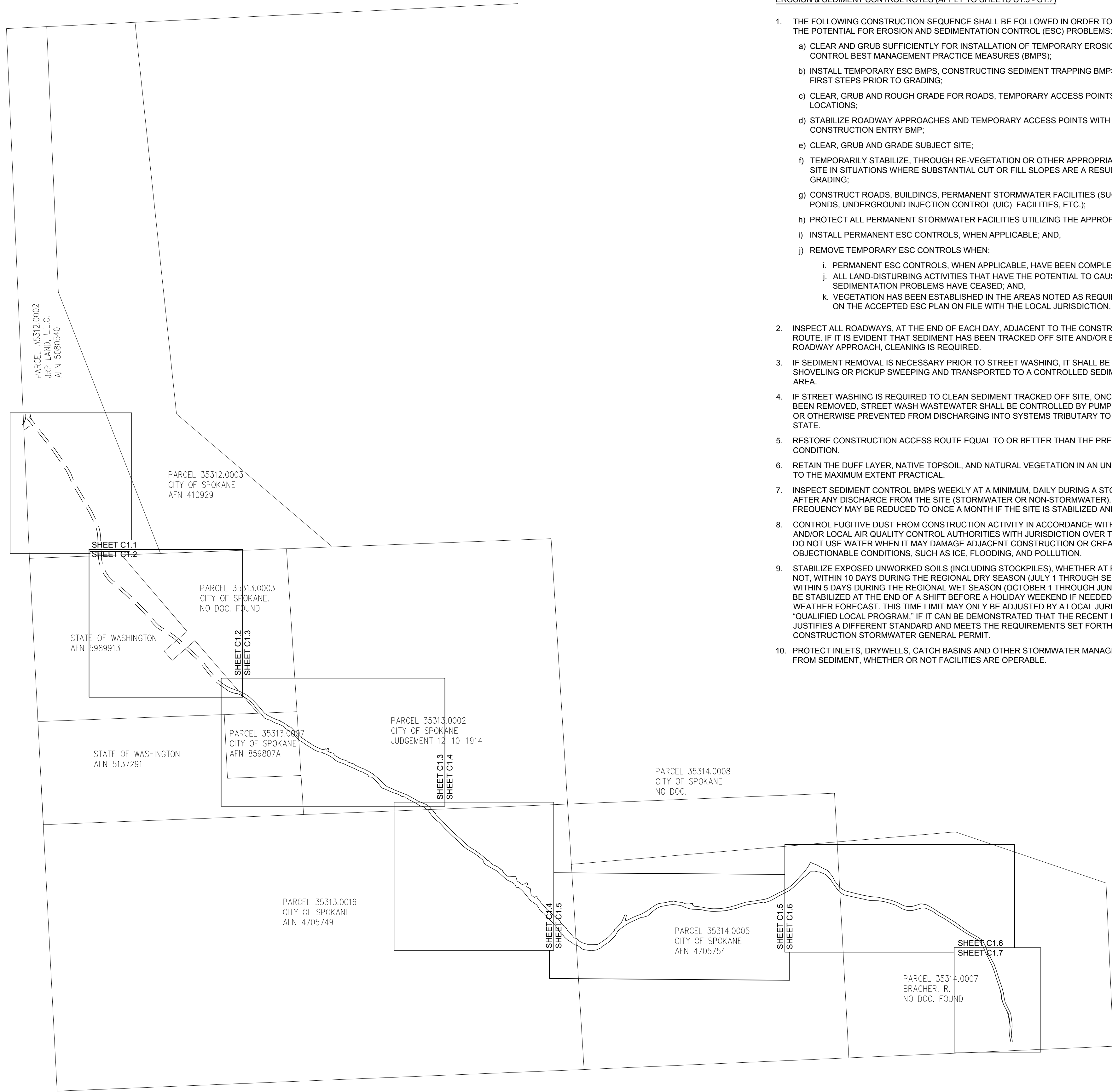
NO	DATE	REVISION	BY	CKD

Attachment 4 - Grading Plan

S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON

EROSION & SEDIMENT CONTROL NOTES (APPLY TO SHEETS C1.3 - C1.7)

1. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL (ESC) PROBLEMS:
 - a) CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES (BMPs);
 - b) INSTALL TEMPORARY ESC BMPs, CONSTRUCTING SEDIMENT TRAPPING BMPs AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
 - c) CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
 - d) STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
 - e) CLEAR, GRUB AND GRADE SUBJECT SITE;
 - f) TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPs, SUBJECT SITE IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
 - g) CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (SUCH AS INLETS, PONDS, UNDERGROUND INJECTION CONTROL (UIC) FACILITIES, ETC.);
 - h) PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPs;
 - i) INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
 - j) REMOVE TEMPORARY ESC CONTROLS WHEN:
 - i. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
 - j. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
 - k. VEGETATION HAS BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.
2. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
3. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
4. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
5. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.
6. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
7. INSPECT SEDIMENT CONTROL BMPs WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER), THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
8. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA. DO NOT USE WATER WHEN IT MAY DAMAGE ADJACENT CONSTRUCTION OR CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING, AND POLLUTION.
9. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
10. PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
11. KEEP ROADS ADJACENT TO INLETS CLEAN.
12. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.
13. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
14. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
15. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NONINERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173.304 OF THE WASHINGTON ADMINISTRATIVE CODE (WAC) FOR THE DEFINITION OF INERT WASTE), USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
16. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
17. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
18. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPs TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPs. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
19. REMOVE TEMPORARY ESC BMPs WITHIN 30 DAYS AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.
20. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES, ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY, INCLUDING OBTAINING THE APPROPRIATE PERMITS AND APPROVALS.
21. EROSION CONTROL MEASURES IN ADDITION TO THOSE INDICATED AS PART OF THIS PLAN MAY BE REQUIRED DUE TO UNFORESEEN CONDITIONS, IF THE MEASURES DO NOT FUNCTION AS INTENDED, OR IF THE AUTHORITIES HAVING JURISDICTION DETERMINE INDICATED MEASURES ARE INADEQUATE.
22. FILTER FENCE SHALL BE USED TO AID IN CONTAINING ANY SEDIMENT ON THE SITE DURING CONSTRUCTION. STABILIZED CONSTRUCTION ENTRANCES SHALL BE USED AT POINTS OF INGRESS AND EGRESS FOR CONSTRUCTION VEHICLES. STORM DRAIN INLET PROTECTION SHALL BE USED ON ALL STORM DRAIN STRUCTURES, INCLUDING CATCH BASINS AND DRYWELLS. THE CONTRACTOR SHALL KEEP THE AREAS ADJACENT TO THE SITE INCLUDING ROADWAYS AND PARKING LOTS FREE FROM DEBRIS. REFER TO THE EROSION AND SEDIMENT CONTROL MEASURE DETAILS FOR ADDITIONAL INFORMATION.
23. PROVIDE A DESIGNATED, POSTED CONCRETE WASHOUT AREA. THE CONCRETE WASHOUT SHALL NOT BE ALLOWED TO DRAIN OFF THE SITE OR INTO ANY EXISTING OR FUTURE STORM DRAINAGE FACILITIES. HARDENED CONCRETE WASHOUT SHALL BE BROKEN UP AND REMOVED FROM THE SITE.
24. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORMWATER DISCHARGES.



