

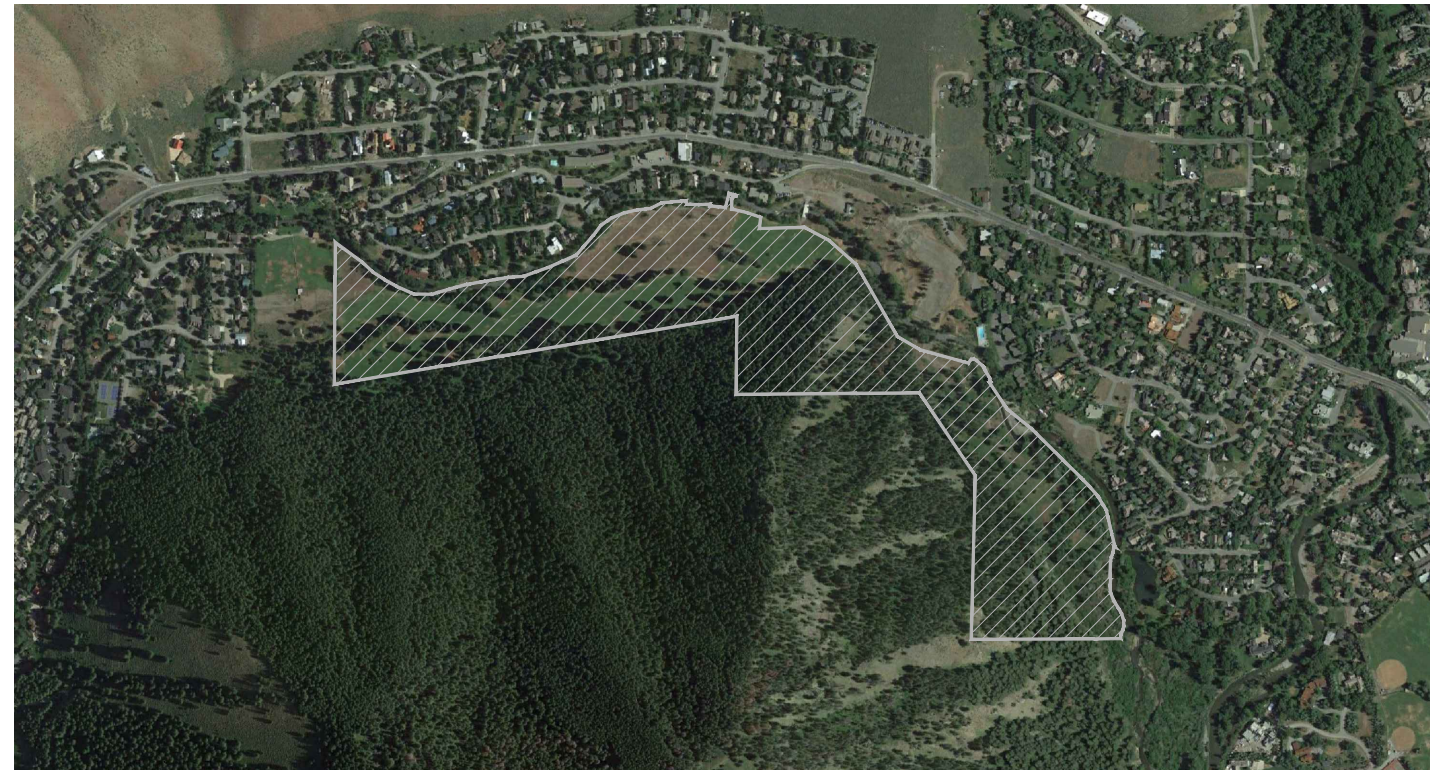
PROJECT NARRATIVE

A FORMER GOLF COURSE SAVED BY THE COMMUNITY, WARM SPRINGS PRESERVE IS AN EXTRAORDINARY OPPORTUNITY TO ENHANCE A WELL-LOVED LANDSCAPE AND IMPORTANT ECOSYSTEM IN THE KETCHUM COMMUNITY. IN 2022-2023 THE CITY OF KETCHUM CONDUCTED EXTENSIVE COMMUNITY OUTREACH TO DEVELOP A VISION PLAN FOR THE FUTURE OF THE PRESERVE, INCLUDING 10-ACRES OF CREEK AND FLOODPLAIN RESTORATION, UNIVERSALLY ACCESSIBLE (ADA) TRAIL IMPROVEMENTS, NEW IRRIGATION AND IMPROVED ACCESS AND PARKING. THESE ITEMS WERE OUTLINED AND REQUIRED THROUGH THE DEED OF TRANSFER WHEN THE CITY ACQUIRED THE PROPERTY, AND THE VISION PLAN WAS APPROVED BY KETCHUM CITY COUNCIL IN APRIL 2023. DUE TO THE SCALE OF THE PROJECT, THE IMPROVEMENTS INCLUDED IN THE VISION PLAN THE PROJECT MAY BE DEVELOPED IN PHASES.

AREA B: FLOODPLAIN AND MIDDLE TERRACE RESTORATION: THIS DESIGN PACKAGE INCLUDES RESTORATION DESIGN WITHIN THE FLOODPLAIN ZONE ADJACENT TO WARM SPRINGS CREEK. THE PROPOSED DESIGN SEEKS TO RESTORE THE STATED CHARACTERISTICS OF THE RIVER, FLOODPLAIN, AND RIPARIAN ZONE. NUMEROUS IN-CHANNEL ALTERATIONS ARE PROPOSED TO INCLUDE POOL AND CHANNEL EXCAVATION, INSTALLATION OF LARGE WOODY DEBRIS, AND INSTALLATION OF CONSTRUCTED RIFFLES TO ACHIEVE THE PROJECT GOALS AND OBJECTIVES. THE RESTORATION PLAN INTEGRATES ELEMENTS OF LIMITING DISTURBANCE TO AREAS IDENTIFIED BY THE LANDOWNER (CITY OF KETCHUM), IMPROVING IRRIGATION, RESTORING PROCESSES FOR IMPROVED RIVER-FLOODPLAIN FUNCTION, AND REHABILITATION AND ENHANCEMENT OF FISH HABITATS. THE PROJECT IS PART OF THE LARGER WARM SPRINGS PRESERVE PROJECT, WHICH IS DETAILED IN THE WARM SPRINGS PRESERVE MASTER PLAN, APPROVED BY KETCHUM CITY COUNCIL IN 2023. A PARALLEL APPLICATION HAS BEEN SUBMITTED FOR THE PROPOSED DRIVEWAY ALTERATIONS AND NEW RESTROOM AND MAINTENANCE BUILDING, WHICH IS NOT IN THE FLOODPLAIN ZONE.

LEGAL DESCRIPTION

WARM SPRINGS RANCH RESORT PUD BLK 2 IN CODE AREA 003002
ADDRESS: 201-311 BALD MOUNTAIN ROAD, KETCHUM, ID 83340



VICINITY MAP

NOT TO SCALE

PROJECT LOT COVERAGE

TOTAL SQUARE FOOTAGE – BLOCK 6 = 195,647 SF (LOT COVERAGE OF BUILDING AND PARKING = 7.8%)
TOTAL SQUARE FOOTAGE – ENTIRE WARM SPRINGS PRESERVE = 5,623,930 (LOT COVERAGE OF BUILDING AND PARKING 0.2 %)

TEAM NAMES + CONTACTS

OWNER
CITY OF KETCHUM, IDAHO

ADDRESS:
CITY OF KETCHUM
PO BOX 2315 191 5TH ST
KETCHUM, IDAHO 83340

CONTACT | BEN WHIPPLE
EMAIL | BWHIPPLE@KETCHUMIDAHO.ORG

LANDSCAPE ARCHITECTURE
SUPERBLOOM

ADDRESS:
750 PENNSYLVANIA AVE.
DENVER, COLORADO 80203
WWW.SUPERBLOOM.NET

CONTACT | STACY PASSMORE
EMAIL | STACY@SUPERBLOOM.NET
PHONE | 720.310.0255

ARCHITECTURE
MICHAEL DOTY ASSOCIATES,
ARCHITECTS PC

ADDRESS:
371 WASHINGTON AVE NORTH
KETCHUM, IDAHO 83340

CONTACT | MICHAEL DOTY, AIA
PHONE | 208.726.4228

IRRIGATION
BAER DEESIGN GROUP, LLC

ADDRESS:
10674 N SAGE HOLLOW WAY
BOISE, ID 83714

CONTACT | GREG BAER
EMAIL | GREG@BAERDG.COM
PHONE | 208.859.1980

APPLIED SCIENCE & ENGINEERING
RIO APPLIED SCIENCE & ENGINEERING

ADDRESS:
3380 WEST AMERICANA TERRACE, SUITE 390,
BOISE, ID 83706

CONTACT | ROB RICHARDSON
PHONE | 208.559.4615

RESTORATION ENGINEER & GEOMORPHOLOGY
MORELL ENGINEERING

CONTACT | MATT MORELL
PHONE | 208.726.2844

CIVIL ENGINEERING
BENCHMARK ASSOCIATES

ADDRESS:
3380 WEST AMERICANA TERRACE, SUITE 390,
BOISE, ID 83706

CONTACT | PHOEBE JOHANNESSEN P.E.
EMAIL | PHOEBE@GALENA-BENCHMARK.COM
PHONE | 208.726.9516 EXT.116

RESTORATION PLANTING
INTERMOUNTAIN AQUATICS

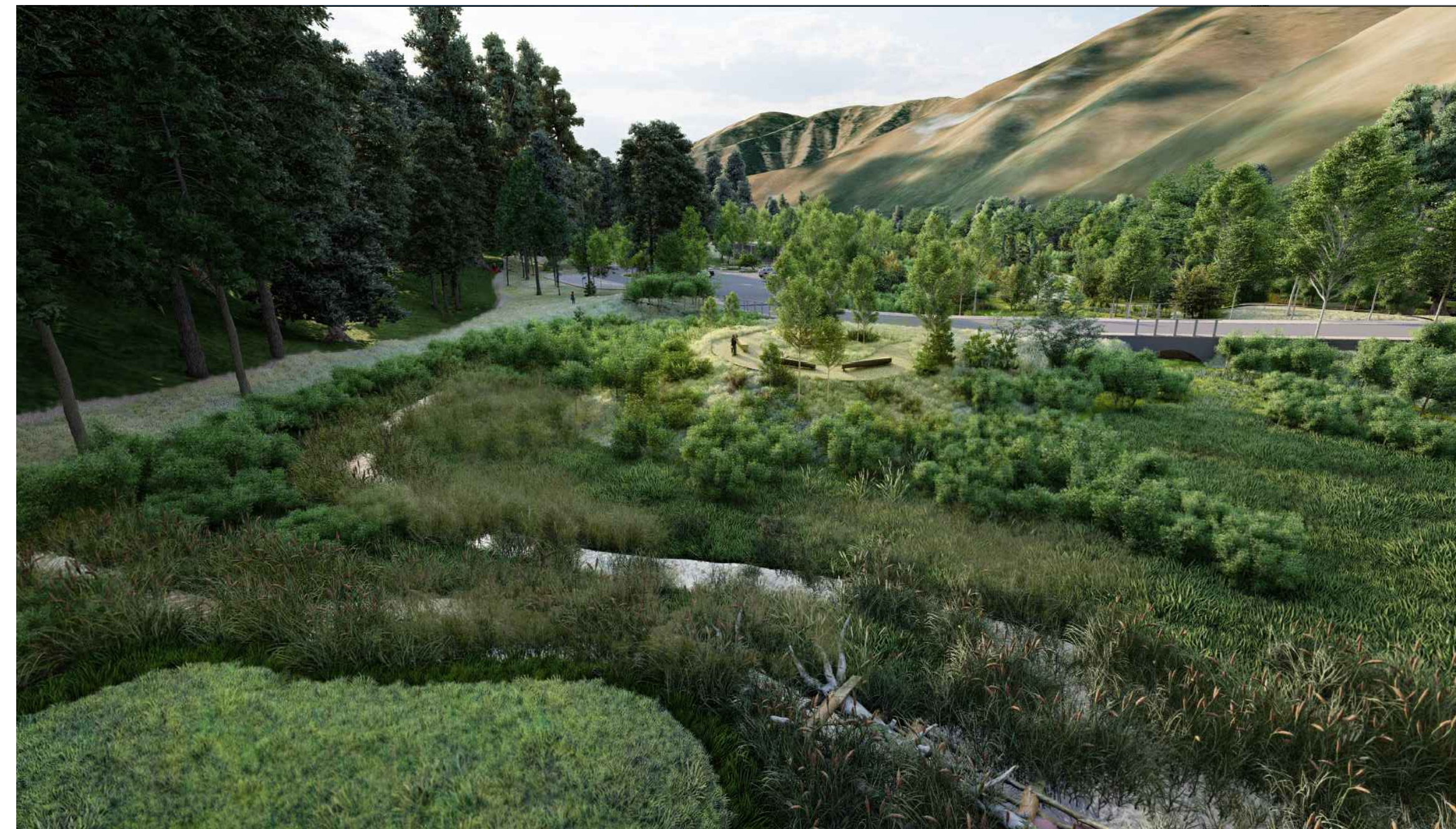
ADDRESS:
1499 S 600 W
REXBURG, ID 83401

CONTACT | JEFF KLAUSSMAN
EMAIL | JEFF@NORTHFORKNATIVEPLANTS.COM
PHONE | 208.354.3691

WARM SPRINGS PRESERVE

FLOODPLAIN DEVELOPMENT PERMIT LANDSCAPE & REVEGETATION PLANS

Issued: 12/10/24



ILLUSTRATIVE RENDERING

LANDSCAPE GENERAL NOTES

- ALL EXISTING GRADING, CURB LAYOUT, EASEMENTS AND UTILITIES ARE BASED ON SURVEY INFORMATION PREPARED BY MARK PHILLIPS (2023) AND RIO APPLIED SCIENCE & ENGINEERING (2023) AND ARE SHOWN FOR INFORMATION ONLY.
- ALL PROPOSED UTILITIES, STREET LAYOUT, AND STREET & ROAD GRADING INFORMATION WAS PREPARED BY BENCHMARK ASSOCIATES ENGINEERING AND ARE SHOWN FOR INFORMATION ONLY. REFER TO CIVIL CONSTRUCTION DRAWING PACKAGE FOR FURTHER INFORMATION. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
- CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES ABOVE AND BELOW GRADE PRIOR TO CONSTRUCTION.
- FINAL LIGHTING LOCATIONS TO BE STAKED AND CONFIRMED WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. STREET LIGHTING WILL BE PROVIDED ON SITE PER CIVIL CONSTRUCTION DRAWINGS. CONTRACTOR TO VERIFY LOCATIONS IN FIELD PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES.
- ALL ARCHITECTURAL ELEMENTS ARE SHOWN ON LANDSCAPE PLANS FOR REFERENCE ONLY. DEMOLITION AND PROPOSED ARCHITECTURAL BUILDING DOCUMENTATION SHALL BE PROVIDED UNDER SEPARATE COVER BY ARCHITECT OR MICHAEL DOTY ARCHITECTS.
- THESE DRAWINGS USE A SYSTEM OF KEYNOTES FOR MATERIAL DESIGNATIONS AND SPECIFIC SITUATION NOTES. CONTRACTOR TO BE FAMILIAR WITH SYSTEM PRIOR TO COMMENCING WORK. CONTACT LANDSCAPE ARCHITECT IF CONFLICTS ARE FOUND OR SYSTEM IS NOT CLEAR.
- WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
- ALL LAYOUT DIMENSIONS ARE FROM PLAN VIEW CALCULATIONS. FIELD DIMENSIONS MAY VARY FROM PLAN DUE TO ACTUAL LENGTHS ALONG SLOPED SURFACES.
- ALL LAYOUT DIMENSIONS ARE TO BACK OF CURB, FACE OF WALL, CENTERLINE OF ARCHITECTURAL COLUMN, AND/OR FACE OF BUILDING UNLESS OTHERWISE NOTED.
- DIMENSIONS MARKED "VERIFY" ARE TO BE FIELD MEASURED. ANY DISCREPANCIES FROM THE NOTED DIMENSIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONTINUING WORK.
- COORDINATE PROPOSED WALKS AND RAMPS WITH EXISTING CONDITIONS. LAYOUT OF ARCS TO BE SMOOTH AND CONTINUOUS. STAKE PROPOSED WALKS AND REVIEW IN FIELD WITH ARCHITECT PRIOR TO FORMING.
- UNLESS OTHERWISE NOTED, FOR ALL ATTACHED AND DETACHED CITY SIDEWALKS, ACCESSIBLE RAMPS AND CURB & GUTTER WITHIN RIGHT-OF-WAY, REFER TO CIVIL DRAWINGS.
- CONTRACTOR SHALL VERIFY ALL WALK WIDTHS, GRADES AND ADJACENT CONDITIONS PRIOR TO STARTING WORK AND SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY AND ALL DISCREPANCIES.
- ALL UTILITY EASEMENTS AS NOTED HEREIN SHALL REMAIN UNOBSTRUCTED AND FULLY ACCESSIBLE ALONG THEIR ENTIRE LENGTH FOR MAINTENANCE EQUIPMENT ENTRY.
- LIMIT OF WORK LINE FOR CONSTRUCTION IS SHOWN DIAGRAMMATICALLY AND OCCURS AT BACK OF CURB, FACE OF BUILDING OR PROPERTY LINE UNLESS OTHERWISE NOTED.
- DRAWING AND PLAN NOTES REPRESENT FINISHED, BUILT CONDITIONS. ALL BRACING, TEMPORARY SUPPORTS AND SHORING NECESSARY FOR CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- ALL SYMBOLS ARE SHOWN DIAGRAMMATICALLY ILLUSTRATING APPROXIMATE LOCATION OF EXISTING AND PROPOSED MATERIALS. ANY DISCREPANCIES OR CONFLICTS BETWEEN EXISTING AND PROPOSED CONDITIONS SHALL BE REPORTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.
- ALL FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF AURORA FENCE, WALL, AND AWNING STANDARDS CHAPTER 146-4.7.9, EXCEPT WHERE OTHERWISE NOTED AND ACCEPTED BY THE CITY OF AURORA.
- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION PERTAINING TO THE PROJECT MATERIALS, PROCEDURES AND INSTALLATION.

SHEET NUMBER

- L0.00
- L0.01
- C1.0
- C2.0
- C2.1
- C3.0
- L1.00
- L1.01
- L1.02
- L1.03
- L1.04
- L2.00
- IR1.0
- IR1.1
- IR1.2
- IR1.3
- IR1.4
- IR1.5

SHEET INDEX

- COVER SHEET
- ILLUSTRATIVE RENDERINGS
- SITE GEOMETRY PLAN - PARKING
- ROAD PLAN AND PROFILE
- PARKING LOT GRADING
- UTILITY PLAN
- OVERALL PLAN
- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE DETAILS & PLANTING SCHEDULES
- IRRIGATION - PLUMBING PLAN
- IRRIGATION - ELECTRICAL PLAN
- IRRIGATION - DETAILS
- IRRIGATION - DETAILS
- IRRIGATION PUMP STATION DETAILS
- PUMP PAD & WET WELL LAYOUT

SUPERBLOOM

750 PENNSYLVANIA ST.
DENVER, CO 80203
720.440.2668

WARM SPRINGS PRESERVE STREAM &
FLOODPLAIN ENHANCEMENT DESIGN SET

FLOODPLAIN SUBMITTAL #2

WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

**WORKING DRAFT
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CONSTRUCTION**

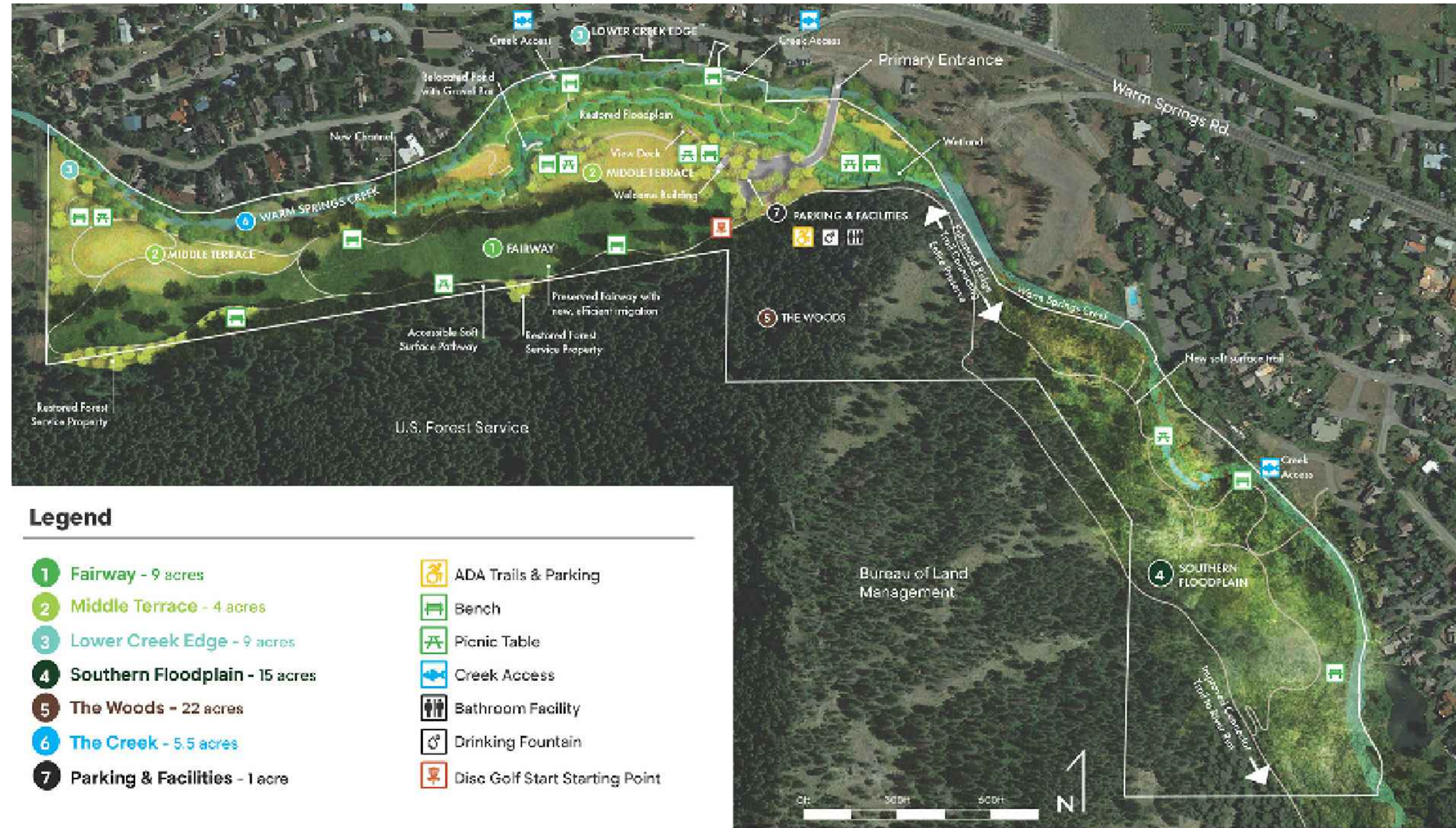
DATE: 12/10/2024
DESIGNED: SP, DL, HC, ML
APPROVED: DL

DRAWING NAME

COVER SHEET

DRAWING NO.

L0.00



Legend

- | | |
|----------------------------------|--------------------------------|
| 1 Fairway - 9 acres | ADA Trails & Parking |
| 2 Middle Terrace - 4 acres | Bench |
| 3 Lower Creek Edge - 9 acres | Picnic Table |
| 4 Southern Floodplain - 15 acres | Creek Access |
| 5 The Woods - 22 acres | Bathroom Facility |
| 6 The Creek - 5.5 acres | Drinking Fountain |
| 7 Parking & Facilities - 1 acre | Disc Golf Start Starting Point |

ILLUSTRATIVE IMAGE OF OVERALL MASTER PLAN



NEW POND | ILLUSTRATIVE RENDERING



FLOODPLAIN AND NEW PILOT CHANNEL | ILLUSTRATIVE RENDERING



FLOODPLAIN CROSSING | ILLUSTRATIVE RENDERING

NOTES:

1. RENDERINGS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY TO CONVEY GENERAL DESIGN AESTHETIC. THESE ARE NOT FOR CONSTRUCTION PURPOSES. PLEASE REFER TO HARDLINED DRAWINGS AND DETAILS FOR THIS INFORMATION.

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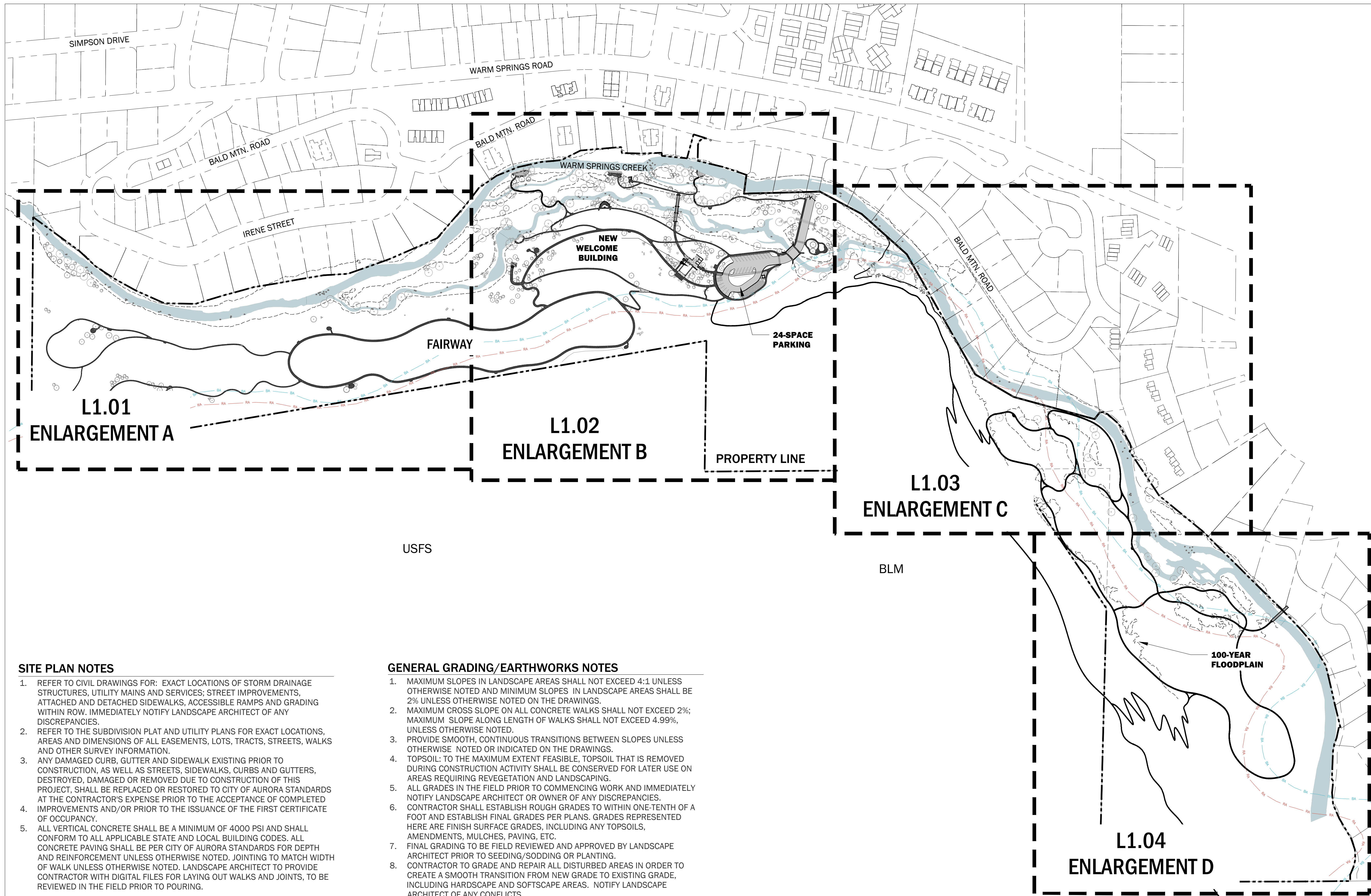
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APPROVED: DL

DRAWING NAME

ILLUSTRATIVE
RENDERINGS

DRAWING NO.

L0.01



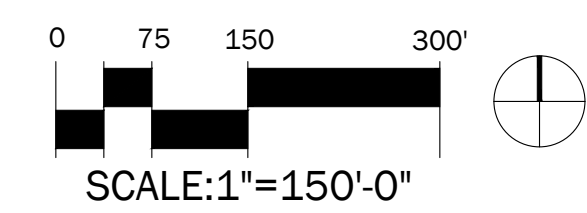
SITE PLAN NOTES

- REFER TO CIVIL DRAWINGS FOR: EXACT LOCATIONS OF STORM DRAINAGE STRUCTURES, UTILITY MAINS AND SERVICES; STREET IMPROVEMENTS, ATTACHED AND DETACHED SIDEWALKS, CURBS AND GUTTERS, WALKS AND OTHER SURVEY INFORMATION.
- REFER TO THE SUBDIVISION PLAT AND UTILITY PLANS FOR EXACT LOCATIONS, AREAS AND DIMENSIONS OF ALL EASEMENTS, LOTS, TRACTS, STREETS, WALKS AND OTHER SURVEY INFORMATION.
- ANY DAMAGED CURB, GUTTER AND SIDEWALK EXISTING PRIOR TO CONSTRUCTION, AS WELL AS STREETS, SIDEWALKS, CURBS AND GUTTERS, DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT, SHALL BE REPLACED OR RESTORED TO CITY OF AURORA STANDARDS AT THE CONTRACTOR'S EXPENSE PRIOR TO THE ACCEPTANCE OF COMPLETED IMPROVEMENTS AND/OR PRIOR TO THE ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY.
- ALL VERTICAL CONCRETE SHALL BE A MINIMUM OF 4000 PSI AND SHALL CONFORM TO ALL APPLICABLE STATE AND LOCAL BUILDING CODES. ALL CONCRETE PAVING SHALL BE PER CITY OF AURORA STANDARDS FOR DEPTH AND REINFORCEMENT UNLESS OTHERWISE NOTED. JOINTING TO MATCH WIDTH OF WALK UNLESS OTHERWISE NOTED. LANDSCAPE ARCHITECT TO PROVIDE CONTRACTOR WITH DIGITAL FILES FOR LAYING OUT WALKS AND JOINTS, TO BE REVIEWED IN THE FIELD PRIOR TO POURING.

GENERAL GRADING/EARTHWORKS NOTES

- MAXIMUM SLOPES IN LANDSCAPE AREAS SHALL NOT EXCEED 4:1 UNLESS OTHERWISE NOTED AND MINIMUM SLOPES IN LANDSCAPE AREAS SHALL BE 2% UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- MAXIMUM CROSS SLOPE ON ALL CONCRETE WALKS SHALL NOT EXCEED 2%; MAXIMUM SLOPE ALONG LENGTH OF WALKS SHALL NOT EXCEED 4.99%, UNLESS OTHERWISE NOTED.
- PROVIDE SMOOTH, CONTINUOUS TRANSITIONS BETWEEN SLOPES UNLESS OTHERWISE NOTED OR INDICATED ON THE DRAWINGS.
- TOPSOIL: TO THE MAXIMUM EXTENT FEASIBLE, TOPSOIL THAT IS REMOVED DURING CONSTRUCTION ACTIVITY SHALL BE CONSERVED FOR LATER USE ON AREAS REQUIRING REVEGETATION AND LANDSCAPING.
- ALL GRADES IN THE FIELD PRIOR TO COMMENCING WORK AND IMMEDIATELY NOTIFY LANDSCAPE ARCHITECT OR OWNER OF ANY DISCREPANCIES.
- CONTRACTOR SHALL ESTABLISH ROUGH GRADES TO WITHIN ONE-TENTH OF A FOOT AND ESTABLISH FINAL GRADES PER PLANS. GRADES REPRESENTED HERE ARE FINISH SURFACE GRADES, INCLUDING ANY TOPSOILS, AMENDMENTS, MULCHES, PAVING, ETC.
- FINAL GRADING TO BE FIELD REVIEWED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO SEEDING/SODDING OR PLANTING.
- CONTRACTOR TO GRADE AND REPAIR ALL DISTURBED AREAS IN ORDER TO CREATE A SMOOTH TRANSITION FROM NEW GRADE TO EXISTING GRADE, INCLUDING HARDSCAPE AND SOFTSCAPE AREAS. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS.

1 Overall Site Plan (For Reference Only)
Scale: 1"=150'-00"



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750 PENNSYLVANIA ST.
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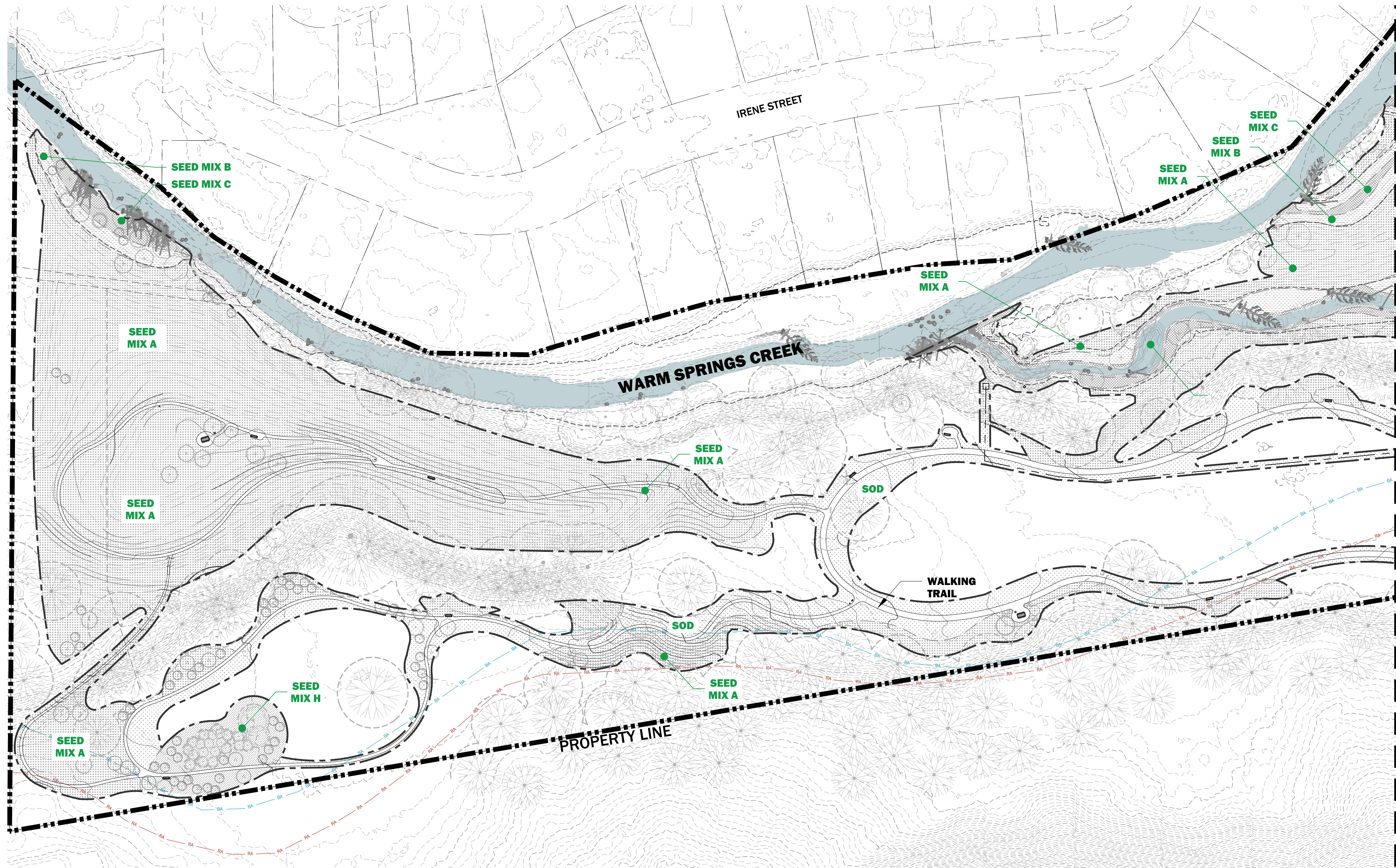
WARM SPRINGS PRESERVE STREAM &
FLOODPLAIN ENHANCEMENT DESIGN SET
FLOODPLAIN SUBMITTAL #2
WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

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APPROVED: DL
DRAWING NAME

COVER SHEET

DRAWING NO.
L1.00



LINETYPE LEGEND

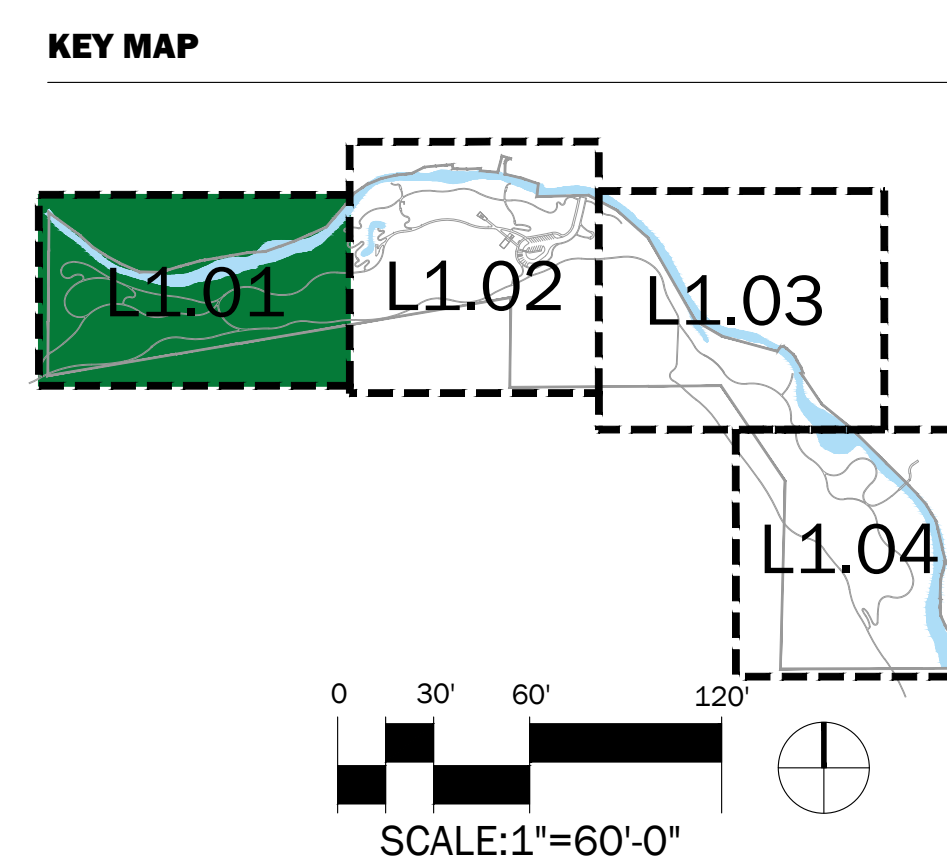
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— (dotted)	MODERATE RISK AVALANCHE ZONE
— (dash-dot)	HIGH RISK AVALANCHE ZONE
— (solid)	PROPERTY LINE
— (thick dashed)	LIMIT OF WORK
— (thin dashed)	TREE PROTECTION ZONE
— (thick solid)	BUILDING PERMIT LIMIT OF WORK
— (light blue shaded)	29 CFS "LOW FLOW" INUNDATION EXTENTS

SEED MIX LEGEND

SYMBOL	KEY	PLANT MIX TYPE
[Pattern]	MIX A	UPLAND MEADOW MIX
[Pattern]	MIX B	XERIC (DRY) FLOODPLAIN
[Pattern]	MIX C	MESIC (WET) FLOODPLAIN
[Pattern]	MIX D	NEAR STREAM RIPARIAN
[Pattern]	MIX E,F,G	IN STREAM AQUATIC, SHALLOW EMERGENT WETLAND, & DEEP EMERGENT WETLAND
[Pattern]	MIX H	ASPEN GROVE
[Pattern]	SOD	RESTORED LAWN

MATCHLINE, SEE SHEET L1.02

1 Enlargement A
Scale: 1"=60'



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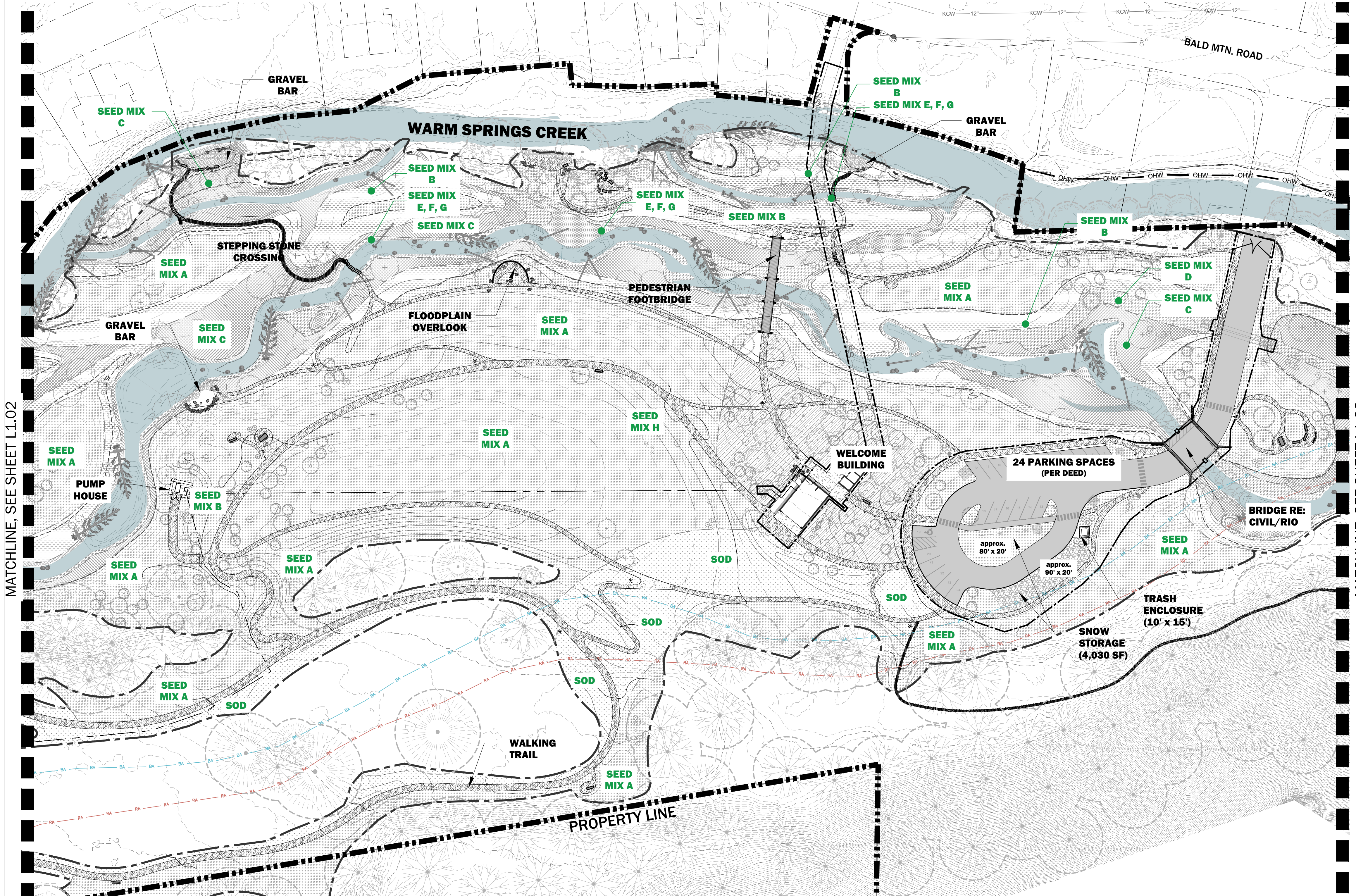
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FLOODPLAIN SUBMITTAL #2
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LANDSCAPE PLANS

DRAWING NO.
L1.01



MATCHLINE, SEE SHEET L1.02

MATCHLINE, SEE SHEET L1.03

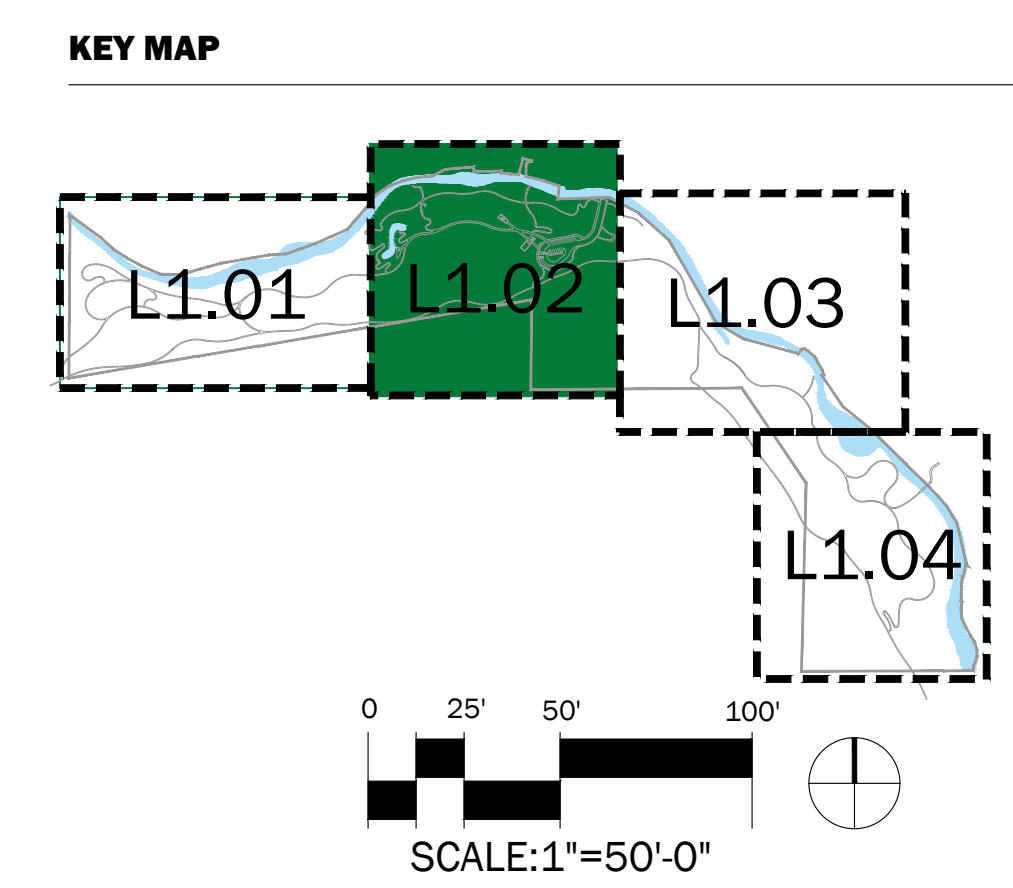
LINETYPE LEGEND

	100-YEAR FLOODPLAIN
	MODERATE RISK AVALANCHE ZONE
	HIGH RISK AVALANCHE ZONE
	PROPERTY LINE
	LIMIT OF WORK
	TREE PROTECTION ZONE
	BUILDING PERMIT LIMIT OF WORK
	29 CFS "LOW FLOW" INUNDATION EXTENTS