UTILITY STATEMENT
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**HIGH DRIVE PARK
BLUFF ROAD RESTORATION**

GRADING AND EROSION CONTROL PLAN

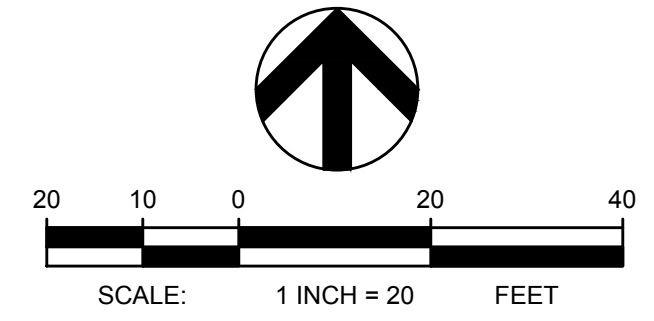
AVISTA CORPORATION
SPOKANE, WASHINGTON

	5/8/17	APPROVED
SCALE	DATE	
DESIGN CWD	CHECKED _____	DATE _____
DRAWN CWD	NOTED _____	MFG. DWG. NO.: _____
CHECKED TLA	NOTED _____	

DWG. NO.: C1.0

NO	DATE	REVISION	BY	CKD

S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON



LEGEND

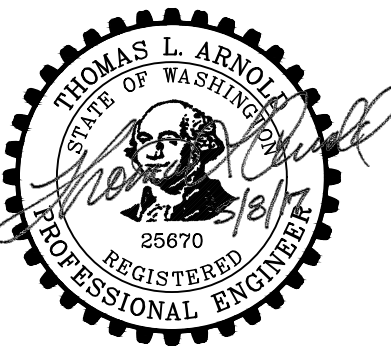
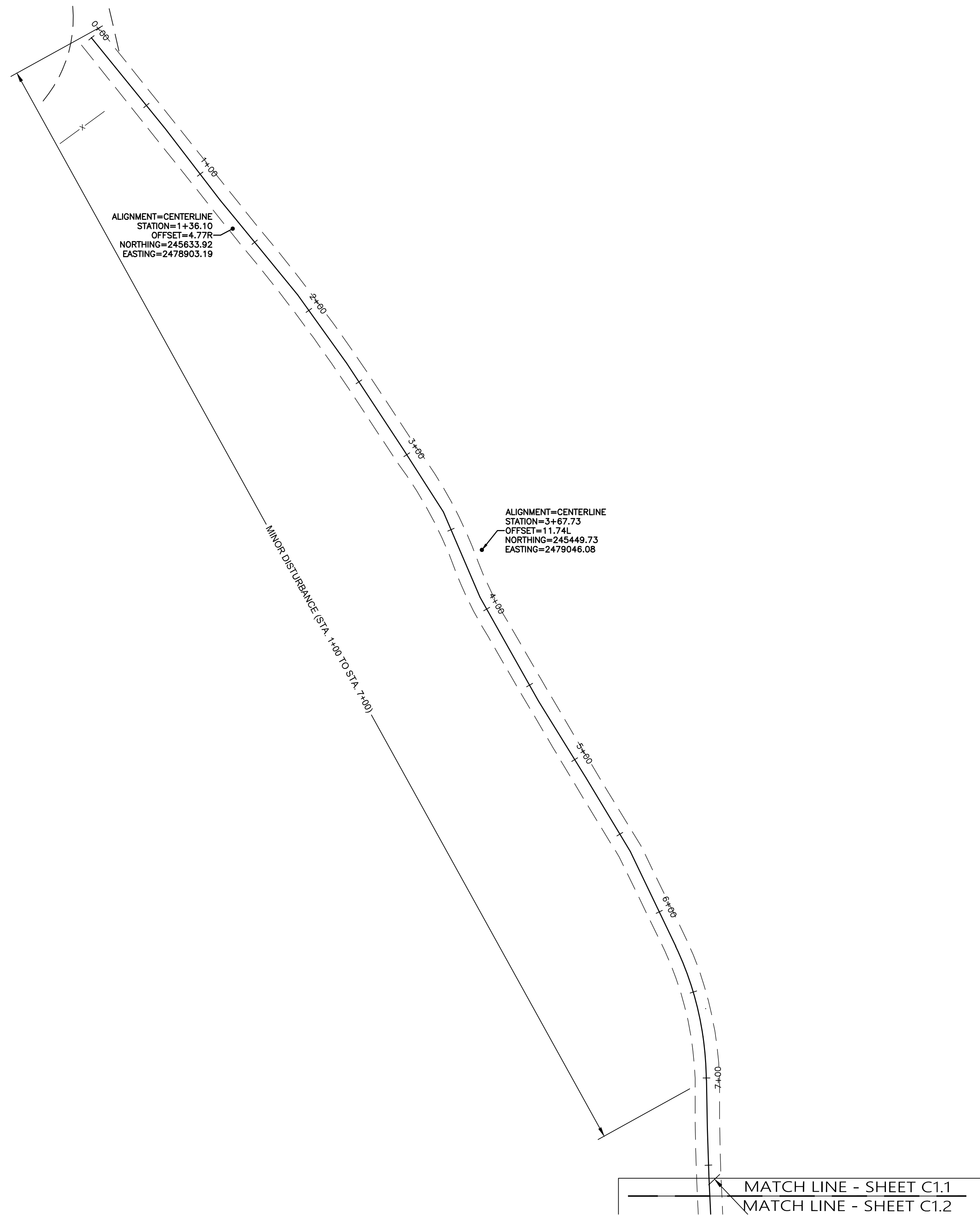
	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD

EARTHWORK

CUT = 825.31 CU. YD.
FILL = 1474.59 CU. YD.
TOTAL = 649.27 CU. YD. (FILL)

NOTE:

ABOVE EARTHWORK QUANTITIES REPRESENT CUMULATIVE CUT AND FILL FOR SHEETS C1.3 - C1.7.



HIGH DRIVE PARK
BLUFF ROAD RESTORATION
GRADING AND EROSION CONTROL PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED
SCALE	DATE	
DESIGN CWD	CHECKED	DATE
DRAWN CWD	NOTED	
CHECKED TLA	NOTED	MFG. DWG. NO.:

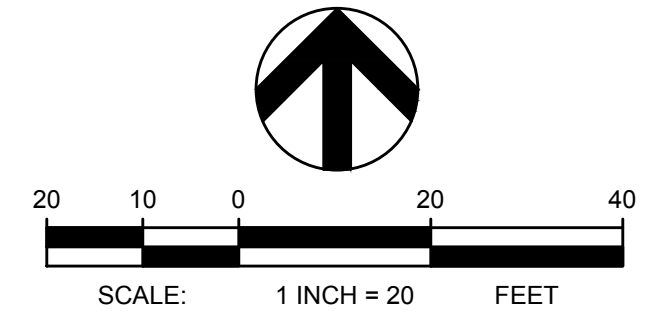
UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



NO	DATE	REVISION	BY	CKD
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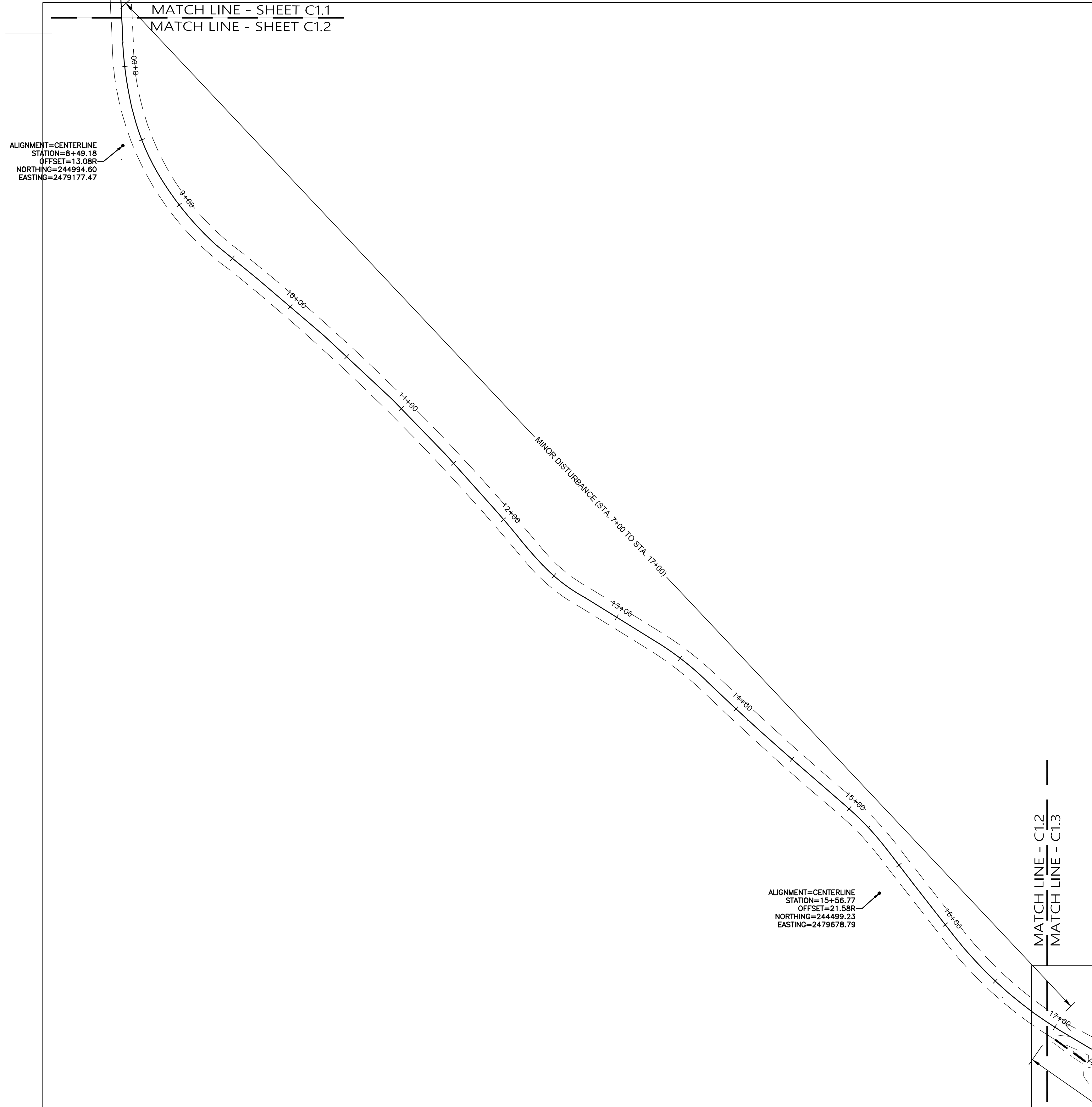
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S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON



LEGEND

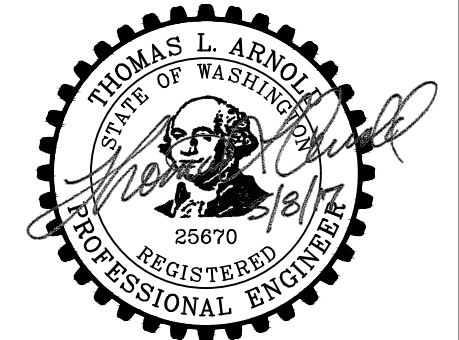
	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD



ALIGNMENT= CENTERLINE
 STATION= 8+49.18
 OFFSET= 13.08R
 NORTHING= 244994.60
 EASTING= 2479177.47

ALIGNMENT= CENTERLINE
 STATION= 15+56.77
 OFFSET= 21.58R
 NORTHING= 244499.23
 EASTING= 2479678.79

MATCH LINE - C1.2
 MATCH LINE - C1.3



**HIGH DRIVE PARK
 BLUFF ROAD RESTORATION**

GRADING AND EROSION CONTROL PLAN

AVISTA CORPORATION
 SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED	
SCALE	DATE		
DESIGN CWD	CHECKED		DATE
DRAWN CWD	NOTED		
CHECKED TLA	NOTED		MFG. DWG. NO.:

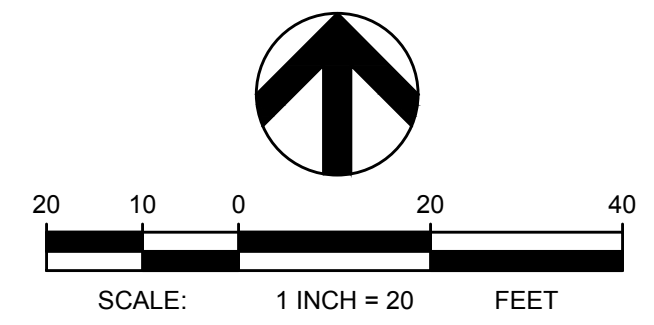
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UTILITY STATEMENT
 LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



NO	DATE	REVISION	BY	CKD

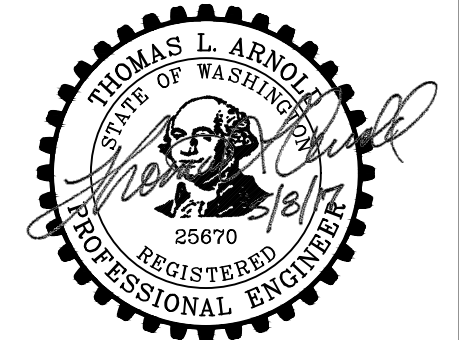
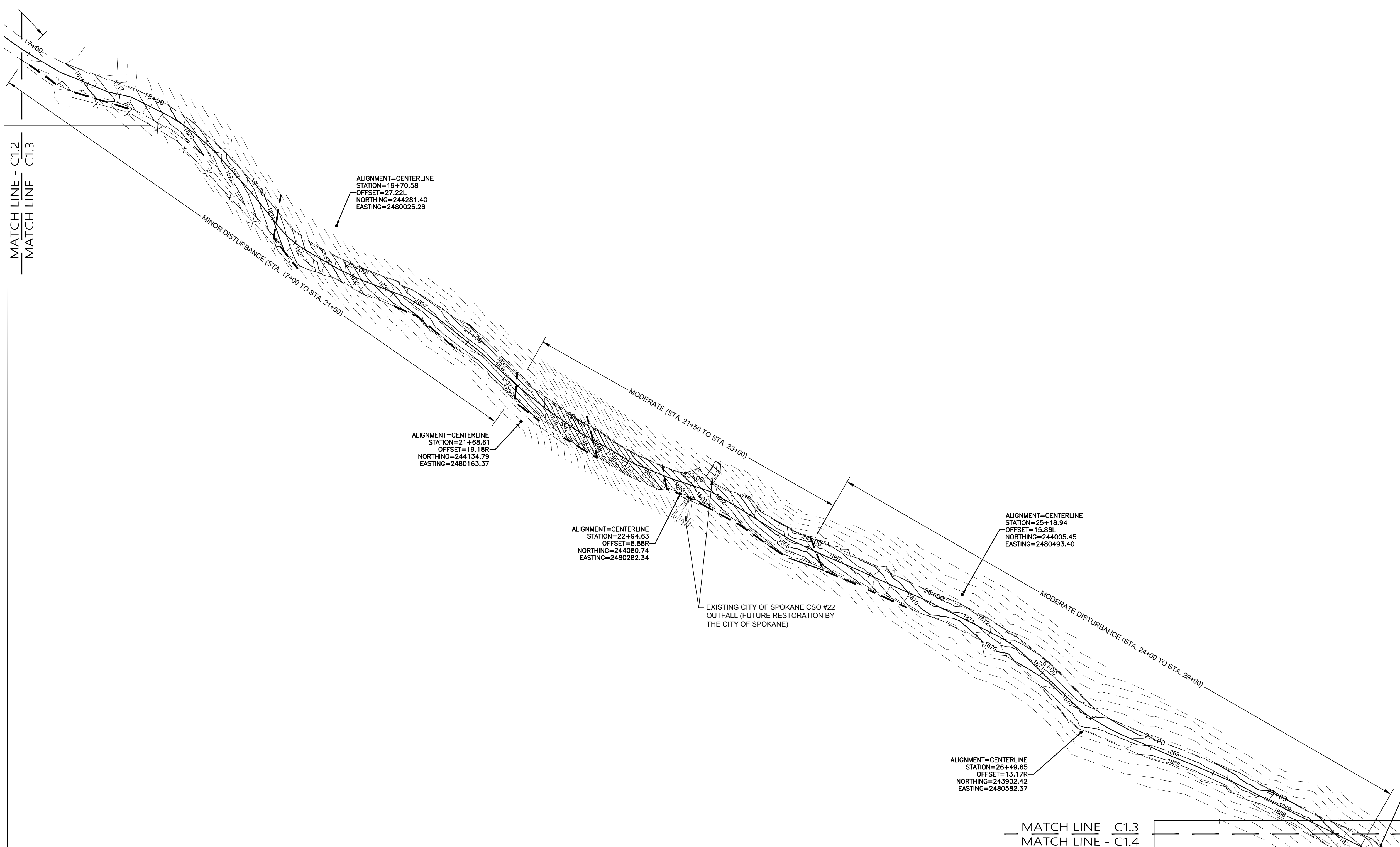
S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON



LEGEND

	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD

- NOTES**
- CONTRACTOR SHALL USE NATIVE SOILS FOR RESTORATION OF SLOPE.
 - FOR SLOPE RESTORATION, SEE SHEETS ____.



**HIGH DRIVE PARK
BLUFF ROAD RESTORATION**

GRADING AND EROSION CONTROL PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED
SCALE	DATE	
DESIGN CWD	CHECKED	DATE
DRAWN CWD	NOTED	
CHECKED TLA	NOTED	MFG. DWG. NO.:

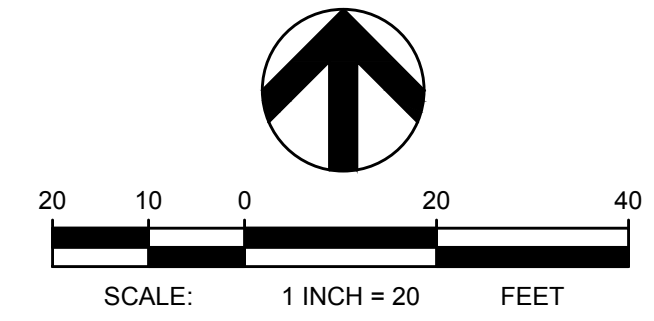
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UTILITY STATEMENT
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NO	DATE	REVISION	BY	CKD