SEED MIX LEGEND

SYMBOL	KEY	PLANT MIX TYPE
	MIX A	UPLAND MEADOW MIX
	MIX B	XERIC (DRY) FLOODPLAIN
	MIX C	MESIC (WET) FLOODPLAIN
	MIX D	NEAR STREAM RIPARIAN
	MIX E, F, G	IN STREAM AQUATIC, SHALLOW EMERGENT WETLAND, & DEEP EMERGENT WETLAND
	MIX H	ASPEN GROVE
	SOD	RESTORED LAWN

1 Enlargement B
Scale: 1"=50'



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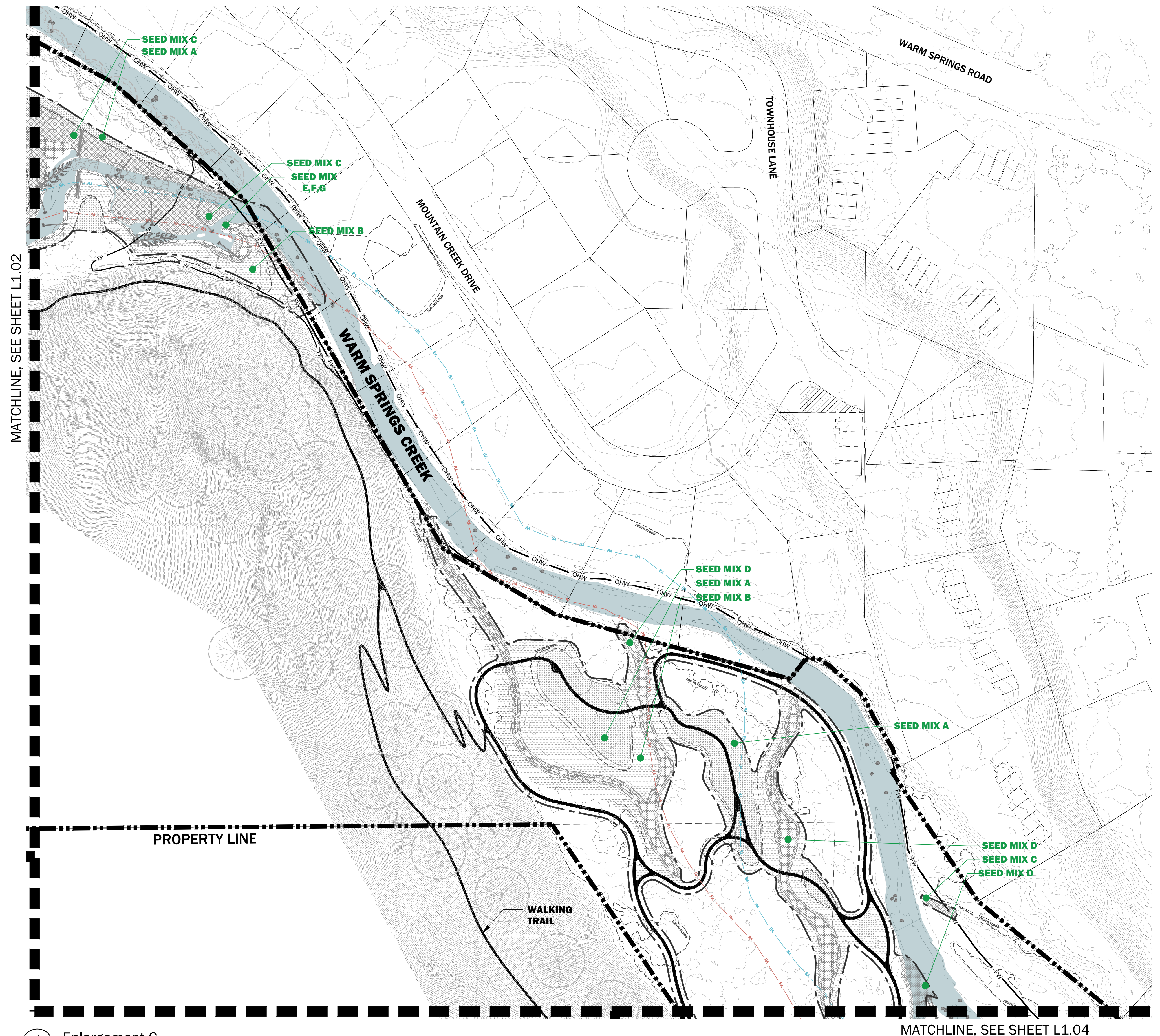
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DRAWING NAME
LANDSCAPE PLAN

DRAWING NO.
L1.02

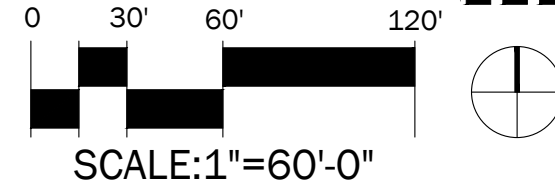
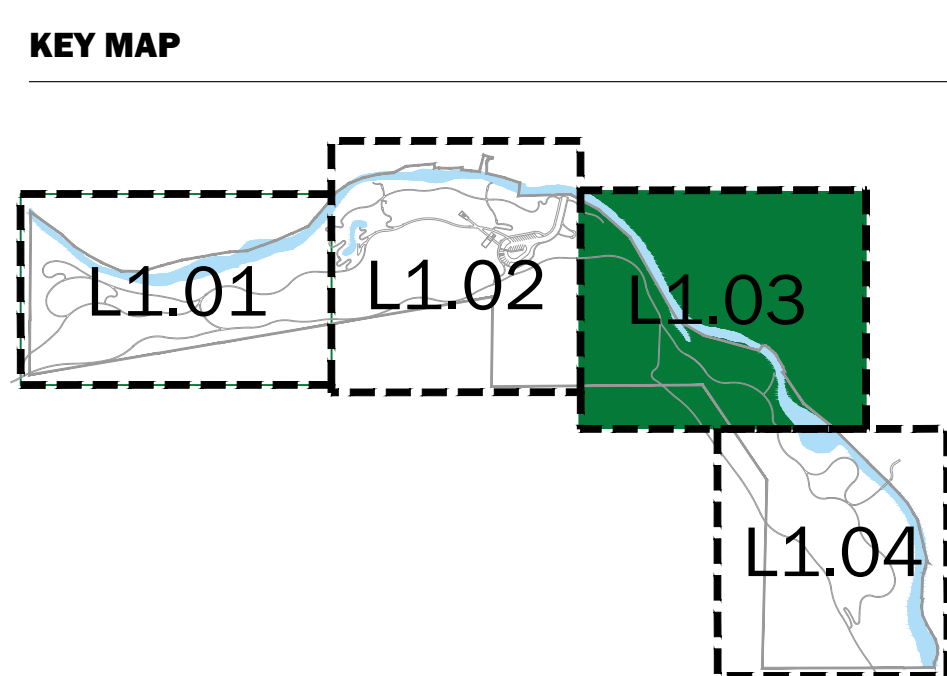


LINETYPE LEGEND

— FP — FP	100-YEAR FLOODPLAIN
— BA — BA	MODERATE RISK AVALANCHE ZONE
— RA — RA	HIGH RISK AVALANCHE ZONE
— —	PROPERTY LINE
— — — —	LIMIT OF WORK
— — — —	TREE PROTECTION ZONE
— — — —	BUILDING PERMIT LIMIT OF WORK
■	29 CFS "LOW FLOW" INUNDATION EXTENTS

SEED MIX LEGEND

SYMBOL	KEY	PLANT MIX TYPE
▨	MIX A	UPLAND MEADOW MIX
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▤	MIX E,F,G	IN STREAM AQUATIC, SHALLOW EMERGENT WETLAND, & DEEP EMERGENT WETLAND
▥	MIX H	ASPEN GROVE
◻	SOD	RESTORED LAWN



1 Enlargement C
Scale: 1"=60'

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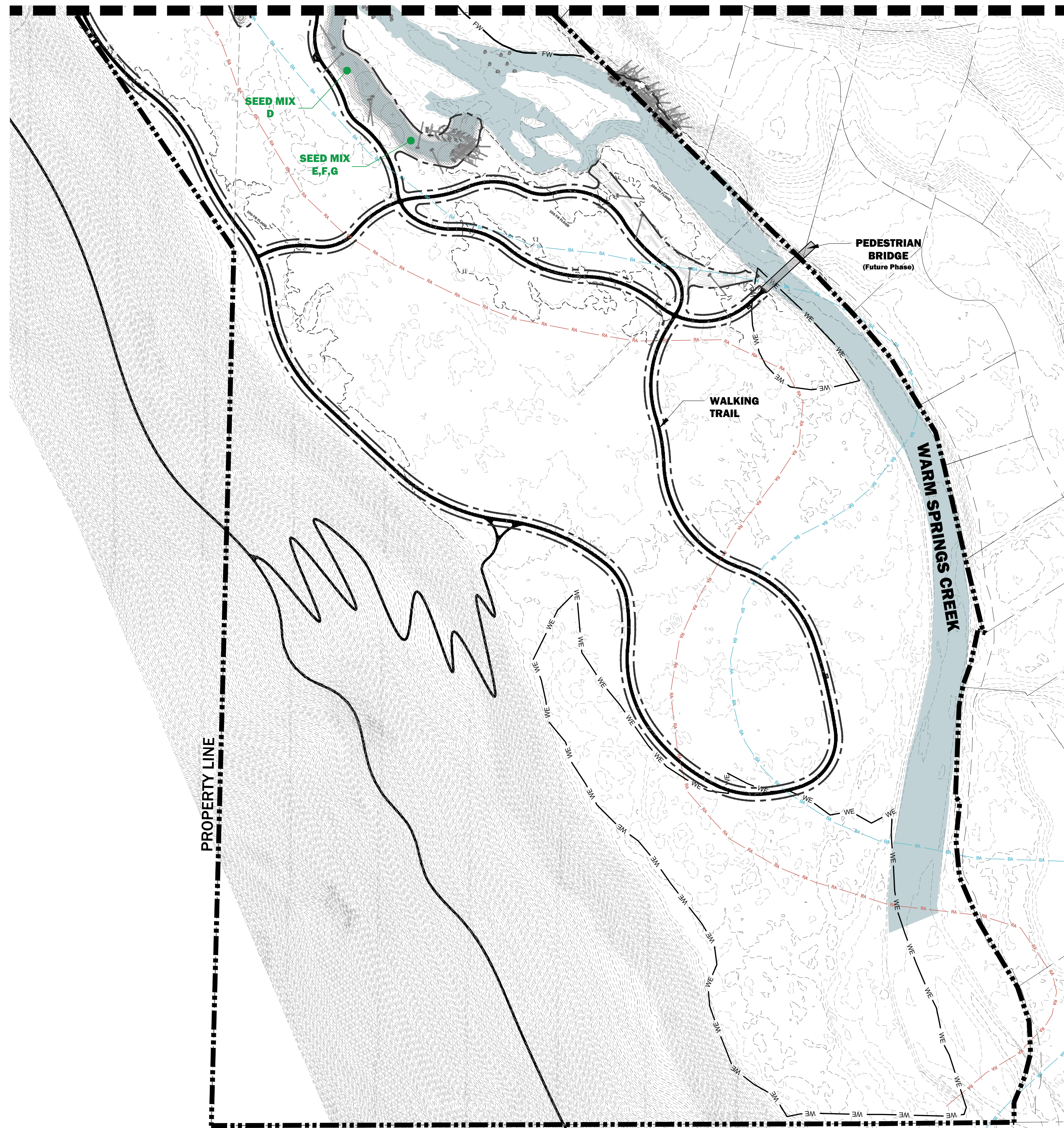
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APPROVED: DL
DRAWING NAME

LANDSCAPE
PLAN

DRAWING NO.
L1.03

MATCHLINE, SEE SHEET L1.03



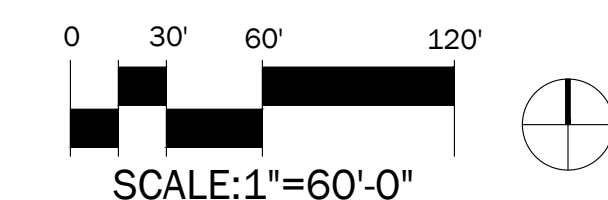
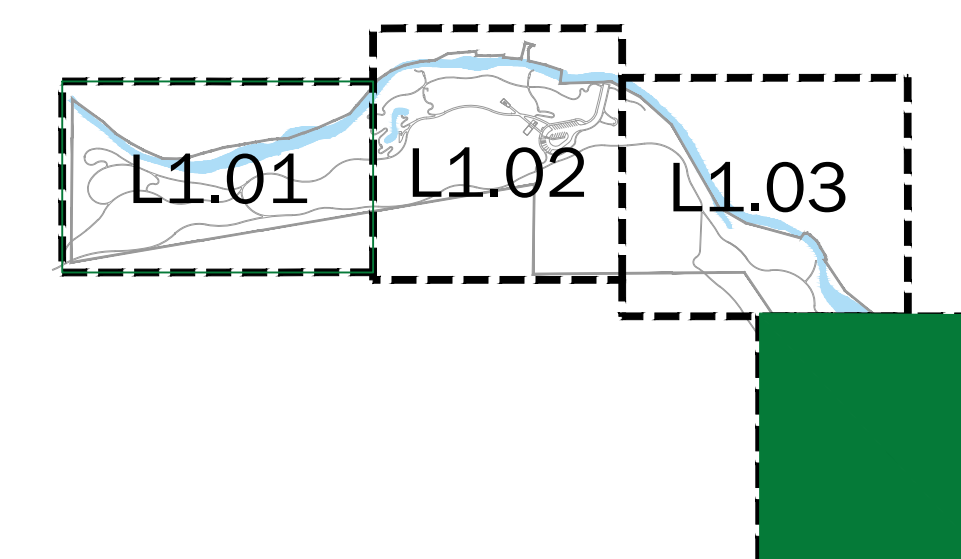
LINETYPE LEGEND

- 100-YEAR FLOODPLAIN
- MODERATE RISK AVALANCHE ZONE
- HIGH RISK AVALANCHE ZONE
- PROPERTY LINE
- LIMIT OF WORK
- TREE PROTECTION ZONE
- BUILDING PERMIT LIMIT OF WORK
- 29 CFS "LOW FLOW" INUNDATION EXTENTS

SEED MIX LEGEND

SYMBOL	KEY	PLANT MIX TYPE
	MIX A	UPLAND MEADOW MIX
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	MIX E,F,G	IN STREAM AQUATIC, SHALLOW EMERGENT WETLAND, & DEEP EMERGENT WETLAND
	MIX H	ASPEN GROVE
	SOD	RESTORED LAWN

KEY MAP



SUPERBLOOM

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WARM SPRINGS PRESERVE STREAM &
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FLOODPLAIN SUBMITTAL #2

WOOD RIVER LAND TRUST
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LANDSCAPE
PLAN

DRAWING NO.

L1.04

1 Enlargement D
Scale: 1"=60'



1 Local Boulder Bench + Stepping Stones
Scale: NTS



2 Artisan Bench
Scale: NTS



3 Pedestrian Footbridge
Scale: NTS



4 Floodplain ADA Overlook
Scale: NTS

WARM SPRINGS PRESERVE STREAM &
FLOODPLAIN ENHANCEMENT DESIGN SET

FLOODPLAIN SUBMITTAL #2

WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
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APPROVED: DL

DRAWING NAME

LANDSCAPE
DETAILS

DRAWING NO.

L2.00

NOTE: The Following Live Plants in the Plant Mixes are being Contract Grown under a separate Contract and will be provided to the installing Contractor. The Installing Contractor is to coordinate with Owner's Representative and Landscape Architect for integration of Contract Grown species into plantings.

PLANT MIX A - UPLAND MEADOW (330,626 SF)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF HATCH AREA	% OF PATCH	O.C. SPACING	NOTES
Shrubs (Patches): 15% of Total Hatch Area (49,600 sf)										
-	3180	<i>Artemisia tridentata</i> var. <i>vaseyana</i>	Mountain Big Sagebrush	Shrub	10 ci	Tube Seedling	15%	50%	3'	Plant in patches in favorable microsites. Shrubs to be Field Located by Landscape Architect.
-	955	<i>Chrysothamnus viscidiflorus</i>	Douglas Rabbitbrush	Shrub	10 ci	Tube Seedling	15%	15%	3'	Shrubs to be Field Located by Landscape Architect.
-	955	<i>Ericameria nauseosa</i>	Rubber Rabbitbrush	Shrub	10 ci	Tube Seedling	15%	15%	3'	Shrubs to be Field Located by Landscape Architect.
-	1270	<i>Purshia tridentata</i>	Antelope Bitterbrush	Shrub	10 ci	Tube Seedling	15%	20%	3'	Plant in patches in favorable microsites. Shrubs to be Field Located by Landscape Architect.
Grasses (Seed to Cover 100% of Hatch Area)										
-	-	<i>Bromus ciliatus</i>	Fringed Brome	Grass	-	Seed	-	-	-	Grasses = 80% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase
-	-	<i>Bromus ciliatus</i>	Fringed Brome	Grass	-	Seed	-	-	-	
-	-	<i>Bromus marginatus</i>	Mountain Brome	Grass	-	Seed	-	-	-	
-	-	<i>Bromus marginatus</i>	Mountain Brome	Grass	-	Seed	-	-	-	
-	-	<i>Elymus elymoides</i>	Squirreltail Grass	Grass	-	Seed	-	-	-	
-	-	<i>Elymus elymoides</i>	Squirreltail Grass	Grass	-	Seed	-	-	-	
-	-	<i>Elymus glaucus</i>	Blue Wildrye	Grass	-	Seed	-	-	-	
-	-	<i>Elymus glaucus</i>	Blue Wildrye	Grass	-	Seed	-	-	-	
-	-	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Thickspike Wheatgrass	Grass	-	Seed	-	-	-	
-	-	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Thickspike Wheatgrass	Grass	-	Seed	-	-	-	
-	-	<i>Elymus trachycaulus</i>	Slender Wheatgrass	Grass	-	Seed	-	-	-	
-	-	<i>Elymus trachycaulus</i>	Slender Wheatgrass	Grass	-	Seed	-	-	-	
-	-	<i>Festuca idahoensis</i>	Idaho Fescue	Grass	-	Seed	-	-	-	
-	-	<i>Festuca thurberi</i>	Thurber's Fescue	Grass	-	Seed	-	-	-	
-	-	<i>Hesperostipa comata</i>	Needle and Thread Bunchgrass	Grass	-	Seed	-	-	-	
-	-	<i>Koeleria macrantha</i>	Prairie Junegrass	Grass	-	Seed	-	-	-	
-	-	<i>Leymus cinereus</i>	Great Basin Wildrye	Grass	-	Seed	-	-	-	
-	-	<i>Poa secunda sandbergii</i>	Sandberg Bluegrass	Grass	-	Seed	-	-	-	
-	-	<i>Pseudoroegneria spicata</i>	Bluebunch Wheatgrass	Grass	-	Seed	-	-	-	
Forbs (Seed to Cover 100% of Hatch Area)										
-	-	<i>Achillea millefolium occidentale</i>	Western Common Yarrow	Forb	-	Seed	-	-	-	Forbs = 20% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase
-	-	<i>Eriogonum umbellatum</i>	Sulfurflower Buckwheat	Forb	-	Seed	-	-	-	
-	-	<i>Linum lewisii</i>	Blue Flax	Forb	-	Seed	-	-	-	
-	-	<i>Lupinus sericeus</i>	Silky Lupine	Forb	-	Seed	-	-	-	
-	-	<i>Penstemon eatonii</i>	Firecracker Penstemon	Forb	-	Seed	-	-	-	
-	-	<i>Penstemon strictus</i>	Rocky Mountain Penstemon	Forb	-	Seed	-	-	-	
-	-	<i>Sphaeralcea</i> sp.	Globemallow	Forb	-	Seed	-	-	-	Species dependent on availability
PLANT MIX B - XERIC (DRY) FLOODPLAIN (125,000 SF)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF HATCH AREA	% OF PATCH	O.C. SPACING	NOTES
Shrubs (Patches): 20% of Total Hatch Area (25,000 sf)										
-	80	<i>Amelanchier alnifolia</i>	Western Serviceberry	Shrub	#5	Cont.	2.5%	3'	3'	Plant in microsites that retain more moisture. Shrubs to be Field Located by Landscape Architect.
-	1600	<i>Artemisia tridentata</i>	Big Sagebrush	Shrub	10 ci	Tube Seedling	50%	3'	3'	Consider Establishing in island patches. Shrubs to be Field Located by Landscape Architect.
-	480	<i>Chrysothamnus viscidiflorus</i>	Douglas Rabbitbrush	Shrub	10 ci	Tube Seedling	15%	3'	3'	Shrubs to be Field Located by Landscape Architect.
-	480	<i>Ericameria nauseosa</i>	Rubber Rabbitbrush	Shrub	10 ci	Tube Seedling	15%	3'	3'	Shrubs to be Field Located by Landscape Architect.
-	80	<i>Prunus virginiana</i>	Chokecherry	Shrub	#5	Cont.	2.5%	3'	3'	Plant in microsites that retain more moisture. Shrubs to be Field Located by Landscape Architect.
-	320	<i>Purshia tridentata</i>	Antelope Bitterbrush	Shrub	10 ci	Tube Seedling	10%	3'	3'	Plant in patches in favorable microsites. Shrubs to be Field Located by Landscape Architect.
-	160	<i>Rosa woodsii</i>	Wood's Rose	Shrub	#5	Cont.	5%	3'	3'	Shrubs to be Field Located by Landscape Architect.
Grasses (Seed to Cover 100% of Hatch Area)										
-	-	<i>Festuca idahoensis</i>	Idaho Fescue	Grass	-	Seed	-	-	-	Grasses = 75% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase
-	-	<i>Leymus cinereus</i>	Great Basin Wildrye	Grass	-	Seed	-	-	-	
-	-	<i>Poa secunda sandbergii</i>	Sandberg Bluegrass	Grass	-	Seed	-	-	-	
-	-	<i>Pseudoroegneria spicata</i>	Bluebunch Wheatgrass	Grass	-	Seed	-	-	-	
Forbs (Seed to Cover 100% of Hatch Area)										
-	-	<i>Achillea millefolium</i>	Common Yarrow	Forb	-	Seed	-	-	-	Forbs = 25% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase
-	-	<i>Artemisia ludoviciana</i>	White Sagebrush	Forb	-	Seed	-	-	-	
-	-	<i>Eriogonum umbellatum</i>	Sulfurflower Buckwheat	Forb	-	Seed	-	-	-	
-	-	<i>Linum lewisii</i>	Blue Flax	Forb	-	Seed	-	-	-	
-	-	<i>Lupinus argenteus</i>	Silvery Lupine	Forb	-	Seed	-	-	-	
-	-	<i>Penstemon</i> sp.	Penstemon species	Forb	-	Seed	-	-	-	Species dependent on availability
-	-	<i>Sphaeralcea</i> sp.	Globemallow	Forb	-	Seed	-	-	-	Species dependent on availability
PLANT MIX C - MESIC (WET) FLOODPLAIN (68,953 SF)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF HATCH AREA	% OF PATCH	O.C. SPACING	NOTES
Trees (Patches): 10% of Total Hatch Area (6,895 sf)										
-	55	<i>Populus angustifolia</i>	Narrow-leaf Cottonwood	Tree	#5	Cont.	-	45%	8'	Install Wildlife Exclusion Fence Around Trees
-	12	<i>Populus tremuloides</i>	Quaking Aspen	Tree	#5	Cont.	-	10%	8'	Install Wildlife Exclusion Fence Around Trees
-	55	<i>Populus trichocarpa</i>	Black Cottonwood	Tree	#5	Cont.	-	45%	8'	Install Wildlife Exclusion Fence Around Trees
Shrubs (Patches): 10% of Total Hatch Area (6,895 sf)										
-	25	<i>Alnus incana</i>	Thin-leaf Alder	Shrub	#5	Cont.	-	5%	6'	Plant in microsites that retain more moisture. Shrubs to be Field Located by Landscape Architect.
-	25	<i>Betula occidentalis</i>	Water Birch	Shrub	#5	Cont.	-	5%	6'	Shrubs to be Field Located by Landscape Architect.
-	150	<i>Ribes aureum</i>	Golden Currant	Shrub	#5	Cont.	-	35%	6'	Shrubs to be Field Located by Landscape Architect.
-	150	<i>Rosa woodsii</i>	Wood's Rose	Shrub	#5	Cont.	-	35%	6'	Shrubs to be Field Located by Landscape Architect.
-	90	<i>Symphoricarpos</i> sp.	Snowberry	Shrub	#5	Cont.	-	20%	6'	Shrubs to be Field Located by Landscape Architect.
Grasses (Seed to Cover 100% of Hatch Area)										
-	-	<i>Elymus glaucus</i>	Blue Wildrye	Grass	-	Seed	-	-	-	Grasses = 60% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase
-	-	<i>Leymus cinereus</i>	Great Basin Wildrye	Grass	-	Seed	-	-	-	
-	-	<i>Pascopyrum smilhil</i>	Western Wheatgrass	Grass	-	Seed	-	-	-	
-	-	<i>Pseudoroegneria spicata</i>	Bluebunch Wheatgrass	Grass	-	Seed	-	-	-	
Forbs (Seed to Cover 100% of Hatch Area)										
-	-	<i>Achillea millefolium</i>	Common Yarrow	Forb	-	Seed	-	-	-	Forbs = 40% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase
-	-	<i>Linum lewisii</i>	Blue Flax	Forb	-	Seed	-	-	-	
-	-	<i>Lupinus</i> sp.	Lupine Species	Forb	-	Seed	-	-	-	Species dependent on availability
-	-	<i>Penstemon</i> sp.	Penstemon species	Forb	-	Seed	-	-	-	Species dependent on availability
-	-	<i>Symphotrichum laeve</i>	Smooth Blue Aster	Forb	-	Seed	-	-	-	
-	-	<i>Vicia americana</i>	American Vetch	Forb	-	Seed	-	-	-	

NOTES

- All species cross-referenced to Blaine County Riparian and Wetland List
- All species listed are generally available commercially; Wild collections may be needed to increase diversity or aesthetics
- Recommend wild collections of cottonwood, willow, dogwood species, sagebrush, rabbitbrush, and antelope bitterbrush
- No formal on-site plant investigations have been completed by IMA
- Species present taken from geoengineers investigation and other professional plant surveys of the Wood River Watershed
- Consider using pre-vegetated coir mats (wetland sod) for aesthetic impact and erosion protection in place of herbaceous wetland seedings

WARM SPRINGS PRESERVE STREAM &
 FLOODPLAIN ENHANCEMENT DESIGN SET
 FLOODPLAIN SUBMITTAL #2

WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

WORKING DRAFT
 NOT FOR
 CONSTRUCTION

DATE: 12/10/2024
 DESIGNED: SP, DL, HC, MP
 APPROVED: DL

DRAWING NAME

**SEED MIX
SCHEDULE 1**

DRAWING NO.

L2.01

NOTE: The Following Live Plants in the Plant Mixes are being Contract Grown under a separate Contract and will be provided to the installing Contractor. The Installing Contractor is to coordinate with Owner's Representative and Landscape Architect for integration of Contract Grown species into plantings.

PLANT MIX D - NEAR STREAM RIPARIAN (26,985 SF)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF HATCH AREA	% OF PATCH	O.C. SPACING	NOTES
Trees (Patches): 10% of Total Hatch Area (6,746 sf)							25%			
-	50	<i>Populus angustifolia</i>	Narrow-leaf Cottonwood	Tree	#5	Cont.	-	40%	8'	Tree Forming, Install Wildlife Exclusion Fence Around Trees
-	50	<i>Populus trichocarpa</i>	Black Cottonwood	Tree	#5	Cont.	-	40%	8'	Install Wildlife Exclusion Fence Around Trees
-	15	<i>Salix amygdaloides</i>	Peachleaf Willow	Tree	#5	Cont.	-	10%	8'	Install Wildlife Exclusion Fence Around Trees
-	15	<i>Salix lasiandra var. caudata</i>	Whiplash Willow	Tree	#5	Cont.	-	10%	8'	Tree Forming, Install Wildlife Exclusion Fence Around Trees
Shrubs (Patches): 50% of Total Hatch Area (13,490 sf)							50%			
-	110	<i>Cornus sericea</i>	Redosier Dogwood	Shrub	#5	Cont.	-	25%	6'	Very Palatable to Moose, Shrubs to be Field Located by Landscape Architect.
-	110	<i>Salix boothii</i>	Booth's Willow	Shrub	#5	Cont.	-	25%	6'	Clump Forming, Shrubs to be Field Located by Landscape Architect.
-	110	<i>Salix exigua</i>	Golden Currant	Shrub	#5	Cont.	-	25%	6'	Mat Forming, Shrubs to be Field Located by Landscape Architect.
-	110	<i>Salix lutea</i>	Wood's Rose	Shrub	#5	Cont.	-	25%	6'	Clump Forming, Shrubs to be Field Located by Landscape Architect.
Grasses (Seed to Cover 100% of Hatch Area)										
-	-	<i>Calamagrostis canadensis</i>	Bluejoint Reedgrass	Grass	-	Seed	-	-	-	Grasses = 100% of Seed Mix. Individual Species Percentages to be Supplied to Contractor During Construction Phase. Saturated but not inundated soils
-	-	<i>Deschampsia cespitosa</i>	Tufted Hairgrass	Grass	-	Seed	-	-	-	Saturated but not inundated soils
-	-	<i>Elymus glaucus</i>	Blue Wildrye	Grass	-	Seed	-	-	-	Moist Soils
PLANT MIX E - IN STREAM AQUATIC (2,055 SF, 33.33% of Total Hatch Area Indicated in Plans as Mix E, F, G)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF PLANT MIX E	% OF PATCH	O.C. SPACING	NOTES
Herbaceous Live Plants: 25% of Mix E							25%			
-	265	<i>Carex aquatilis</i>	Water Sedge	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
-	265	<i>Carex utriculata</i>	Beaked Sedge	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
-	265	<i>Eleocharis palustris</i>	Great Spike Rush	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
-	265	<i>Juncus arcticus</i>	Arctic Rush	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
Seed Mix: Seed to Cover 100% of Plant Mix E (2,055 SF)							% OF PLANT MIX E			
-	-	<i>Beckmannia syzigachne</i>	American Slough Grass	Herbaceous	-	Seed	100%			Saturated but not inundated soils
-	-	<i>Calamagrostis canadensis</i>	Bluejoint Grass	Herbaceous	-	Seed				Saturated but not inundated soils
-	-	<i>Deschampsia cespitosa</i>	Tufted Hair Grass	Herbaceous	-	Seed				Saturated but not inundated soils
-	-	<i>Pascopyrum smithii</i>	Western Wheatgrass	Herbaceous	-	Seed				Saturated but not inundated soils
PLANT MIX F - SHALLOW EMERGENT WETLAND (2,055 SF, 33.33% of Total Hatch Area Indicated in Plans as Mix E, F, G)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF PLANT MIX F	% OF PATCH	O.C. SPACING	NOTES
Herbaceous Live Plants: 25% of Mix F							25%			
-	265	<i>Carex nebrascensis</i>	Nebraska Sedge	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
-	265	<i>Carex pellita</i>	Woolly Sedge	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
-	265	<i>Carex utriculata</i>	Beaked Sedge	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
-	265	<i>Juncus arcticus</i>	Arctic Rush	Herbaceous	5.5 ci	Tube Seedling	25%		9"	Alternatively could be wetland sod mix of sedges and rushes at water's edge along pond shores and stream channel margins.
Seed Mix: Seed to Cover 100% of Plant Mix F (2,055 SF)							% OF PLANT MIX F			
-	-	<i>Beckmannia syzigachne</i>	American Slough Grass	Herbaceous	-	Seed	100%			Saturated but not inundated soils
-	-	<i>Calamagrostis canadensis</i>	Bluejoint Grass	Herbaceous	-	Seed				Saturated but not inundated soils
-	-	<i>Deschampsia cespitosa</i>	Tufted Hair Grass	Herbaceous	-	Seed				Saturated but not inundated soils
-	-	<i>Pascopyrum smithii</i>	Western Wheatgrass	Herbaceous	-	Seed				Saturated but not inundated soils
PLANT MIX G - DEEP EMERGENT WETLAND (2,055 SF, 33.33% of Total Hatch Area Indicated in Plans as Mix E, F, G)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF PLANT MIX G	% OF PATCH	O.C. SPACING	NOTES
Herbaceous Live Plants: 100% of Mix G							100%			
-	1185	<i>Schoenoplectus acutus</i>	Hardstem Bulrush	Herbaceous	#1	Cont.	50%		12"	Alternatively could be wetland sod mix of these species
-	1185	<i>Scirpus microcarpus</i>	Small-Fruited Bulrush	Herbaceous	#1	Cont.	50%		12"	Alternatively could be wetland sod mix of these species
PLANT MIX H - ASPEN GROVE (24731 SF)										
KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANT TYPE	SIZE	ROOT	% OF HATCH AREA	% OF PATCH	O.C. SPACING	NOTES
Forbs: 40% of Total Hatch Area (9892.4 sf)							40%			
-	360	<i>Achillea millefolium</i>	Common Yarrow	Forb	4"	Pot	-	-	18"	
-	360	<i>Aquilegia coerulea</i>	Blue Columbine	Forb	#1	Cont.	-	-	18"	
-	360	<i>Delphinium occidentale</i>	Duncecap Larkspur	Forb	#1	Cont.	-	-	18"	
-	360	<i>Erigeron speciosus</i>	Showy Fleabane	Forb	4"	Pot	-	-	18"	
-	360	<i>Eriogonum umbellatum</i>	Sulfurflower Buckwheat	Forb	4"	Pot	-	-	18"	
-	360	<i>Gaillardia aristata</i>	Blanket Flower	Forb	4"	Pot	-	-	18"	
-	360	<i>Geranium viscosissimum</i>	Sticky Geranium	Forb	#1	Pot	-	-	18"	
-	360	<i>Hellomeris multiflora</i>	Showy Goldeneye	Forb	#1	Cont.	-	-	18"	
-	360	<i>Hymenoxys hoopesii</i>	Meadow Fire	Forb	#1	Cont.	-	-	18"	
-	360	<i>Linum lewisii</i>	Blue Flax	Forb	4"	Cont.	-	-	18"	
-	360	<i>Penstemon rydbergii</i>	Rydberg's Penstemon	Forb	4"	Cont.	-	-	18"	
-	360	<i>Penstemon strictus</i>	Rocky Mountain Penstemon	Forb	#1	Cont.	-	-	18"	
-	360	<i>Rudbeckia occidentalis</i>	Western Coneflower	Forb	#1	Cont.	-	-	18"	
-	360	<i>Solidago missouriensis</i>	Missouri Goldenrod	Forb	#1	Cont.	-	-	18"	
-	360	<i>Symphotrichum laeve</i>	Smooth Aster	Forb	#1	Cont.	-	-	18"	
Grasses: 60% of Hatch Area (14838 sf)										
-	1630	<i>Bouteloua curtipendula</i>	Side Oats Gram	Grass	5.5 ci	Tube Seedling			18"	
-	1630	<i>Bouteloua gracilis</i>	Blue Grama	Grass	5.5 ci	Tube Seedling			18"	
-	1630	<i>Festuca idahoensis</i>	Idaho Blue Fescue	Grass	5.5 ci	Tube Seedling			18"	
-	1630	<i>Hesperostipa comata</i>	Needle and Thread Grass	Grass	5.5 ci	Tube Seedling			18"	
-	1630	<i>Oryzopsis hymenoides</i>	Indian Ricegrass	Grass	5.5 ci	Tube Seedling			18"	
SOD (54,410 SF)										
KEY	QTY	BOTANICAL NAME	NOTES							
-	73862	<i>Rhizomatous Tall Fescue</i>	** Contractor to Reclaim Existing Sod on Site and Install in Areas of the Fairway as Shown in the Planting Plans, Where Possible After Regrading. Contactor to Submit Pricing for New Sod as part of their base bid for review.							

WARM SPRINGS PRESERVE STREAM &
 FLOODPLAIN ENHANCEMENT DESIGN SET
 FLOODPLAIN SUBMITTAL #2

WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

NOTES

- All species cross-referenced to Blaine County Riparian and Wetland List
- All species listed are generally available commercially; Wild collections may be needed to increase diversity or aesthetics
- Recommend wild collections of cottonwood, willow, dogwood species, sagebrush, rabbitbrush, and antelope bitterbrush
- No formal on-site plant investigations have been completed by IMA
- Species present taken from geoengineers investigation and other professional plant surveys of the Wood River Watershed
- Consider using pre-vegetated coir mats (wetland sod) for aesthetic impact and erosion protection in place of herbaceous wetland seedings

WORKING DRAFT
 NOT FOR
 CONSTRUCTION

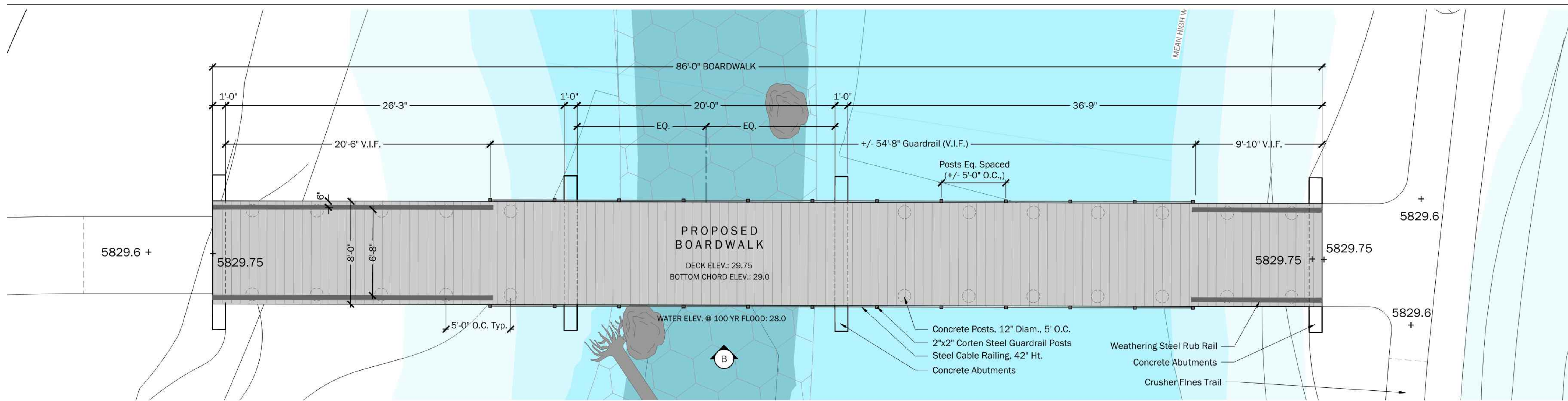
DATE: 12/10/2024
 DESIGNED: SP, DL, HC, MP
 APPROVED: DL

DRAWING NAME

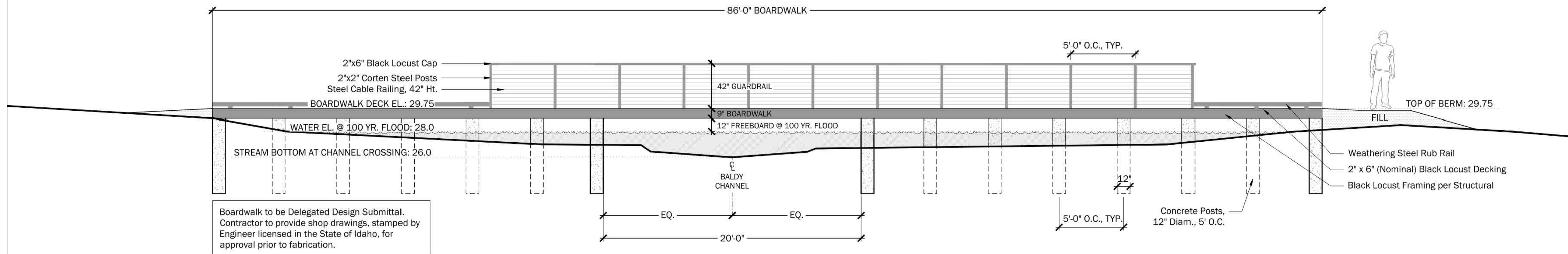
SEED MIX SCHEDULE 2

DRAWING NO.