S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON

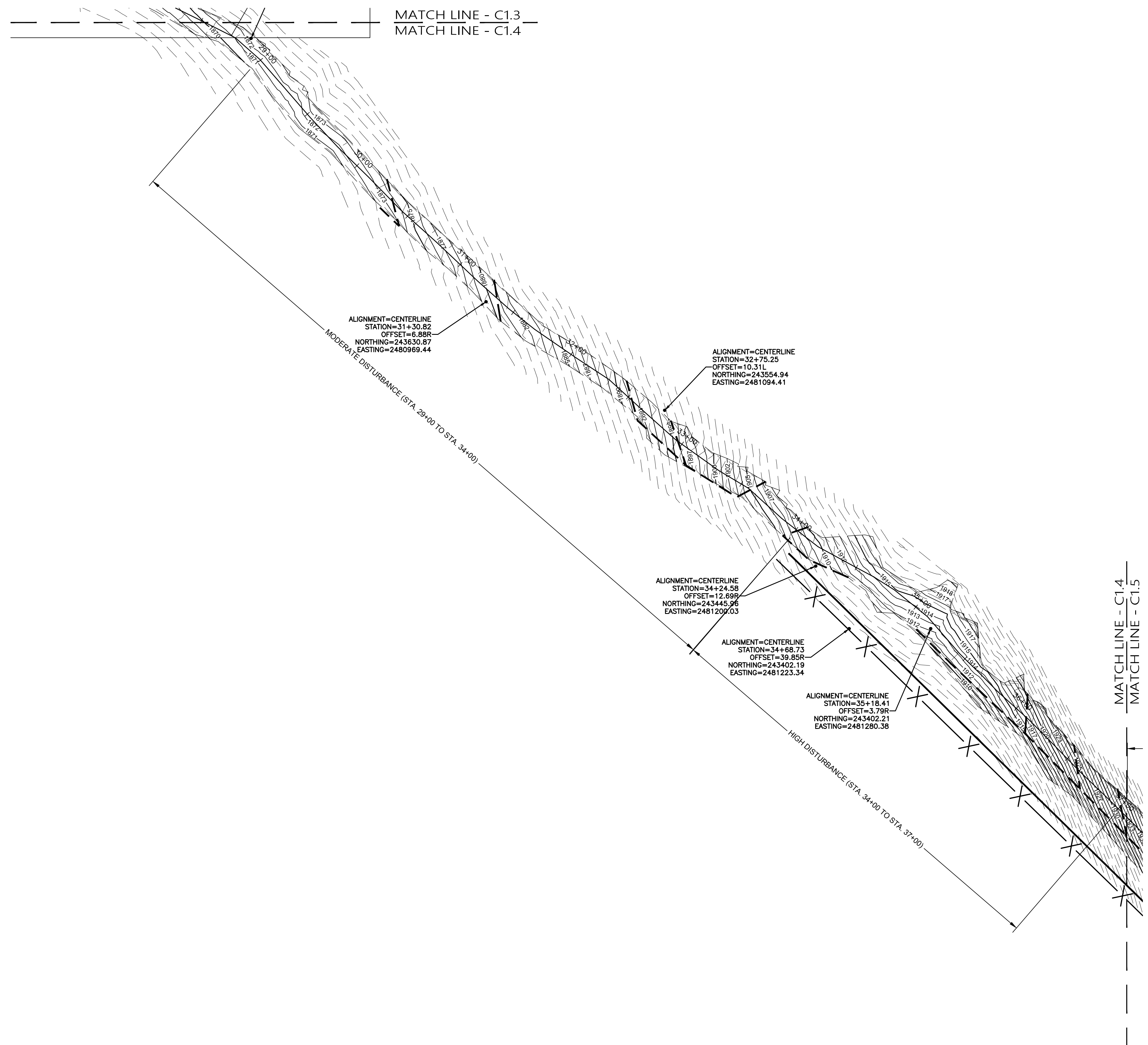


LEGEND

	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD

NOTES

1. CONTRACTOR SHALL USE NATIVE SOILS FOR RESTORATION OF SLOPE.
2. FOR SLOPE RESTORATION, SEE SHEETS ____.



ALIGNMENT=CENTERLINE
STATION=31+30.82
OFFSET=6.88R
NORTHING=243630.87
EASTING=2480969.44

ALIGNMENT=CENTERLINE
STATION=32+75.25
OFFSET=10.31L
NORTHING=243554.94
EASTING=2481094.41

ALIGNMENT=CENTERLINE
STATION=34+24.58
OFFSET=12.89R
NORTHING=243445.96
EASTING=2481200.03

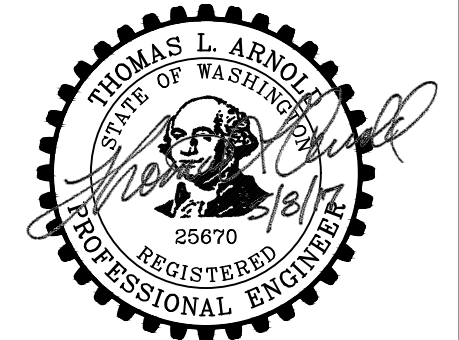
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EASTING=2481223.34

ALIGNMENT=CENTERLINE
STATION=35+18.41
OFFSET=3.79R
NORTHING=243402.21
EASTING=2481280.38

MODERATE DISTURBANCE (STA. 29+00 TO STA. 34+00)

HIGH DISTURBANCE (STA. 34+00 TO STA. 37+00)

MATCH LINE - C1.4
MATCH LINE - C1.5



UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



**HIGH DRIVE PARK
BLUFF ROAD RESTORATION**

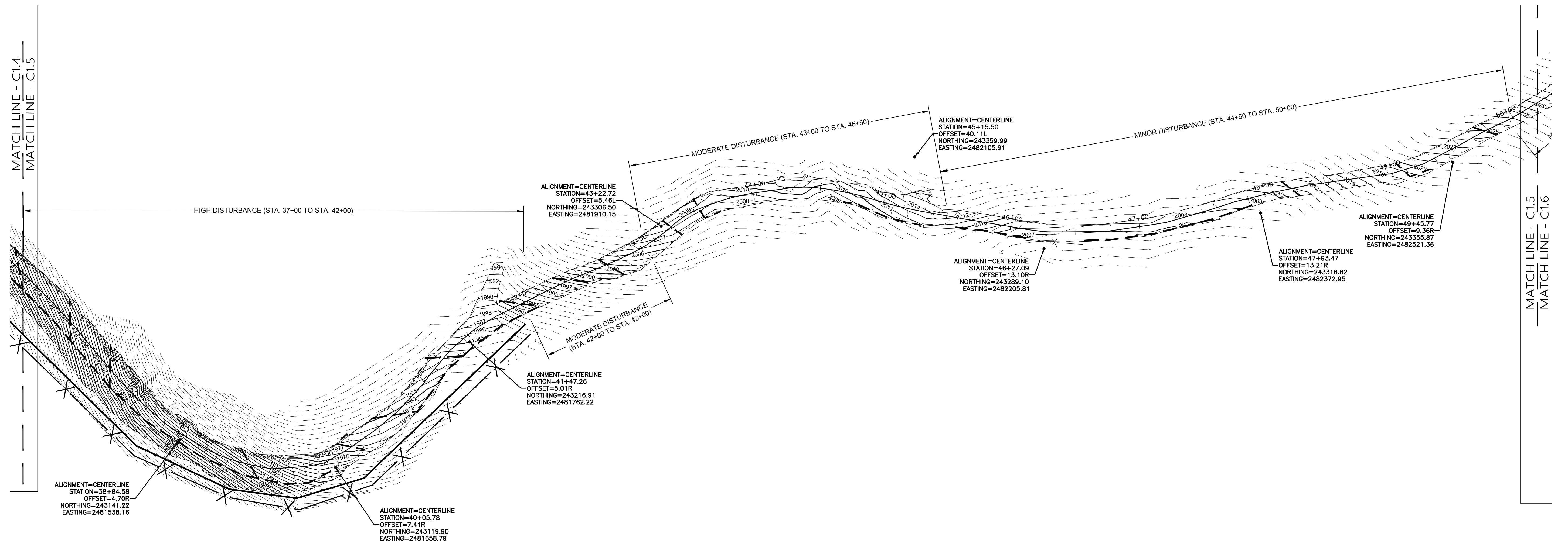
GRADING AND EROSION CONTROL PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED
SCALE	DATE	
DESIGN CWD	CHECKED	DATE
DRAWN CWD	NOTED	
CHECKED TLA	NOTED	MFG. DWG. NO.:

DWG. NO.: C1.4

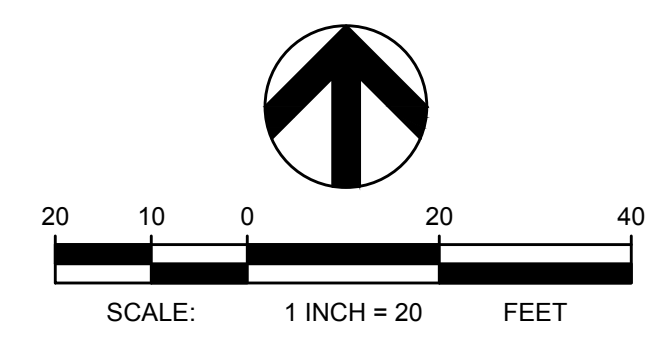
S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON



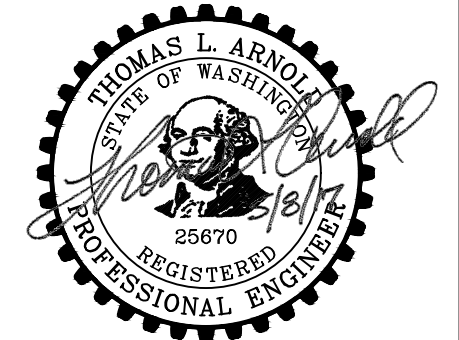
LEGEND

	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD

- NOTES**
- CONTRACTOR SHALL USE NATIVE SOILS FOR RESTORATION OF SLOPE.
 - FOR SLOPE RESTORATION, SEE SHEETS ____.