L2.02



A. Plan Enlargement
SCALE: 1/4" = 1'-0"

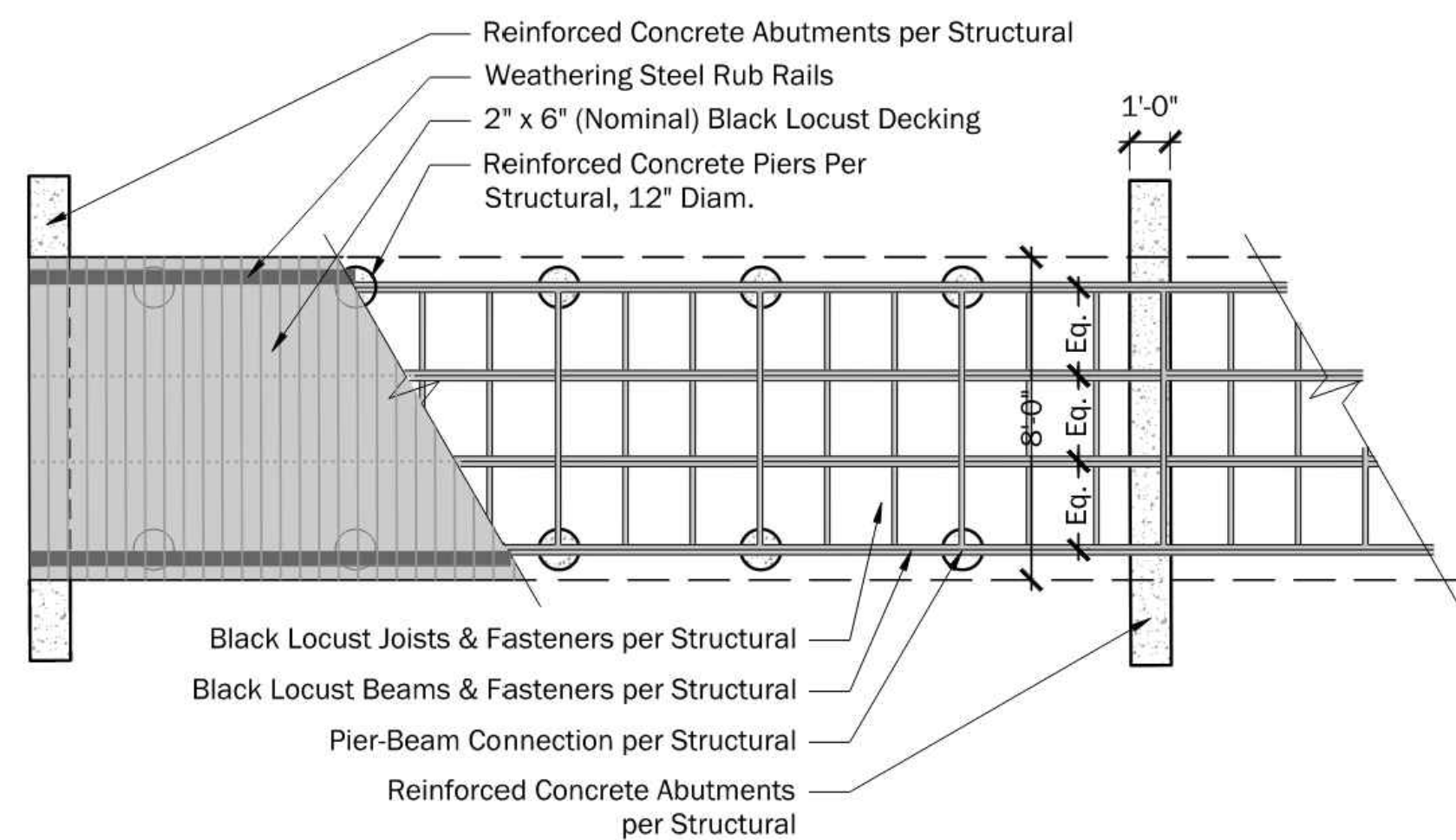


B. Elevation
SCALE: 1/4" = 1'-0"

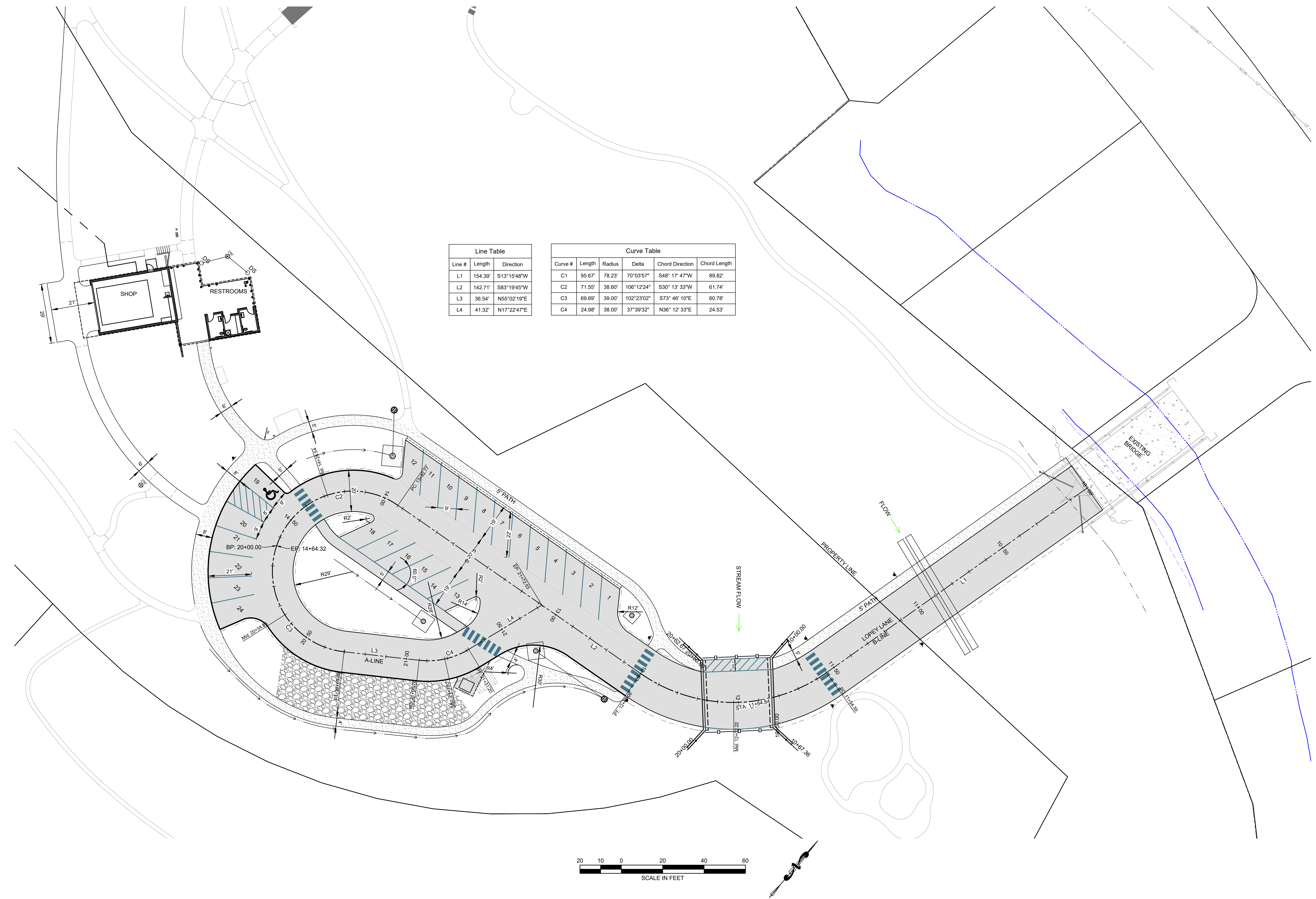
Boardwalk to be Delegated Design Submittal. Contractor to provide shop drawings, stamped by Engineer licensed in the State of Idaho, for approval prior to fabrication.

Boardwalk to be Delegated Design Submittal. Contractor to provide shop drawings, stamped by Engineer licensed in the State of Idaho, for approval prior to fabrication.

Decking Notes:
1. Decking to Be Black Locust or Approved Equal Locally Harvested/Sourced Dense Hardwood, Re: Specs
2. Pre-Drill & Countersink Holes for Decking Fasteners
3. Seal Cut Ends with Penofin Penetrating Oil or Approved Equal.



C. Decking & Framing Plan
SCALE: 1/4" = 1'-0"



Line Table			Curve Table					
Line #	Length	Direction	Curve #	Length	Radius	Delta	Chord Direction	Chord Length
L1	154.39'	S13°15'48"W	C1	95.67'	78.23'	70°03'57"	S48°17'47"W	89.82'
L2	142.71'	S83°19'45"W	C2	71.55'	38.60'	106°12'24"	S30°13'33"W	61.74'
L3	36.54'	N55°02'19"E	C3	69.69'	39.00'	102°23'02"	S73°48'10"E	60.78'
L4	41.32'	N17°22'47"E	C4	24.98'	38.00'	37°39'32"	N36°12'33"E	24.53'



REUSE OF DRAWINGS: These drawings, or any portion thereof, shall not be used on any project or extensions of this Project except by agreement in writing with Galena-Benchmark Engineering.

**WARM SPRINGS PRESERVE
SITE GEOMETRY PLAN**

LOCATED WITHIN SECTION 1&12, T4 N, R17 E, B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
PREPARED FOR: CITY OF KETCHUM

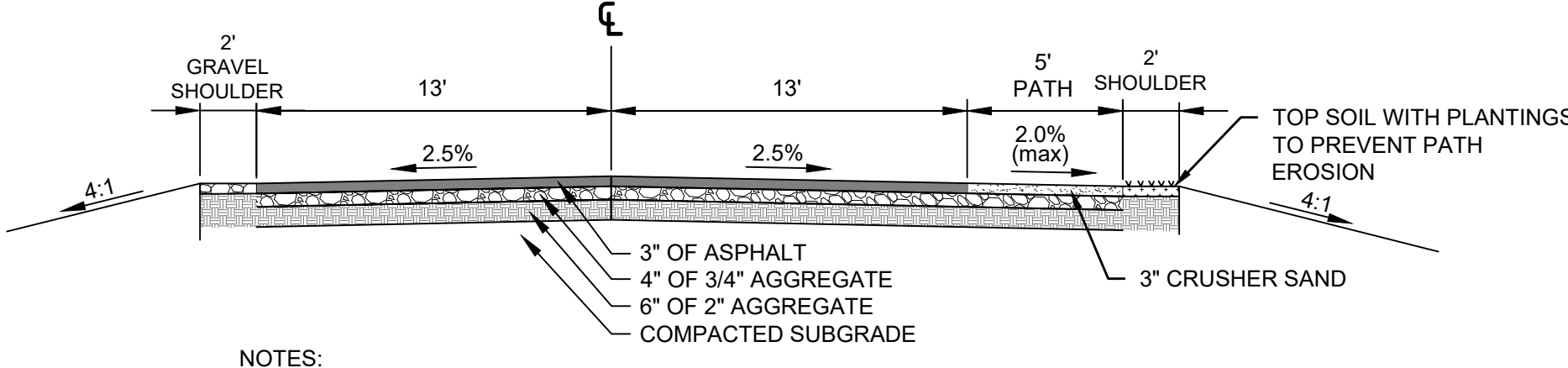
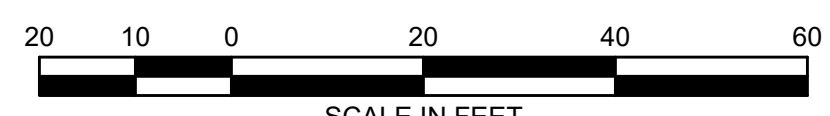
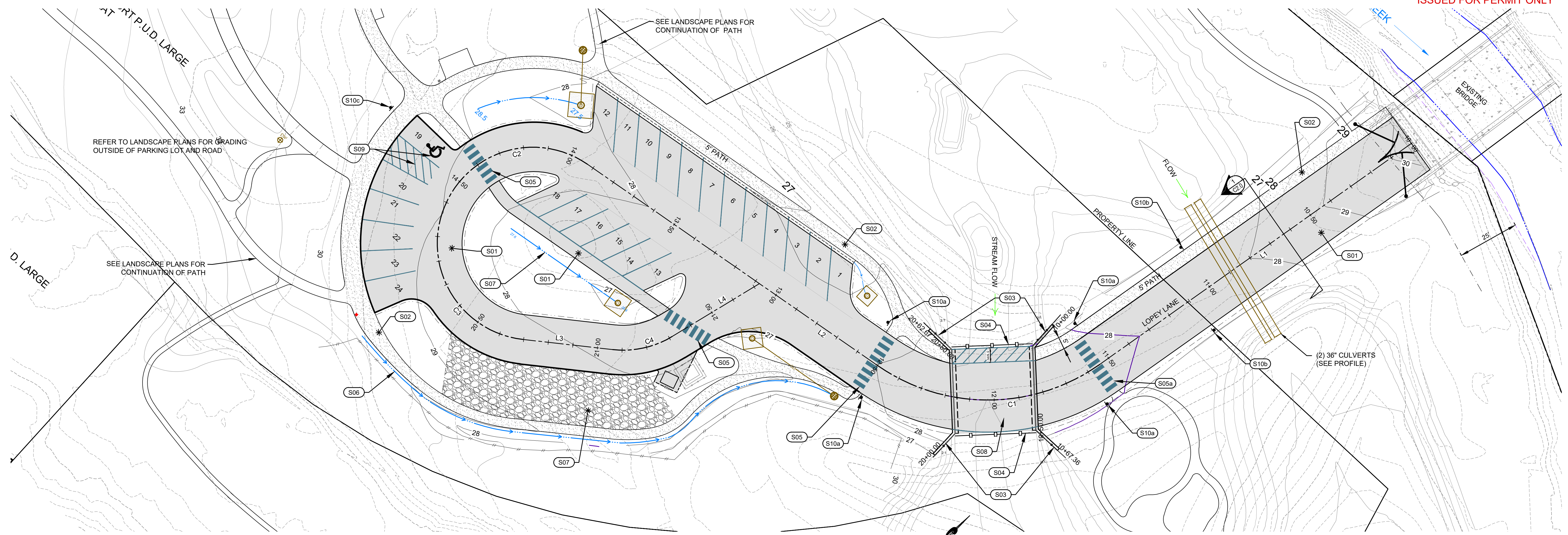
PROJECT INFORMATION
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**PRELIMINARY
NOT FOR
CONSTRUCTION**

DESIGNED BY: PLJ
DRAWN BY: PLJ
CHECKED BY:
SURVEY DATE:

**GALENA-BENCHMARK
ENGINEERING**
Civil Engineers & Land Surveyors
100 Bell Drive
P.O. Box 133
Ketchum, ID 83340
(208) 726-9512
www.benchmark-associates.com

NO.	DATE	BY	REVISIONS

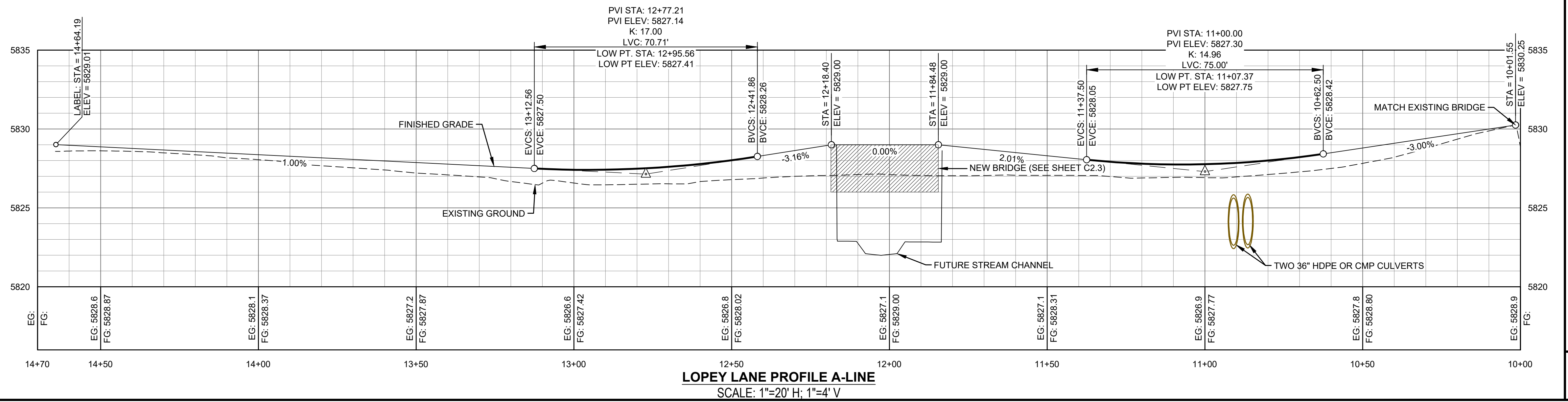
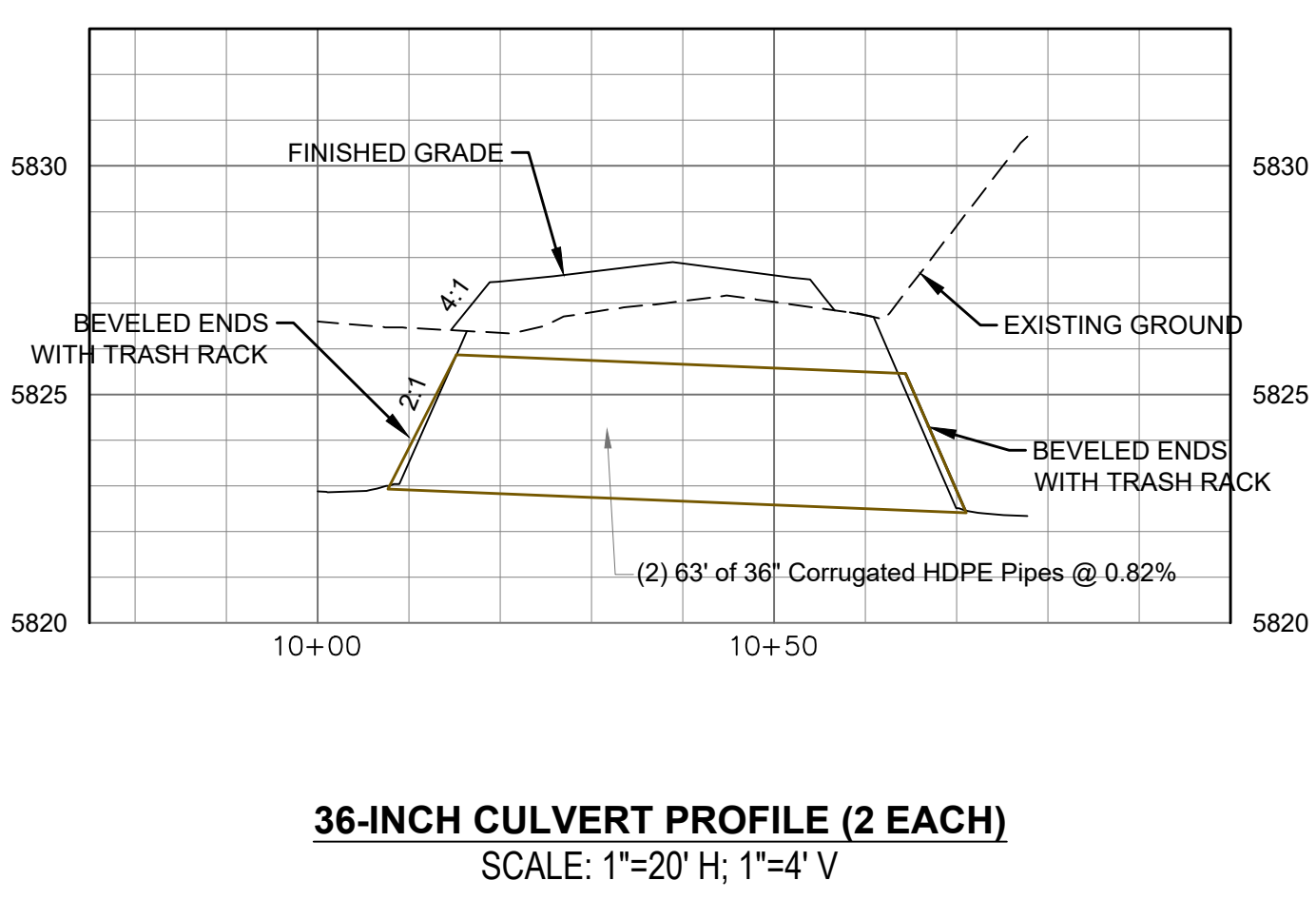


- NOTES:
- SUBBASE CAN BE 2" TYPE II OR 3/4" TYPE I CRUSHED AGGREGATE BASE COURSE.
 - MATERIALS SHALL CONFORM WITH CURRENT ISWPC STANDARDS, DIVISION 800 AGGREGATES AND ASPHALT.
 - PAVEMENT SECTION MAY BE MODIFIED IF A PROJECT SPECIFIC GEOTECHNICAL REPORT, STAMPED BY A LICENSED ENGINEER, IS PROVIDED.

1
C2.0
LOPEY LANE TYPICAL SECTION
N.T.S.
(STA: 10+00.00 TO STA: 12+70.00)

- LEGEND**
- BLAINE COUNTY GIS PARCEL DATA
 - EDGE OF WATER (SURVEYED 10-6-23)
 - MEAN HIGH WATER
 - 25' RIPARIAN SETBACK
 - 1' CONTOUR INTERVAL - 2017 LIDAR
 - 5' CONTOUR INTERVAL - 2017 LIDAR
 - CONCRETE EXISTING
 - TOP BACK OF RIPRAP EXISTING
 - 5' CONTOUR PROPOSED
 - 1' CONTOUR PROPOSED
 - 5' CONTOUR PROPOSED (DESIGNED BY OTHERS)
 - 1' CONTOUR PROPOSED (DESIGNED BY OTHERS)
 - LIMIT OF DISTURBANCE
 - EDGE OF GRAVEL
 - DSO DOWNSPOUT

- SITE IMPROVEMENT KEY NOTES**
- S01 CONSTRUCT ASPHALT DRIVEWAY. SEE DETAIL 11 / C2.00
 - S02 CONSTRUCT CRUSHER SAND WALKWAY. SEE DETAIL 11 / C2.00
 - S03 CONSTRUCT HANDRAIL. SEE BRIDGE PLANS
 - S04 CONSTRUCT GUARDRAIL. SEE BRIDGE PLANS.
 - S05 PAINT ROAD MARKINGS.
 - a. CROSS WALK STRIPING. SEE DETAIL 7 / C2.2
 - b. YELLOW ASPHALT PARKING STRIPING (4" WIDE). MATCH CITY PATTERNS
 - S06 CONSTRUCT DITCH/SWALE. SEE DETAIL 1 / C2.1.
 - S07 CONSTRUCT 3/4" TYPE 1 CRUSHED AGGREGATE.
 - S08 CONSTRUCT ROLLED GIRDER BRIDGE. SEE BRIDGE PLANS.
 - S09 CONSTRUCT ADA PARKING AND PAINTING. SEE DETAILS 6 & 7 / C2.2.
 - S10 INSTALL SIGNS. SEE SIGN BASE DETAIL 8 / C2.2.
 - a. STOP HERE FOR PEDESTRIANS (SEE MUTCD R1-5b)
 - b. SPEED HUMP (SEE MUTCD W17-1)
 - c. ADA PARKING SEE DETAIL 9 / C2.2.



**WARM SPRINGS PRESERVE
ROAD PLAN AND PROFILE**

LOCATED WITHIN SECTION 1&12, T4 N, R17 E, B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
PREPARED FOR: CITY OF KETCHUM

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DESIGNED BY: PLJ
DRAWN BY: PLJ
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SURVEY DATE:

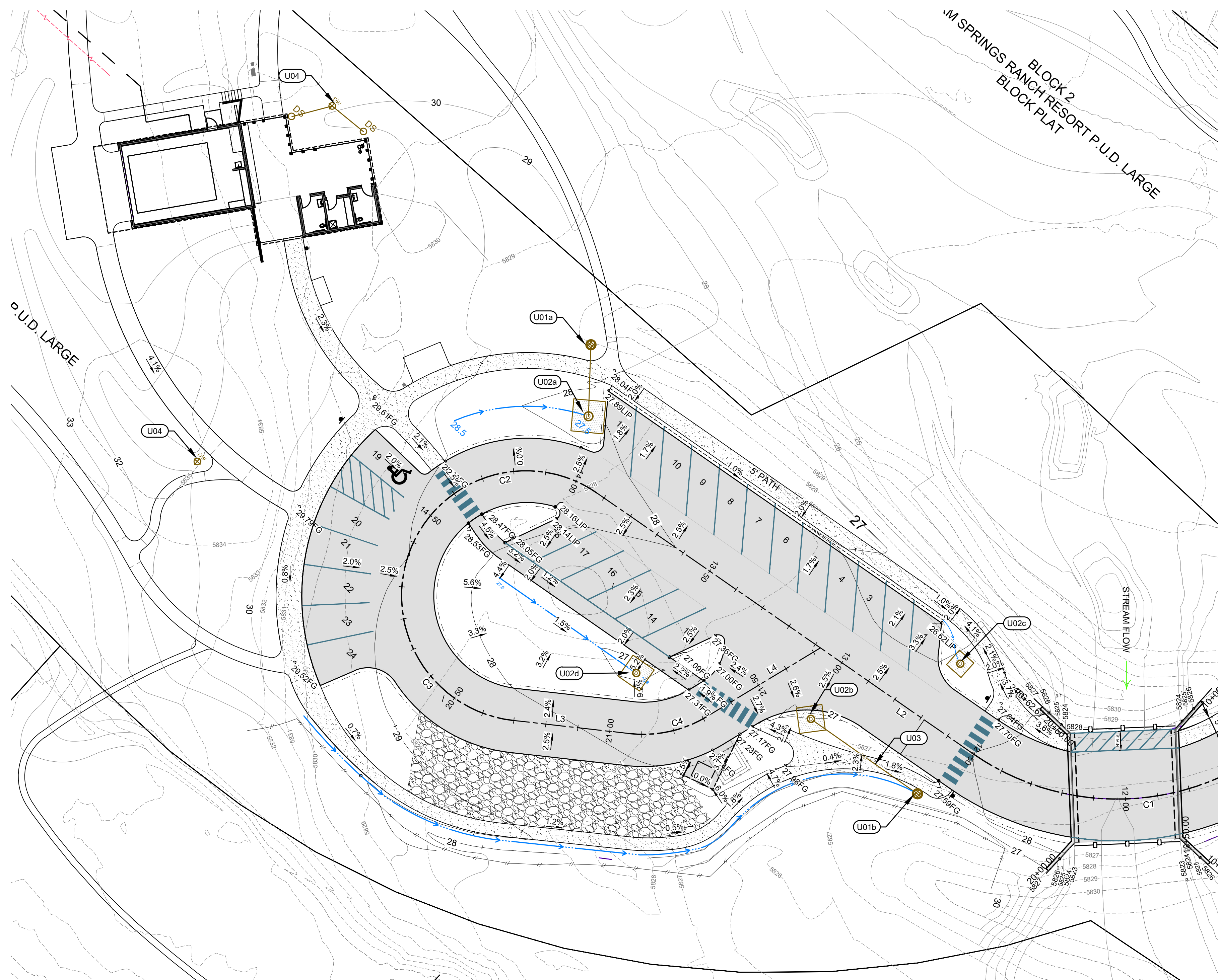
**GALENA - BENCHMARK
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Civil Engineers & Land Surveyors
100 Bell Drive
Ketchum, Idaho 83340
(208) 726-9512
www.benchmark-associates.com