UTILITY STATEMENT
 LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



**HIGH DRIVE PARK
BLUFF ROAD RESTORATION**

GRADING AND EROSION CONTROL PLAN

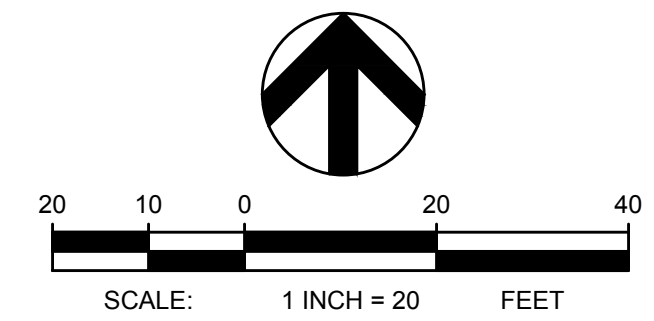
AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED
SCALE	DATE	
DESIGN CWD	CHECKED	DATE
DRAWN CWD	NOTED	
CHECKED TLA	NOTED	MFG. DWG. NO.:

DWG. NO.: C1.5

NO	DATE	REVISION	BY	CKD
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S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON

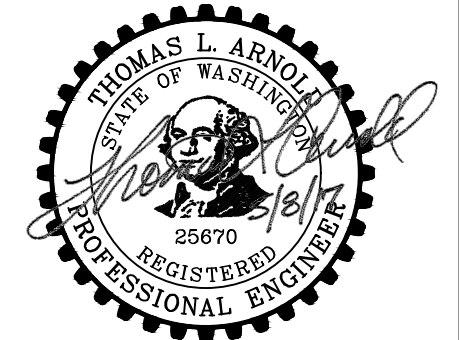
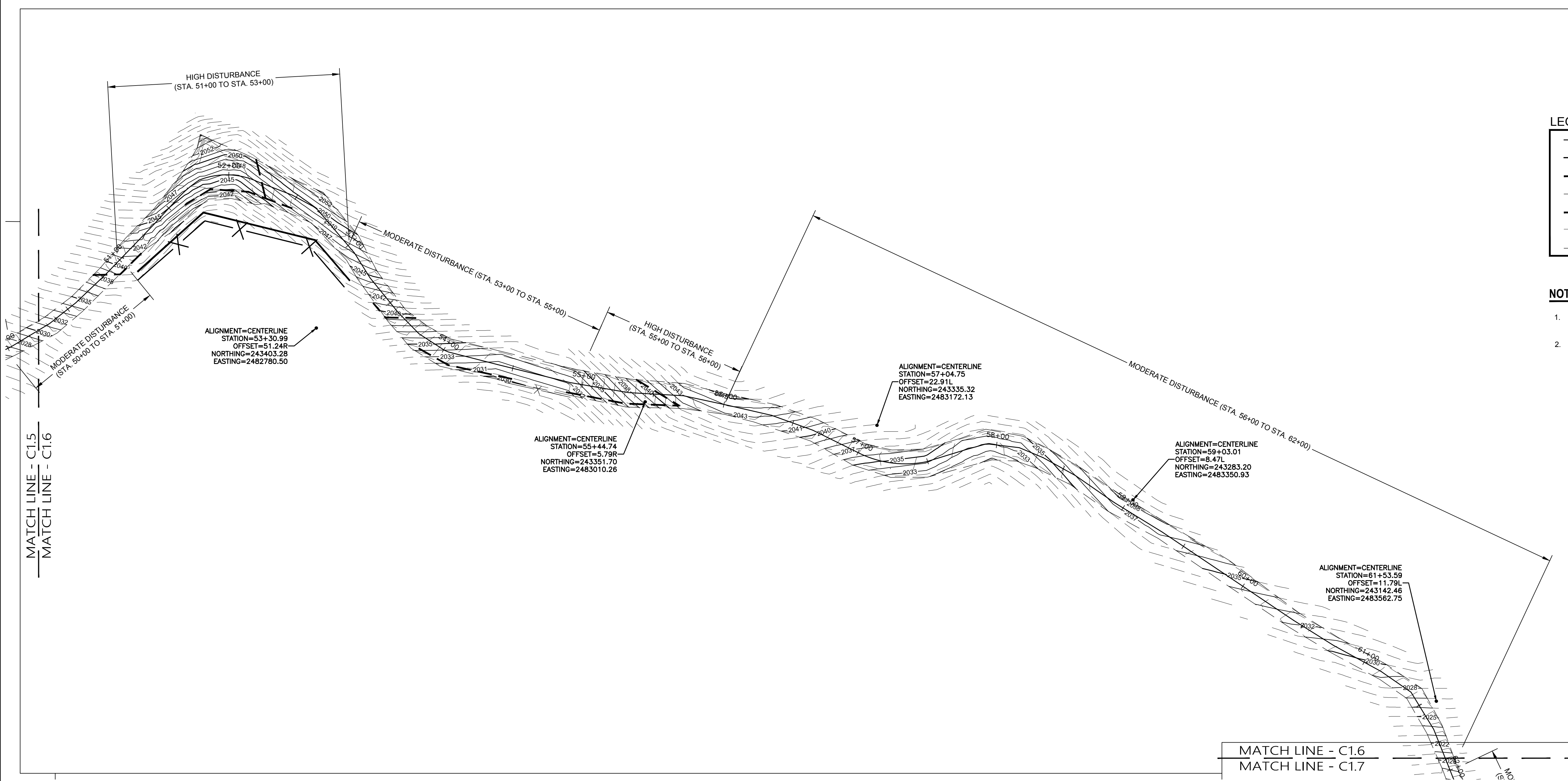