PURPOSE: ISSUE FOR REVIEW

NO.	DATE	BY	REVISIONS

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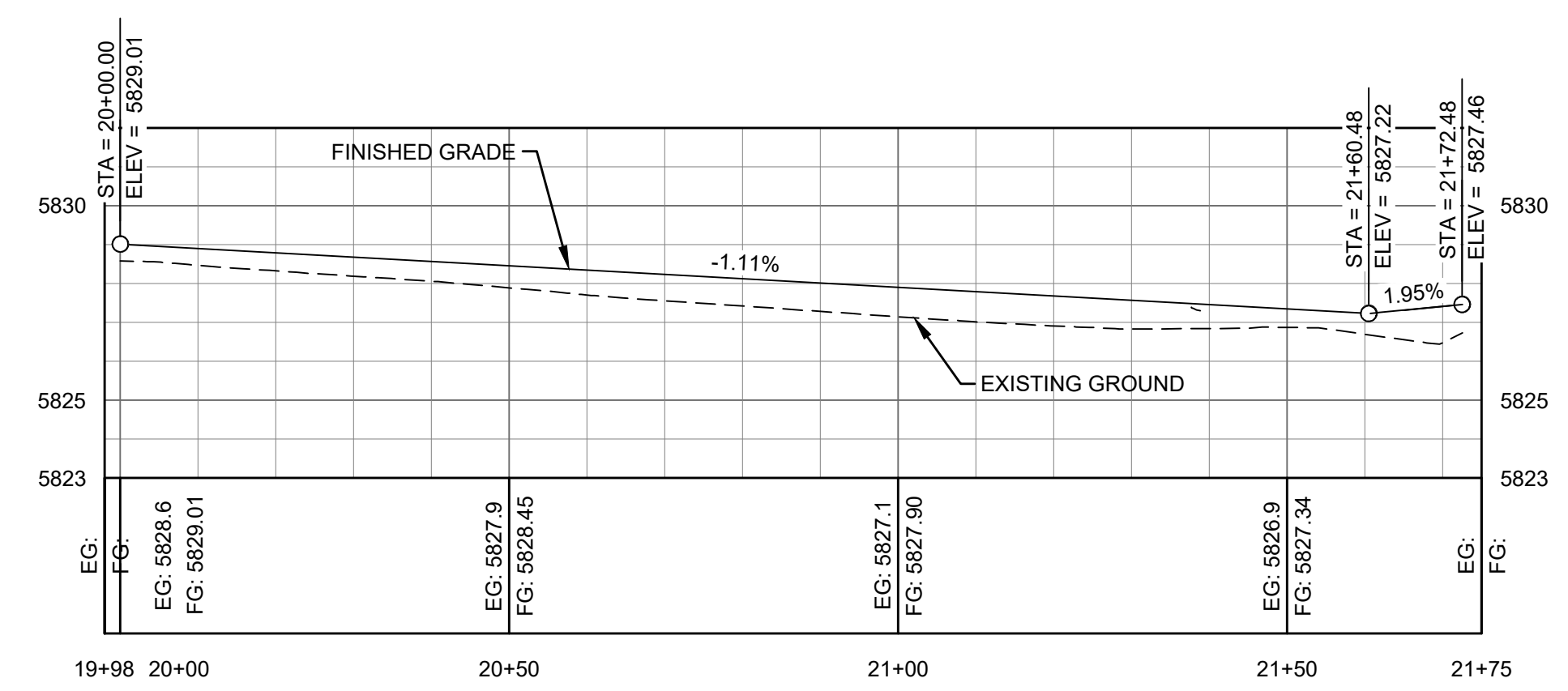
DRAINAGE UTILITY KEY NOTES

- U01 INSTALL 30" CATCH BASINS. SEE DETAIL X1 / X2.
 - a. CB #1 RIM = 5827.75'
12" INV OUT = 5823.75'
 - b. CB #2 RIM = 5827.4'
12" INV OUT = 5823.4'
- U02 INSTALL DRY WELL LENGTH, WIDTH AND DEPTH VARY. SEE DETAIL 1 / C2.2.
 - a. DW #1 6' L X 8' W X 6' DEPTH
RIM = 5827.5'
12" INV IN = 5823.3'
 - b. DW #2 8' L X 8' W X 8' DEPTH
RIM = 5826.75'
12" INV IN = 5822.8'
 - c. DW #3 6' L X 6' W X 6' DEPTH
RIM = 5826.2'
 - d. DW #4 8' L X 8' W X 8' DEPTH
RIM = 5826.8'
- U03 INSTALL 12" STORM DRAIN LINE SLOPE AT 2%. SEE DETAIL X1 / X2.
- U04 INSTALL LANDSCAPE DRYWELL FOR BUILDING DOWNSPOUTS. SEE DETAIL X1 / X2.

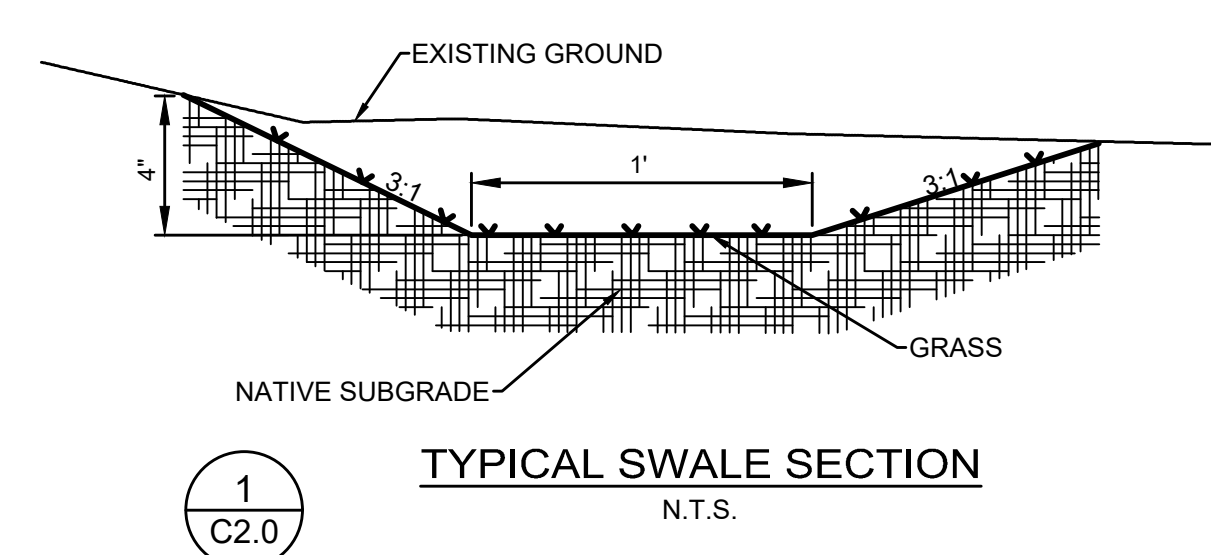
CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE MOST CURRENT EDITION OF THE "IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION" (ISPCW) AND CITY OF KETCHUM STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND KEEPING A COPY OF THE ISPCW AND CITY OF KETCHUM STANDARDS ON SITE DURING CONSTRUCTION.
2. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS IN AN APPROXIMATE WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES PRIOR TO COMMENCING AND DURING THE CONSTRUCTION. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH RESULT FROM HIS FAILURE TO ACCURATELY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL CALL DIGLINE (1-800-342-1585) TO LOCATE ALL EXISTING UNDERGROUND UTILITIES A MINIMUM OF 48 HOURS IN ADVANCE OF EXCAVATION.
3. CONTRACTOR SHALL COORDINATE LOCATIONS OF DRY UTILITY FACILITIES (POWER, CABLE, PHONE, TV) WITH THE APPROPRIATE UTILITY FRANCHISE.
4. THE CONTRACTOR SHALL CLEAN UP THE SITE AFTER CONSTRUCTION SO THAT IT IS IN A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION (THIS MAY INCLUDE ENCROACHMENT PERMITS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION GENERAL PERMIT (CGP) PERMIT COVERAGE).
6. ALL CLEARING & GRUBBING SHALL CONFORM TO ISPCW SECTION 201.
7. ALL EXCAVATION & EMBANKMENT SHALL CONFORM TO ISPCW SECTION 202. SUBGRADE SHALL BE EXCAVATED AND SHAPED TO LINE, GRADE, AND CROSS-SECTION SHOWN ON THE PLANS. THE SUBGRADE SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-698. THE CONTRACTOR SHALL WATER OR AERATE SUBGRADE AS NECESSARY TO OBTAIN OPTIMUM MOISTURE CONTENT. IN-LIEU OF DENSITY MEASUREMENTS, THE SUBGRADE MAY BE PROOF-ROLLED TO THE APPROVAL OF THE ENGINEER.
 - PROOF-ROLLING: AFTER EXCAVATION TO THE SUBGRADE ELEVATION AND PRIOR TO PLACING COURSE GRAVEL, THE CONTRACTOR SHALL PROOF ROLL THE SUBGRADE WITH A 5-TON SMOOTH DRUM ROLLER, LOADED WATER TRUCK, OR LOADED DUMP TRUCK, AS ACCEPTED BY THE ENGINEER. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF UNSUITABLE SUBGRADE MATERIAL AREAS, AND/OR AREAS NOT CAPABLE OF COMPACTION ACCORDING TO THESE SPECIFICATIONS. UNSUITABLE OR DAMAGED SUBGRADE IS WHEN THE SOIL MOVES, PUMPS AND/OR DISPLACES UNDER ANY TYPE OF PRESSURE INCLUDING FOOT TRAFFIC LOADS.
 - IF, IN THE OPINION OF THE ENGINEER, THE CONTRACTOR'S OPERATIONS RESULT IN DAMAGE TO, OR PROTECTION OF, THE SUBGRADE, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, REPAIR THE DAMAGED SUBGRADE BY OVER-EXCAVATION OF UNSUITABLE MATERIAL TO FIRM SUBSOIL, LINE EXCAVATION WITH GEOTEXTILE FABRIC, AND BACKFILL WITH PIT RUN GRAVEL.
8. ALL 2" MINUS GRAVEL SHALL CONFORM TO ISPCW 802, TYPE II (ITD STANDARD 703.04, 2"), SHALL BE PLACED IN CONFORMANCE WITH ISPCW SECTION 801 AND COMPACTED PER SECTION 202. MINIMUM COMPACTION OF PLACED MATERIAL SHALL BE 90% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99.
9. ALL 3/4" MINUS CRUSHED GRAVEL SHALL CONFORM TO ISPCW 802, TYPE I (ITD STANDARD 703.04, 3/4" B), SHALL BE PLACED IN CONFORMANCE WITH ISPCW SECTION 802 AND COMPACTED PER SECTION 202. MINIMUM COMPACTION OF PLACED MATERIAL SHALL BE 95% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99 OR ITD T-91.
10. ALL ASPHALTIC CONCRETE PAVEMENT WORK SHALL CONFORM TO ISPCW SECTION(S) 805, 810, AND 811 FOR CLASS II PAVEMENT. ASPHALT AGGREGATE SHALL BE 1/2" (13MM) NOMINAL SIZE CONFORMING TO TABLE 803B IN ISPCW SECTION 803. ASPHALT BINDER SHALL BE PG 58-28 CONFORMING TO TABLE A-1 IN ISPCW SECTION 805.
11. ASPHALT SAWCUTS SHALL BE AS INDICATED ON THE DRAWINGS, OR 24" INCHES FROM EDGE OF EXISTING ASPHALT, IF NOT INDICATED OTHERWISE SO AS TO PROVIDE A CLEAN PAVEMENT EDGE FOR MATCHING. NO WHEEL CUTTING SHALL BE ALLOWED.
12. ALL CONCRETE WORK SHALL CONFORM TO ISPCW SECTIONS 701, 703, AND 705. ALL CONCRETE SHALL BE 3,000 PSI MINIMUM, 28 DAY, AS DEFINED IN ISPCW SECTION 703, TABLE 1. IMMEDIATELY AFTER PLACEMENT PROTECT CONCRETE BY APPLYING MEMBRANE-FORMING CURING COMPOUND, TYPE 2, CLASS A PER ASTM C 309-94. APPLY CURING COMPOUND PER MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS.
13. ALL TRENCHING SHALL CONFORM TO ISPCW STANDARD DRAWING SD-301. TRENCHES SHALL BE BACKFILLED AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
14. PER IDAHO CODE § 55-1613, THE CONTRACTOR SHALL RETAIN AND PROTECT ALL MONUMENTS, ACCESSORIES TO CORNERS, BENCHMARKS AND POINTS SET IN CONTROL SURVEYS; ALL MONUMENTS, ACCESSORIES TO CORNERS, BENCHMARKS AND POINTS SET IN CONTROL SURVEYS THAT ARE LOST OR DISTURBED BY CONSTRUCTION SHALL BE REESTABLISHED AND RE-MONUMENTED, AT THE EXPENSE OF THE AGENCY OR PERSON CAUSING THEIR LOSS OR DISTURBANCE AT THEIR ORIGINAL LOCATION OR BY SETTING OF A WITNESS CORNER OR REFERENCE POINT OR A REPLACEMENT BENCHMARK OR CONTROL POINT, BY OR UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR.

PARKING LOT & BUILDING GRADING PLAN



PARKING LOOP PROFILE B-LINE
SCALE: 1"=20' H; 1"=4' V



TYPICAL SWALE SECTION
N.T.S.

**WARM SPRINGS PRESERVE
PARKING LOT GRADING**

LOCATED WITHIN SECTION 1&12, T4 N, R17 E, B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
 PREPARED FOR: CITY OF KETCHUM

**PRELIMINARY
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CONSTRUCTION**

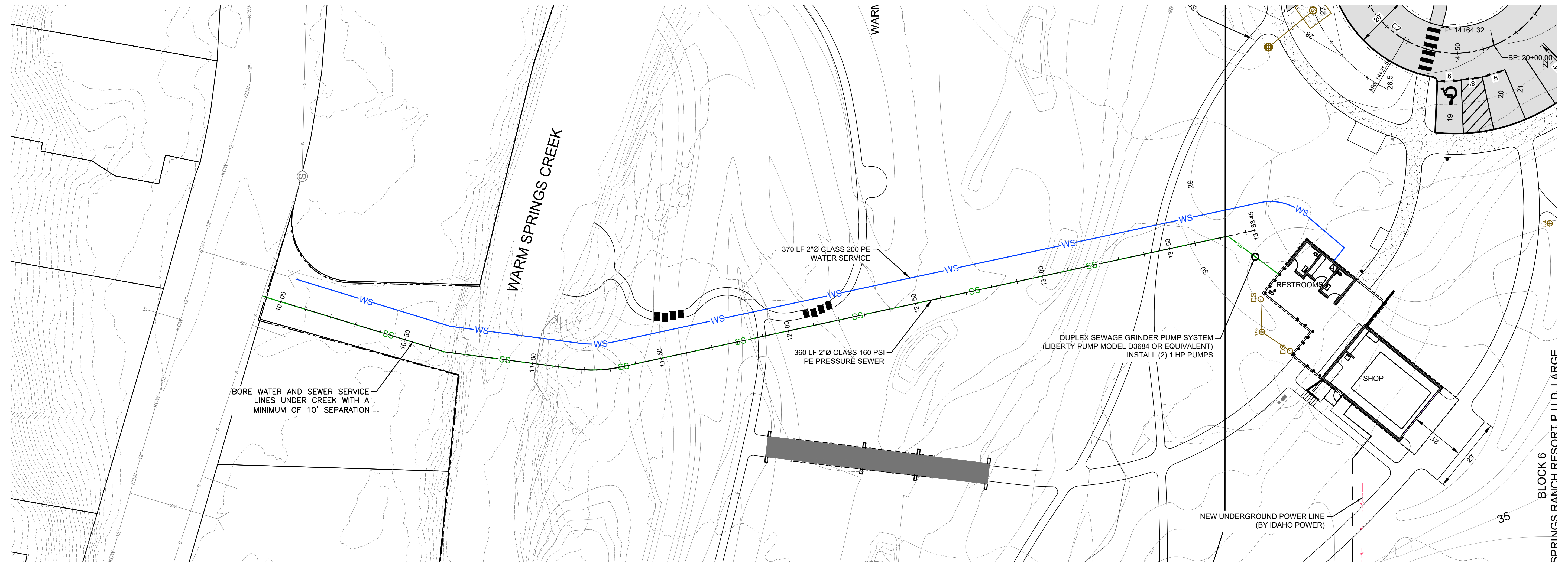
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 DRAWN BY: PLJ
 CHECKED BY:
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GALENA-BENCHMARK ENGINEERING
 Civil Engineers & Land Surveyors
 100 Bell Drive
 Ketchum, Idaho 83340
 (208) 726-9512
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NO.	DATE	BY	REVISIONS

C2.1

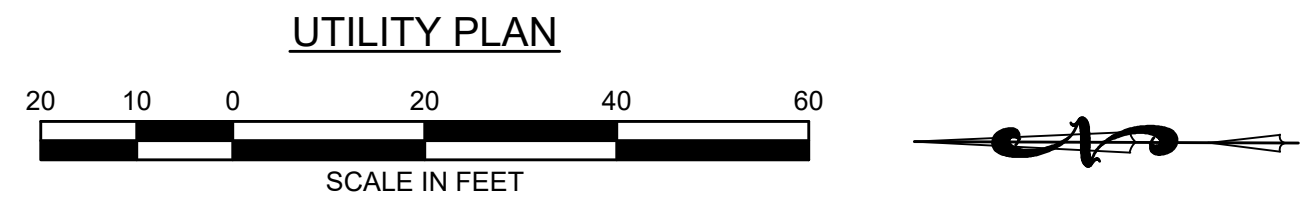
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PROJECT INFORMATION
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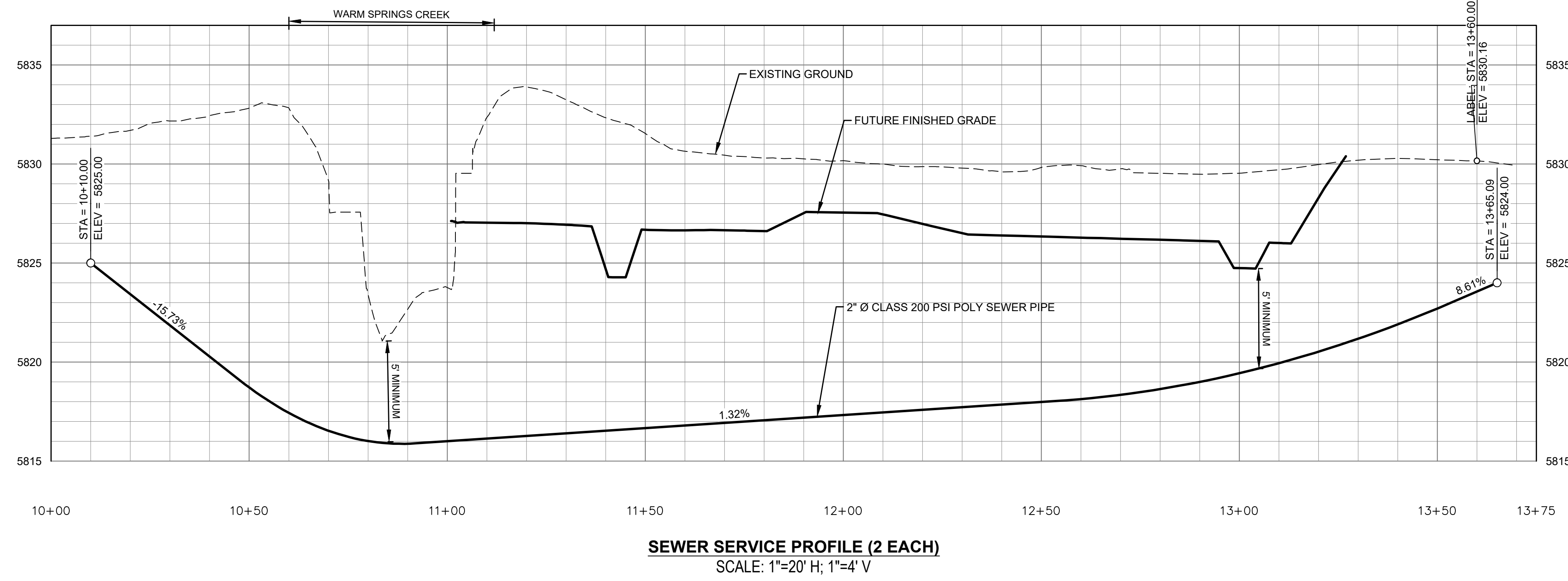


LEGEND

—S—	SANITARY SEWER MAIN LINE (NOT SURVEYED)
—SS—	SANITARY SEWER SERVICE (NOT SURVEYED)
—W—	WATER MAIN LINE (NOT SURVEYED)
—WS—	WATER SERVICE LINE (NOT SURVEYED)
—WS— (Blue)	WATER SERVICE PROPOSED
—SS— (Green)	SEWER SERVICE PROPOSED
—P— (Red dashed)	UNDERGROUND POWER LINE PROPOSED
⊙	SEWER MANHOLE (NOT SURVEYED)



- UTILITY GENERAL NOTES**
- UTILITIES SHALL BE CONSTRUCTED PER THE CITY OF KETCHUM'S STANDARDS; THE MOST CURRENT VERSION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPC); AND DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) STANDARDS.
 - WATER LINES SHALL HAVE A MINIMUM OF 10 FEET OF HORIZONTAL SEPARATION AND 18" VERTICAL SEPARATION FROM SEWER LINES AND STORM DRAIN PIPES, MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
 - ELECTRICAL SERVICE LINE MAY BE IN THE SAME TRENCH AS THE WATER SERVICE LINE. ONCE THE WATER LINE IS INSTALLED, THE TRENCH SHALL BE BACK FILLED TO 42" IN DEPTH AND THE POWER INSTALLED WITH A MINIMUM OF 1-FOOT HORIZONTAL SEPARATION FROM THE WATER LINE.
 - UTILITY TRENCHES SHALL BE CONSTRUCTED PER DETAILS 1 & 2. TRENCHES SHALL BE BACKFILLED WITH IMPORTED STRUCTURAL BACKFILL.
 - CONTRACTOR SHALL CONTACT CITY OF KETCHUM WATER AND SEWER PRIOR TO ANY WATER AND SEWER SERVICE CONSTRUCTION.



**WARM SPRINGS PRESERVE
UTILITY PLAN**

LOCATED WITHIN SECTION 1&12, T4 N, R17 E, B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
PREPARED FOR: CITY OF KETCHUM

**PRELIMINARY
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DESIGNED BY: PLJ
DRAWN BY: PLJ
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SURVEY DATE:

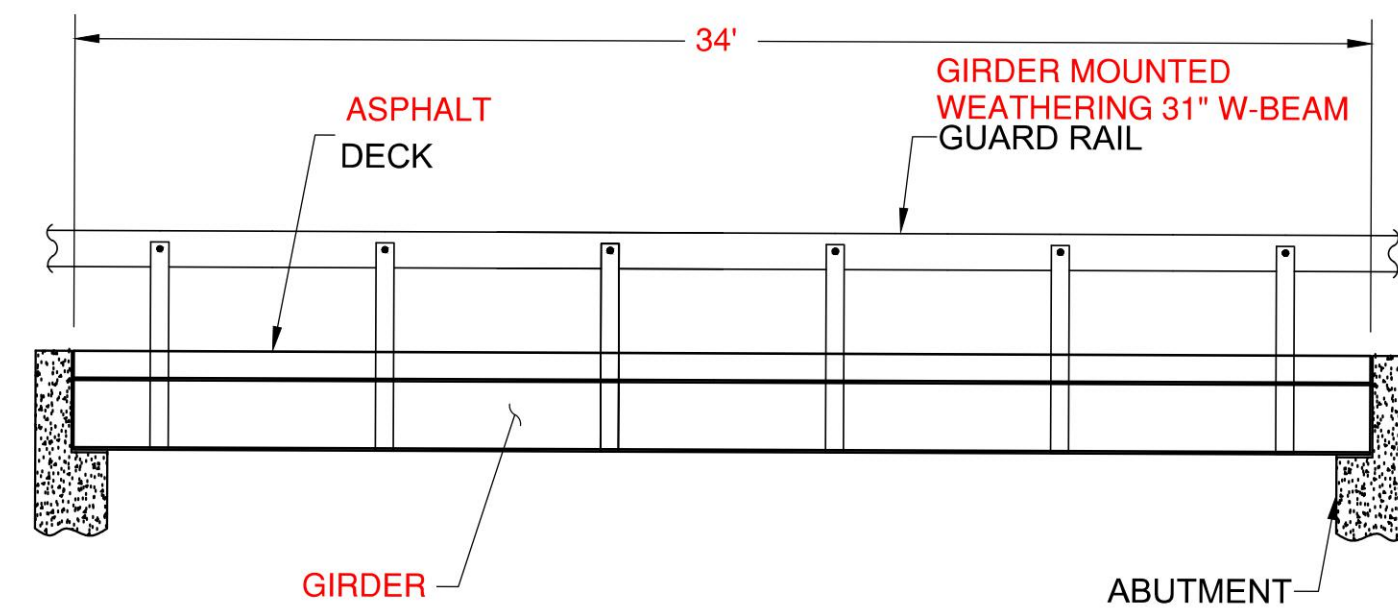
**GALENA-BENCHMARK
ENGINEERING**
Civil Engineers & Land Surveyors
100 Bell Drive
P.O. Box 733
Ketchum, ID 83340
(208) 726-9512
www.benchmark-associates.com

NO.	DATE	BY	REVISIONS

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BRIDGE SUMMARY

-Steel Stringer Vehicular Bridge 36'-Span x 36'-Width Rolled Girder Vehicular Bridge 34' Span x 34' Width
 Deck Type: Concrete Asphalt
 Bridge Finish: Weathering Steel



BRIDGE ELEVATION

Rolled Girder Vehicular Bridge 34' Span x 34' Width

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

PRELIMINARY NOT FOR CONSTRUCTION	
PROJECT NUMBER: 22313	DATE: 10/23/2024
DESIGNED: DYOB	DRAWN: DYOB
CHECKED: DYOB	APPROVED:
SHEET NO: 1	OF 4

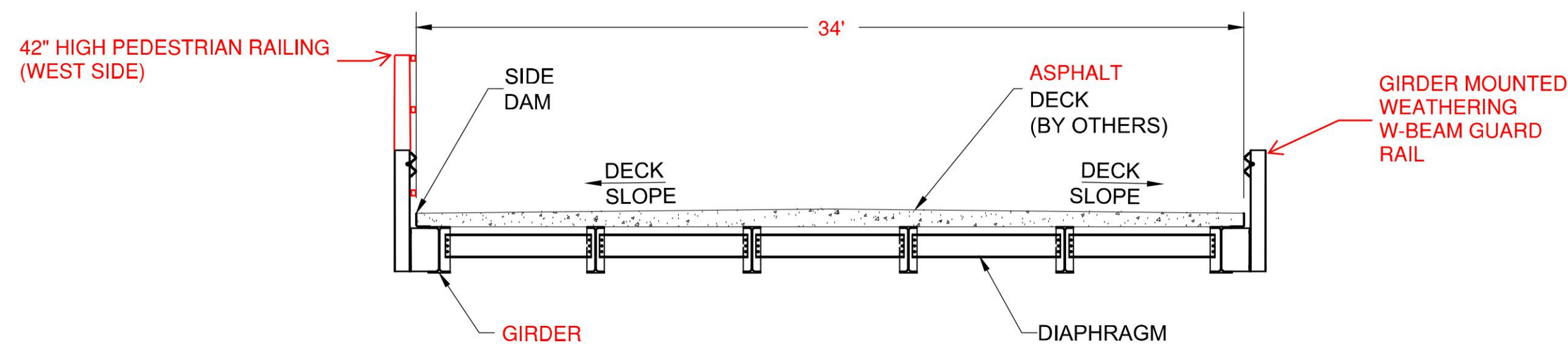


-Steel Stringer 36'-Span x 36'-Width-
 Warm Springs Preserve
 Vehicular Bridge
 Ketchum, Idaho

9025 Centre Pointe Dr., Suite 400, West Chester, OH 45089
 800-338-1122 513-645-7000 513-645-7993 FAX
 www.contechES.com

CONTECH
 DYOB
 DRAWING

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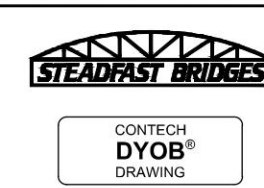


BRIDGE SECTION

Rolled Girder Vehicular Bridge 34' Span x 34' Width

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PROJECT NUMBER: 22313	DATE: 10/23/2024
DESIGNED: DYOB	DRAWN: DYOB
CHECKED: DYOB	APPROVED:
SHEET NO: 3	OF 4



-Steel Stringer 36'-Span x 36'-Width-
 Warm Springs Preserve
 Vehicular Bridge
 Ketchum, Idaho

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 800-338-1122 513-645-7000 513-645-7993 FAX
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WARM SPRINGS PRESERVE
 BRIDGE DETAILS

LOCATED WITHIN SECTION 1&12, T4 N., R17 E. B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
 PREPARED FOR: CITY OF KETCHUM

PROJECT INFORMATION
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 SURVEY DATE:

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 ENGINEERING
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 100 Bell Drive
 Ketchum, ID 83340
 (208) 726-9512
 www.benchmark-associates.com

NO.	DATE	BY	REVISIONS

PURPOSE: ISSUE FOR REVIEW

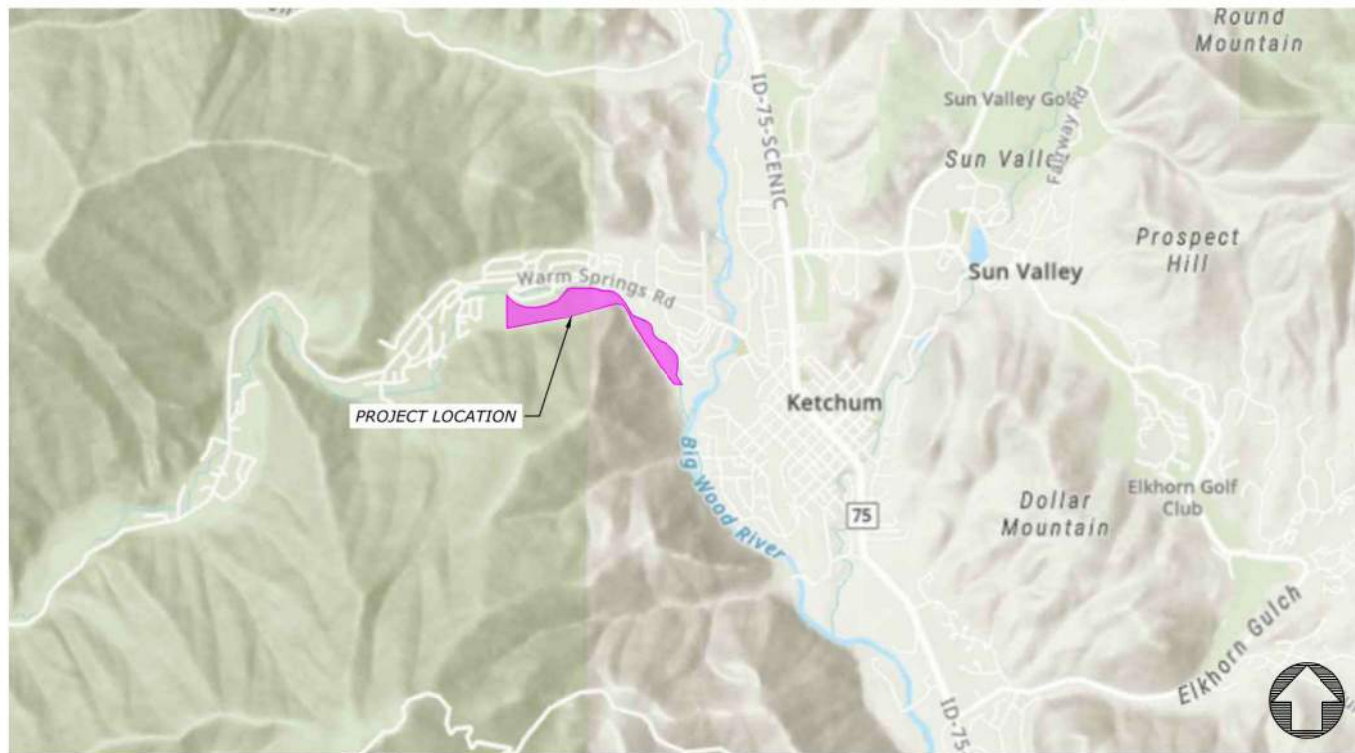
C4.1

WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET

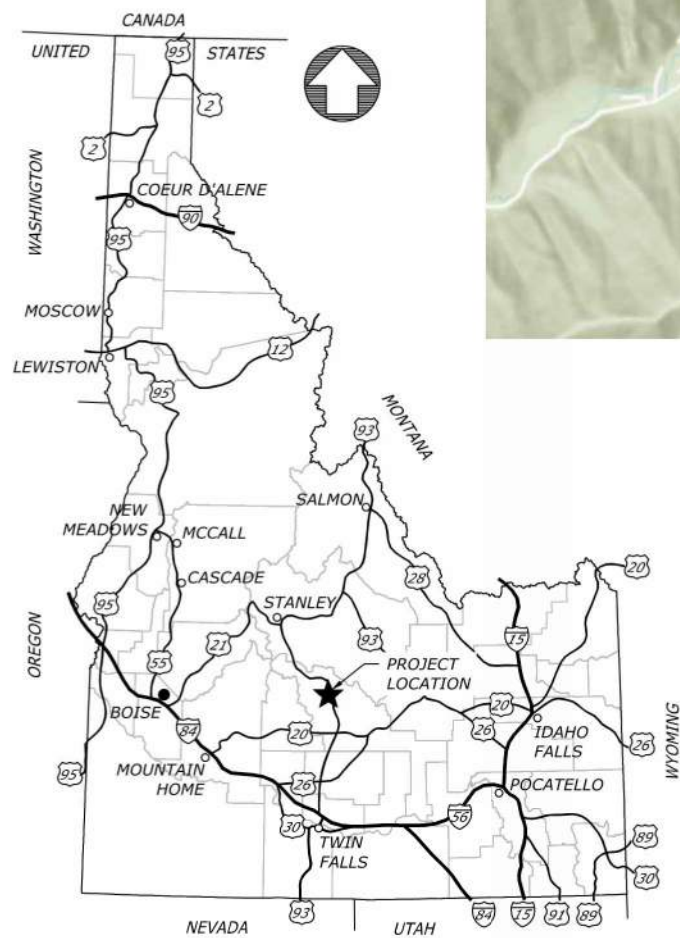
WARM SPRINGS CREEK, KETCHUM, ID 95% DESIGN DRAWINGS

PREPARED FOR:
WOOD RIVER LAND TRUST
CORY MCCAFFREY
119 E BULLION STREET
HAILEY, ID 83333
(208) 788-3947

PREPARED BY:
RIO APPLIED SCIENCE & ENGINEERING, LLC
ATTN: JOE YOUNG, PE
3380 WEST AMERICANA TERRACE, SUITE 390
BOISE, ID 83706
(208) 484-4700



VICINITY MAP
Not to scale



KEY MAP
Not to scale



LOCATION MAP
0 500' 1000'

SHEET INDEX		
SHEET COUNT	DRAWING NUMBER	SHEET TITLE
1	G1	COVER SHEET
2	G2	GENERALS - 1
3	G3	GENERALS - 2
4	G4	CONSERVATION MEASURES - 1
5	G5	CONSERVATION MEASURES - 2
6	G6	QUANTITIES
7	C1	EXISTING CONDITIONS OVERVIEW
8	C2	EXISTING CONDITIONS PLAN 1
9	C3	EXISTING CONDITIONS PLAN 2
10	C4	EXISTING CONDITIONS PLAN 3
11	C5	EXISTING CONDITIONS PLAN 4
12	C6	PROPOSED CONDITIONS OVERVIEW
13	C7	PROPOSED CONDITIONS PLAN - 1
14	C8	PROPOSED CONDITIONS PLAN - 2
15	C9	PROPOSED CONDITIONS PLAN - 3
16	C10	PROPOSED CONDITIONS PLAN - 4
17	C11	PROPOSED CONDITIONS DEMO OVERVIEW
18	C12	PROPOSED CONDITIONS ACCESS, STAGING, & EROSION CONTROL
19	C13	PROPOSED CONDITIONS ACCESS, STAGING, & EROSION CONTROL
20	C14	MAINSTEM PLAN & PROFILE RIFFLE 1 - STA 10+39 TO 12+01
21	C15	MAINSTEM PLAN & PROFILE RIFFLE 2 - STA 26+17 TO 27+77
22	C16	BALDY CHANNEL PLAN & PROFILE STA 0+00 TO 6+00
23	C17	BALDY CHANNEL PLAN & PROFILE STA 6+00 TO 14+00
24	C18	BALDY CHANNEL PLAN & PROFILE STA 14+00 TO 20+92
25	C19	BALDY CHANNEL PLAN & PROFILE STA 20+92 TO 24+22
26	C20	DOLLAR CHANNEL PLAN & PROFILE STA 0+00 TO 3+47
27	C21	SUNNY CHANNEL PLAN & PROFILE STA 0+00 TO 3+38
28	C22	CHALLENGER CHANNEL PLAN & PROFILE STA 0+36 TO 3+32
29	C23	ROUNDHOUSE CHANNEL PLAN & PROFILE STA 0+03 TO 2+15
30	C24	VALLEY SECTION OVERVIEW
31	C25	VALLEY SECTIONS
32	D1	ACCESS AND ISOLATION DETAILS
33	D2	DETAIL CONSTRUCTED RIFFLE
34	D3	DETAIL CONSTRUCTED RIFFLE MATERIALS AND SCHEDULES
35	D4	DETAIL SHORT ROUGHENED EDGE
36	D5	DETAIL HABITAT STRUCTURE 1
37	D6	DETAIL HABITAT STRUCTURE 2
38	D7	DETAIL HABITAT STRUCTURE 3
39	D8	DETAIL HABITAT STRUCTURE 4
40	D9	DETAIL HABITAT STRUCTURE 5
41	D10	DETAIL HABITAT STRUCTURE 6
42	D11	DETAIL HABITAT STRUCTURE 7
43	D12	DETAIL HABITAT STRUCTURE 8
44	D13	DETAIL BALDY CHANNEL INLET



WARM SPRINGS PRESERVE STREAM &
 FLOODPLAIN ENHANCEMENT DESIGN SET
 95% DESIGN DRAWINGS
 WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

WORKING DRAFT
 NOT FOR
 CONSTRUCTION

DATE: 11/6/2024
 DESIGNED: ZS, MP, JY
 APPROVED: JY

DRAWING NAME
 GENERALS
 COVER SHEET

DRAWING NO.
 G1
 SHEET 1 OF 44

FILE: E:\PROJECTS\WOOD_RIVER\WARM_SPRINGS_PRESERVE\STREAM_ENHANCEMENT\DRAWINGS\GENERAL.DWG, SAVED BY: ZACH SUDMAN, PLOT DATE: 11/06/2024, 12:58 PM

GENERAL NOTES

- A. PROJECT COORDINATE SYSTEM IS NAD83 IDAHO STATE PLANE, CENTRAL ZONE, US FOOT.
B. THE IDAHO STATE PUBLIC WORKS CONSTRUCTION (ISPMC) STANDARDS FOR CONSTRUCTION SHALL APPLY UNLESS OTHERWISE NOTED IN THE PLANS OR PROJECT SPECIAL PROVISIONS.
C. TOPOGRAPHIC MAPPING WITHIN THE PROJECT AREA IS BASED ON A COMBINATION OF 2017 LIDAR DATA SUPPLEMENTED WITH TOPOGRAPHIC AND BATHYMETRIC DATA COLLECTED BY RIO ASE IN SEPTEMBER 2022 AND 2023 AND PHILLIPS LAND SURVEYING IN OCTOBER 2023. TOPOGRAPHIC MAPPING IS ASSUMED TO BE ACCURATE AND REPRESENTATIVE OF EXISTING CONDITIONS.
D. EXISTING UNDERGROUND UTILITY LOCATIONS HAVE NOT BEEN IDENTIFIED AND ARE NOT SHOWN ON THESE PLANS. CONTRACTOR IS RESPONSIBLE TO LOCATE UTILITIES PRIOR TO CONSTRUCTION AND SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION.

GENERAL REQUIREMENTS

1. DESCRIPTION OF WORK

- A. EXCAVATION OF FLOODPLAIN TO INCREASE SEASONAL FLOODPLAIN INUNDATION.
B. ADDITION OF WOOD STRUCTURES ON WARM SPRINGS CREEK TO ENHANCE HABITAT.
C. EXCAVATION OF POOLS WITHIN WARM SPRINGS CREEK TO ENHANCE HABITAT.
D. CREATION OF A SIDE CHANNEL TO CONVEY FLOW INTO AND OUT OF A POND TO BE USED FOR IRRIGATION AND RECREATION.
E. CREATION OF TWO SHORTER SIDE CHANNELS FOR HABITAT.
F. INCORPORATION OF RIFFLES, POOLS, AND GLIDE HABITAT UNITS AND BANK AND FLOODPLAIN ROUGHNESS TREATMENTS AND WOOD HABITAT STRUCTURES WITHIN SIDE CHANNELS.
G. REVEGETATION THROUGH PLANTING AND SEEDING OF NATIVE SPECIES WITHIN RIPARIAN, WETLAND, AND UPLAND ZONES.

2. PROJECT ROLES

- A. THE ABOVE WORK IS TO BE PERFORMED FOR THE CITY OF KETCHUM, HEREAFTER REFERRED TO AS THE "SPONSOR". THE SPONSOR WILL APPOINT A PROJECT STAFF MEMBER, HEREAFTER REFERRED TO AS "CONTRACTING OFFICER", WHO WILL HAVE THE RESPONSIBILITY TO ISSUE A CONTRACT TO CONSTRUCT THE ABOVE WORK AND WILL ADMINISTER THE CONTRACT AND FUNDS FOR THE PROJECT. ONLY THE SPONSOR MAY APPROVE CHANGES TO THE CONTRACT AMOUNT AND THE CONTRACT REQUIREMENTS.
B. RIO ASE, HEREAFTER REFERRED TO AS THE "ENGINEER," IS THE SPONSOR'S REPRESENTATIVE WHO HAS DESIGNED THE PROJECT. THE ENGINEER PROVIDES CLARIFICATION TO THE CONTRACTING OFFICER REGARDING THE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND WHETHER ALL THE PROPOSED OR COMPLETED WORK IS IN COMPLIANCE WITH THE CONSTRUCTION SPECIFICATIONS. THE ENGINEER ALSO REVIEWS ALL PROPOSED CHANGES AND MAKES RECOMMENDATIONS TO THE CONTRACTING OFFICER PRIOR TO THE CONTRACTING OFFICER'S APPROVAL OF THE CHANGES.
C. THE OWNER OF THE PROPERTY WHERE CONSTRUCTION WILL OCCUR IS THE CITY OF KETCHUM, HEREIN REFERRED TO AS THE "PROPERTY OWNER."
D. CONSTRUCTION OBSERVATION WILL BE PROVIDED BY THE SPONSOR AND/OR THE ENGINEER. CONSTRUCTION OBSERVERS WILL NOT DIRECT THE CONTRACTOR IN ANY WAY BUT WILL ADVISE THE CONTRACTING OFFICER REGARDING THE TECHNICAL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND WHETHER THE ONGOING WORK IS IN COMPLIANCE OR IF THERE ARE DISCREPANCIES. THE CONSTRUCTION OBSERVERS ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES AND/OR SAFETY OF THE CONTRACTOR.

3. GENERAL CONSTRUCTION SEQUENCE

- A. CONSTRUCTION STAKING
B. SITE PREPARATION, INSTALL EROSION & SEDIMENT CONTROL MEASURES
C. EARTHWORK AND GRADING INCLUDING EXCAVATION OF NEW CHANNELS, ALCOVES, AND FLOODPLAIN FEATURES, INSTALLATION OF BOULDERS AND LARGE WOOD HABITAT STRUCTURES
D. CHECK GRADES, PREWASH CHANNELS, ACTIVATE CHANNELS
E. RECLAIM TEMPORARY CONSTRUCTION ACCESS AND STAGING AREAS TO PRE-EXISTING CONDITIONS
F. PLANTING AND SEEDING
G. FINAL INSPECTION, SITE CLEANUP, AND DEMOBILIZATION

4. WORK SCHEDULE

- A. THE APPROVED WORK WINDOW FOR THIS PROJECT IS JULY 8 TO MARCH 15 THE FOLLOWING YEAR. WORK REQUIRING EQUIPMENT TO OPERATE PARTLY, OR WHOLLY, BELOW THE ORDINARY HIGH WATER LINE SHALL BE COMPLETED DURING THE IN-WATER WORK WINDOW.
B. ALL OTHER WORK LOCATED OUTSIDE OF THE ORDINARY HIGH WATER LINE SHALL BE ACCOMPLISHED BY _____.
C. THE CONTRACTOR MAY NOT LEAVE THE WORK SITE OR SUSPEND ACTIVITY FOR MORE THAN FIVE (5) CONSECUTIVE DAYS AFTER MOBILIZING TO THE SITE AND PRIOR TO REACHING SUBSTANTIAL COMPLETION UNLESS OTHERWISE APPROVED BY THE CONTRACTING OFFICER.