LEGEND

	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD

NOTES

1. CONTRACTOR SHALL USE NATIVE SOILS FOR RESTORATION OF SLOPE.
2. FOR SLOPE RESTORATION, SEE SHEETS ____.



**HIGH DRIVE PARK
BLUFF ROAD RESTORATION**

GRADING AND EROSION CONTROL PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED	
SCALE	DATE		
DESIGN CWD	CHECKED		DATE
DRAWN CWD	NOTED		
CHECKED TLA	NOTED		MFG. DWG. NO.:

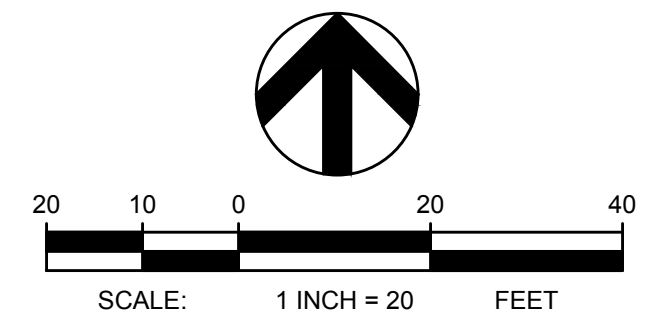
DWG. NO.: C1.6

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

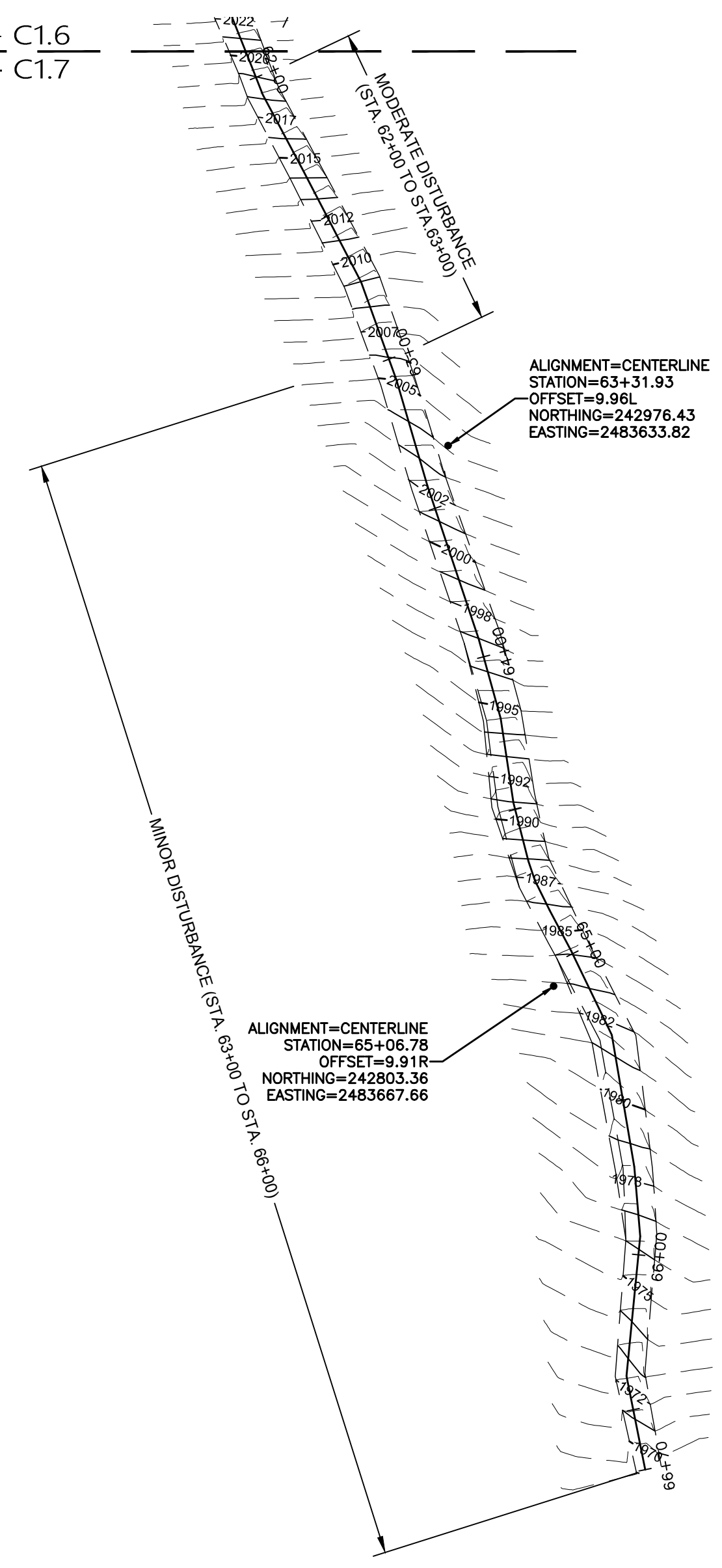


NO	DATE	REVISION	BY	CKD

S. 31, T.25N., R.43E., W.M., CITY OF SPOKANE, SPOKANE COUNTY, WASHINGTON



MATCH LINE - C1.6
MATCH LINE - C1.7



LEGEND

	PROPOSED CONTOURS
	PROPOSED SILT FENCE
	PROPOSED STRAW WATTLE
	EXISTING SILT FENCE
	EXISTING STRAW WATTLE
	EXISTING CONTOURS
	EXISTING EDGE OF ROAD

NOTES

1. CONTRACTOR SHALL USE NATIVE SOILS FOR RESTORATION OF SLOPE.
2. FOR SLOPE RESTORATION, SEE SHEETS ____.



**HIGH DRIVE PARK
BLUFF ROAD RESTORATION**

GRADING AND EROSION CONTROL PLAN

AVISTA CORPORATION
SPOKANE, WASHINGTON

1" = 40'	5/8/17	APPROVED
SCALE	DATE	
DESIGN CWD	CHECKED _____	
DRAWN CWD	NOTED _____	DATE
CHECKED TLA	NOTED _____	MFG. DWG. NO.:

DWG. NO.: C1.7

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



NO	DATE	REVISION	BY	CKD

Bluff Road Restoration Project

Attachment 5 - Additional Photos

Bluff Road Restoration Project