5. LOCATION

- A. ALL WORK IS ON WARM SPRINGS CREEK, ITS FLOODPLAIN, AND THE PROPERTY BELONGING TO THE PROPERTY OWNER.
B. SITE IMPROVEMENTS WILL BE REQUIRED TO CREATE ACCESS POINTS SUITABLE FOR MOBILIZATION OF CONSTRUCTION EQUIPMENT AND DELIVERY OF PROJECT MATERIALS.

USE OF SITE

1. CONTRACTORS USE OF PREMISES

- A. PRIOR TO PERFORMING WORK, THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE PROJECT SITE, PROJECT SITE CONDITIONS, AND ALL PORTIONS OF THE WORK.
B. CONTRACTOR MUST COORDINATE ALL WORK AND ACCESS TO THE SITE WITH THE CONTRACTING OFFICER. THE CONTRACTING OFFICER WILL BE RESPONSIBLE FOR COORDINATION WITH THE PROPERTY OWNER.
C. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING PUBLIC SAFETY IN AND AROUND THE PROJECT SITE, AND WILL PROVIDE ANY SAFETY PRECAUTIONS SUCH AS TEMPORARY FENCING OR OTHER METHODS AT THE CONTRACTOR'S DISCRETION WHERE DEEMED NECESSARY. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE OSHA AND NRS CHAPTER 618 STANDARDS, IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.
D. THE CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF PROPERTY AT THE PROJECT SITE AND WILL PROVIDE REASONABLE PROTECTION TO PREVENT DAMAGE OR LOSS TO EQUIPMENT, MATERIALS, AND SUPPLIES INCORPORATED IN THE PROJECT AND TO THE PROPERTY OWNER.

- E. THE CONTRACTOR SHALL ONLY ACCESS THE PROJECT SITE AS SHOWN ON THE DRAWINGS. ALTERNATE GATE ACCESS POINTS SHALL NOT BE USED, UNLESS AUTHORIZED BY THE CONTRACTING OFFICER.
F. CONTRACTOR SHALL ONLY USE DESIGNATED ACCESS ROUTES AND STREAM CROSSING LOCATIONS AS INDICATED ON THE DRAWINGS.
G. THE CONTRACTOR SHALL CAUSE NOTICE TO BE GIVEN TO THE APPROPRIATE STATE UNDERGROUND UTILITIES LOCATION CENTER AND TO ANY UNDERGROUND UTILITY FACILITIES WHO ARE NOT MEMBERS OF THE REGISTERED PROTECTION SERVICE. THE CONTRACTOR MUST TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING UTILITIES AND ALL NOTICES SHALL BE GIVEN AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. ALL WORK PERFORMED ADJACENT TO UTILITIES SHALL BE IN ACCORDANCE WITH PROCEDURES OUTLINED BY THE UTILITY COMPANY. THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGE TO UTILITIES TO THE SPONSOR AND THE UTILITY COMPANY.
H. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INCURRED TO ANY UTILITY LINES AT NO COST OR OBLIGATION TO THE SPONSOR OR THE PROPERTY OWNER.
I. MOVEMENT OF CONSTRUCTION EQUIPMENT OVER PIPES, BRIDGES, UTILITIES OR INFRASTRUCTURE DURING CONSTRUCTION SHALL BE AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INCURRED TO INFRASTRUCTURE AT NO COST OR OBLIGATION TO THE SPONSOR OR THE PROPERTY OWNER.
J. CONTRACTOR IS EXPECTED TO KEEP A NEAT AND TIDY CONSTRUCTION SITE, FREE OF ACCUMULATED WASTE MATERIALS AND TRASH.
K. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO MINIMIZE DAMAGE TO EXISTING VEGETATION DURING CONSTRUCTION ACTIVITIES.
L. THE CONTRACTOR SHALL ONLY REMOVE TREES AND SHRUBS THAT ARE ABSOLUTELY NECESSARY FOR THE EXECUTION OF THE WORK AND SHALL MAKE ALL EFFORTS TO MINIMIZE TREE AND SHRUB REMOVAL. IN THE EVENT THAT A TREE OR SHRUB OUTSIDE THE IMMEDIATE WORK AREAS MUST BE REMOVED OR DAMAGED, THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE CONTRACTING OFFICER. ANY TREE OR SHRUB UNNECESSARILY REMOVED FROM THE WORK SITE SHALL BE REPLACED BY A NEW TREE OR SHRUB OF EQUAL OR GREATER VALUE AT THE SOLE EXPENSE OF THE CONTRACTOR AS APPROVED BY THE CONTRACTING OFFICER.
M. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EQUIPMENT AND FACILITIES UPON COMPLETION OF WORK UNDER THIS CONTRACT.

2. EQUIPMENT

- A. CONTRACTOR IS REQUIRED TO PRESSURE WASH AND REMOVE ALL DIRT, GREASE, OIL, FUEL, VEGETATION AND WEED SEEDS BEFORE BRINGING EQUIPMENT ON SITE TO LIMIT INTRODUCTION OF NOXIOUS WEEDS, AQUATIC INVASIVES AND POLLUTANTS TO THE SITE.
B. COMPLETE VEHICLE AND EQUIPMENT STAGING, CLEANING, MAINTENANCE, REFUELING, AND FUEL STORAGE IN THE DESIGNATED CONSTRUCTION STAGING AND MATERIAL STORAGE AREA 150' AWAY FROM ANY NATURAL WATER BODY.
C. INSPECT ALL VEHICLES AND EQUIPMENT OPERATED WITHIN 150 FEET OF SURFACE WATERS DAILY FOR FLUID LEAKS BEFORE LEAVING THE CONSTRUCTION STAGING AND MATERIAL STORAGE AREA. REPAIR ANY LEAKS DETECTED IN THE CONSTRUCTION STAGING AND MATERIAL STORAGE AREA BEFORE RESUMING OPERATION. DOCUMENT INSPECTIONS IN A RECORD THAT IS AVAILABLE FOR REVIEW ON REQUEST BY THE CONTRACTING OFFICER AND REGULATORY AGENCIES.
D. USE OF EQUIPMENT IN FLOWING WATER IS LIMITED BY APPLICABLE PERMITS. EQUIPMENT MUST BE THOROUGHLY CLEANED BEFORE ENTERING THE WATER. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH APPLICABLE REGULATIONS FOR IN-WATER EQUIPMENT USE.
E. HYDRAULICS FLUIDS - ALL EQUIPMENT THAT ARE DOING WORK IN ACTIVE STREAM CHANNELS, OR PERMANENT WATER BODIES DURING PROJECT CONSTRUCTION MUST USE HYDRAULIC OIL THAT MEETS OR EXCEEDS ENVIRONMENTALLY ACCEPTABLE LUBRICANTS BY THE U.S. EPA (2011); E.G., MINERAL OIL, POLYGLYCOL, VEGETABLE OIL, SYNTHETIC ESTER; MOBIL® BIODEGRADABLE HYDRAULIC OILS, TOTAL® HYDRAULIC FLUID, TERRESOLVE TECHNOLOGIES LTD.® BIOBASED BIODEGRADABLE LUBRICANTS, COUGAR LUBRICATION® 2XT BIO ENGINE OIL, SERIES 4300 SYNTHETIC BIO-DEGRADABLE HYDRAULIC OIL, 8060-2 SYNTHETIC BIO-DEGRADABLE GREASE NO. 2, ETC. OR MEET STRINGENT ACUTE AQUATIC TOXICITY (L-50), WHICH IS INHERENTLY BIODEGRADABLE. THIS DOES NOT INCLUDE TRUCKS, DOZERS, FRONT END LOADERS, ETC., THAT ARE OPERATED ON THE FLOOD PLAIN OR INVOLVED IN THE CONSTRUCTION OF NEW CHANNELS PRIOR TO ADDING WATER FLOW OR FILLING ABANDONED CHANNELS AFTER DE-WATERING. ALL PRODUCTS SHALL BE API CERTIFIED AND THE VENDOR SHALL FURNISH DOCUMENTATION OF THE CERTIFICATION UPON REQUEST. PRODUCTS MUST MEET THE PERFORMANCE AND WARRANTY REQUIREMENTS OF THE MANUFACTURERS LISTED IN THE SPECIFICATIONS.
F. ABSORBENT PADS TO SOAK UP LEAKS AND A FUEL SPILL RESPONSE KIT (INCLUDING RAG PADS AND BOOMS) OF APPROPRIATE SIZE FOR THE EQUIPMENT USED SHALL BE ON SITE AT ALL TIMES AND READILY AVAILABLE THROUGHOUT THE CONSTRUCTION PERIOD.

3. HOURS OF WORK

- A. THE NORMAL WORK HOURS SHALL BE 7:00 AM TO 7:00 PM, MONDAY THROUGH FRIDAY. NO WORK SHALL BE PERFORMED OUTSIDE THE NORMAL WORK HOURS, OR ON SATURDAYS, SUNDAYS, OR HOLIDAYS UNLESS AUTHORIZED BY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL REQUEST WORK HOUR VARIATIONS IN WRITING VIA EMAIL AND OBTAIN WRITTEN APPROVAL FROM THE CONTRACTING OFFICER PRIOR TO WORKING OUTSIDE NORMAL WORK HOURS.

SPECIAL PROCEDURES

1. IN-STREAM WORK

- A. IN-STREAM WORK IS ALLOWED AS SPECIFIED IN THE PERMIT DOCUMENTS.
B. TURBIDITY CRITERIA SHALL BE STRICTLY ADHERED TO WHILE COMPLETING ALL INSTREAM WORK. COFFERDAMS, FLOW DIVERSION STRUCTURES AND BYPASS CHANNELS SHALL BE INSTALLED AT ALL LOCATIONS INDICATED ON THE DRAWINGS OR AT LOCATIONS SHOWN ON AN APPROVED "COFFERDAM AND FLOW DIVERSION PLAN" (SEE SPECIFICATIONS). SOME ASPECTS OF THE PROJECT MAY NOT REQUIRE THE USE OF A COFFERDAM TO COMPLETE THE WORK.
C. DEWATERING WITHIN COFFERDAMS SHALL BE PERFORMED TO THE EXTENT NECESSARY TO CONSTRUCT THE PROJECT AS SHOWN ON THESE PLANS AS FOLLOWS: DEWATERING AT WOOD STRUCTURE LOCATIONS SHALL BE CONDUCTED SUCH THAT WATER IS NO DEEPER THAN THE DIAMETER OF THE LOG(S) ON THE LOWEST LAYER OF THE STRUCTURE, AND WITHIN CONSTRUCTION EXCAVATIONS SUCH THAT WATER IS SHALLOW ENOUGH TO ALLOW THE CONTRACTING OFFICER TO EASILY INSPECT FINISHED ELEVATIONS OF THE WORK. DISCHARGE FROM PUMPING SHALL BE ROUTED TO THE FLOODPLAIN AREAS SO AS TO ALLOW THE REMOVAL OF FINE SEDIMENTS PRIOR TO REENTERING SURFACE WATERS OR WETLANDS. ALL PUMPS USED BY THE CONTRACTOR FOR DEWATERING SHALL HAVE SCREENED INTAKES THAT MEET WASHINGTON DEPARTMENT OF FISH AND WILDLIFE SPECIFICATIONS AND NATIONAL MARINE FISHERIES SERVICE ANADROMOUS SALMONID PASSAGE FACILITY DESIGN CRITERIA (NMF5, 2011).
D. CONTRACTOR SHALL RETAIN EXISTING VEGETATION AND VARY CHANNEL WIDTH (±0.5 FEET) AND DEPTH (+0.2 TO -0.5 FEET) OF SIDE CHANNEL EXCAVATION AS DIRECTED BY THE CONTRACTING OFFICER.



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET

95% DESIGN DRAWINGS

WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS,MP, JY
APPROVED: JY

DRAWING NAME
GENERALS
GENERALS - 1

DRAWING NO.
G2
SHEET 2 OF 44

FILE: B:\PROJECTS\WOOD_HUTCHINSON_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCTS\GENERALS.DWG SAVED BY: ZACH SUDMAN PLOT DATE: 11/06/2024 12:58 PM

SPECIAL PROCEDURES CONTINUED

2. TURBIDITY MONITORING

- A. TURBIDITY MONITORING IS REQUIRED AS PART OF THIS PROJECT AND SHALL BE COMPLETED BY THE CONTRACTOR IN ACCORDANCE WITH THE CONSERVATION MEASURES. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR TURBIDITY AS SET FORTH IN THE PERMIT DOCUMENTS AND FOLLOW THE PROTOCOLS OUTLINED BELOW.
1. TAKE A BACKGROUND TURBIDITY SAMPLE USING A RECENTLY-CALIBRATED TURBIDIMETER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, OR MEASURE TURBIDITY WITH A VISUAL TURBIDITY OBSERVATION. TURBIDITY SHOULD BE MEASURED EVERY 2 HOURS WHILE IN-WATER WORK IS BEING IMPLEMENTED OR MORE OFTEN IF SEDIMENT DISTURBANCE VARIES GREATLY. TURBIDITY DOES NOT NEED TO BE MONITORED WHEN WORKING IN THE DEWATERED SECTIONS UNLESS A VISIBLE PLUME IS EVIDENT. THE BACKGROUND SAMPLES SHOULD BE TAKEN AT A RELATIVELY UNDISTURBED LOCATION APPROXIMATELY 100 FEET UPSTREAM FROM THE PROJECT AREA. RECORD THE OBSERVATION, LOCATION (LATITUDE/LONGITUDE), AND TIME BEFORE MONITORING AT THE DOWNSTREAM POINT, KNOWN AS THE MEASUREMENT COMPLIANCE POINT.
2. TAKE A SECOND SAMPLE, IMMEDIATELY AFTER EACH UPSTREAM SAMPLE, AT THE MEASUREMENT COMPLIANCE POINT, APPROXIMATELY 100 FEET DOWNSTREAM FROM THE PROJECT AREA. RECORD THE DOWNSTREAM OBSERVATION, LOCATION, AND TIME.
3. COMPARE THE UPSTREAM AND DOWNSTREAM SAMPLES. IF OBSERVED OR MEASURED TURBIDITY DOWNSTREAM IS MORE THAN UPSTREAM OBSERVATION OR MEASUREMENT (> 10%), THE ACTIVITY MUST BE MODIFIED TO REDUCE TURBIDITY. IF VISUAL ESTIMATES ARE USED, AN OBVIOUS DIFFERENCE BETWEEN UPSTREAM AND DOWNSTREAM OBSERVATIONS SHALL BEAR THE ASSUMPTION OF A (> 10%) DIFFERENCE (FIGURE 1). MARK "YES" OR "NO" ON YOUR DATASHEET. CONTINUE TO MONITOR EVERY 2 HOURS AS LONG AS INSTREAM ACTIVITY CONTINUES.
4. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 4 HOURS), THE ACTIVITY MUST STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND, AND THE EC LEAD MUST BE NOTIFIED WITHIN 48 HOURS. THE EC LEAD SHALL DOCUMENT THE REASONS FOR THE EXCEEDANCE AND CORRECTIVE MEASURES TAKEN THEN NOTIFY THE LOCAL NMFS BRANCH CHIEF AND/OR USFWS FIELD SUPERVISOR AND SEEK RECOMMENDATIONS.
5. IF AT ANY TIME, MONITORING, INSPECTIONS, OR OBSERVATIONS SHOW THAT THE TURBIDITY CONTROLS ARE INEFFECTIVE, IMMEDIATELY MOBILIZE WORK CREWS TO REPAIR, REPLACE, OR REINFORCE CONTROLS AS NECESSARY.
6. ANY EXCEEDANCE OF THE TURBIDITY STANDARD MUST BE REPORTED TO THE DEQ REGIONAL OFFICE WITHIN 24 HOURS. COPIES OF TURBIDITY MONITORING RECORDS OR LOGS MUST BE AVAILABLE TO DEQ UPON REQUEST. THE LOG MUST INCLUDE BACKGROUND MEASUREMENTS (IN NTUS); DOWN-CURRENT MEASUREMENTS, COMPARISON OF BACKGROUND AND DOWN-CURRENT MONITORING AS A NUMERIC VALUE (IN NTUS), AND LATITUDE/LONGITUDE, TIME AND DATE FOR EACH SAMPLING EVENT. MONITORING RECORDS OR LOGS MUST DESCRIBE ALL EXCEEDANCES AND SUBSEQUENT ACTIONS TAKEN TO CORRECT THE VIOLATIONS, INCLUDING MONITORING AND THE EFFECTIVENESS OF THE ACTION(S) TAKEN.

WOOD STRUCTURES

1. WOOD STRUCTURES

- A. SEE SPECIFICATIONS FOR LOG, RACKING, AND SLASH MATERIAL REQUIREMENTS.
B. CONTRACTOR SHALL PROCURE ALL WOOD MATERIALS REQUIRED FOR THIS CONTRACT THROUGH LEGAL MEANS AND HAS SOLE RESPONSIBILITY TO SECURE ANY AND ALL NECESSARY PERMITS TO DO SUCH.

TEMPORARY UTILITIES

1. TEMPORARY ELECTRIC

- A. ELECTRIC POWER IS NOT AVAILABLE AT THE SITE.
B. IF TEMPORARY POWER IS NECESSARY TO OPERATE PUMPS, CONTRACTOR SHALL PROVIDE ALL GENERATORS, AND OTHER ELECTRICAL EQUIPMENT AND FACILITIES FOR OBTAINING AND DISTRIBUTING POWER ON THE SITE.
C. ALL GENERATORS SHALL BE PLACED OUTSIDE OF THE ORDINARY HIGH WATER LINE WITH APPROPRIATE SPILL PREVENTION AND CONTAINMENT MEASURES.

2. TEMPORARY WATER

- A. POTABLE WATER IS NOT AVAILABLE TO THE CONTRACTOR AT THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING POTABLE WATER FOR ALL EMPLOYEES AT THE SITE.

3. TEMPORARY SANITATION FACILITIES

- A. CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY SANITATION FACILITIES (E.G., "PORT-A-POTTIES") FOR USE BY THE CONSTRUCTION AND OBSERVATION CREWS FOR THE DURATION OF THE CONSTRUCTION AND REVEGETATION ACTIVITIES.

4. TEMPORARY FIRST AID FACILITIES

- A. CONTRACTOR SHALL PROVIDE FIRST AID EQUIPMENT AND SUPPLIES ONSITE FOR EMPLOYEES.
B. CONTRACTOR SHALL HAVE AN EMERGENCY ACTION PLAN AND INSTRUCT EMPLOYEES WHAT TO DO IN CASE OF A WORKPLACE INJURY.
C. CONTRACTOR SHALL REVIEW THE PLAN WITH EACH EMPLOYEE AND HAVE THE PLAN AVAILABLE ONSITE AT ALL TIMES.

5. TEMPORARY FIRE PROTECTION

- A. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN A MANNER THAT IS FIRE-SAFE FOR THE WORK AREA AND ADJACENT AREAS. PROPER FIRE EXTINGUISHERS SHALL BE INSTALLED ON ALL EQUIPMENT AND MAINTAINED BY THE CONTRACTOR. THE PREMISE SHALL BE MAINTAINED CLEAR OF RUBBISH, DEBRIS, OR OTHER MATERIAL CONSTITUTING A POTENTIAL FIRE HAZARD.
B. WHERE SIGNIFICANT OR CONTINUED NONCOMPLIANCE WITH FIRE SAFETY IS NOTED, THE CONTRACTING OFFICER RESERVES THE RIGHT TO STOP THE WORK AT NO EXTRA COST DUE TO EXTENSION OF TIME PENDING REMEDIAL ACTION. FURTHERMORE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND REIMBURSE THE SPONSOR AS APPROPRIATE, ANY FINES OR PENALTIES LEVIED BY THE FIRE DEPARTMENT.

6. TEMPORARY FUEL STORAGE

- A. ALL STATIONARY TEMPORARY FUEL STORAGE SHALL BE LOCATED IN CONSTRUCTION STAGING AREAS OR OTHERWISE APPROVED LOCATIONS.
B. FUEL STORAGE VESSELS SHALL BE INSPECTED PRIOR TO SITE DELIVERY FOR LEAKS OR DAMAGE. LEAKY STORAGE TANKS WILL NOT BE PERMITTED ON SITE.
C. SECONDARY CONTAINMENT WILL BE REQUIRED FOR ALL ON SITE FUEL STORAGE VESSELS. SECONDARY CONTAINMENT STRUCTURES WILL PROVIDE STORAGE CAPACITY IN THE AMOUNT OF 110% OF THE VOLUME OF THE LARGEST PRIMARY CONTAINER STORED WITHIN.
D. AT THE CONCLUSION OF PROJECT CONSTRUCTION, ANY LEAKED FUEL OR CONTAMINATED RAINWATER WITHIN THE SECONDARY CONTAINMENT STRUCTURE WILL BE PROPERLY COLLECTED AND LEGALLY DISPOSED OF AT AN OFFSITE LOCATION.

TEMPORARY ENVIRONMENTAL CONTROLS

1. REGULATORY REQUIREMENTS

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS AND SHALL BE EXPECTED TO MAINTAIN COPIES OF ALL REQUIRED PERMITS ON SITE FOR INSPECTION AND REVIEW.

- B. CONTRACTOR SHALL CONFORM TO MOST STRINGENT REQUIREMENT IN CASES OF CONFLICT BETWEEN SPECIFICATIONS AND REGULATORY REQUIREMENTS.
C. CONTRACTING OFFICER MAY STOP ANY CONSTRUCTION ACTIVITY IN VIOLATION OF FEDERAL, STATE, OR LOCAL LAWS AND ADDITIONAL EXPENSES RESULTING FROM WORK STOPPAGE WILL BE RESPONSIBILITY OF CONTRACTOR.
D. CONTRACTOR WILL BE RESPONSIBLE FOR PRODUCING IMPLEMENTING, ADHERING TO, AND MAINTAINING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) OR EQUIVALENT PLAN IN ACCORDANCE WITH THE REGULATIONS AND GUIDELINES SET FORTH AND SUBJECT TO APPROVAL BY THE STATE IN WHICH THE PROJECT IS LOCATED.

2. DUST CONTROL

- A. CONTRACTOR SHALL TRUCK WATER TO THE SITE TO USE FOR DUST ABATEMENT. WATER SHALL BE OBTAINED THROUGH LEGAL MEANS.
B. CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS TO CONTROL DUST ON ALL ACCESS ROADS SEVERAL TIMES PER DAY TO PREVENT DUST NUISANCE OR DAMAGE TO PERSONS, PROPERTY, OR ACTIVITIES, INCLUDING, BUT NOT LIMITED TO CROPS, ORCHARDS, CULTIVATED FIELDS, WILDLIFE HABITATS, DWELLINGS AND RESIDENCES, AGRICULTURAL ACTIVITIES, RECREATIONAL ACTIVITIES, TRAFFIC, AND SIMILAR CONDITIONS.
C. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES RESULTING FROM DUST ORIGINATING FROM CONTRACTOR OPERATIONS.

3. AIR POLLUTION CONTROL

- A. UTILIZE REASONABLY AVAILABLE METHODS AND DEVICES TO PREVENT, CONTROL, AND OTHERWISE MINIMIZE ATMOSPHERIC EMISSIONS OR DISCHARGES OF AIR CONTAMINANTS.
B. DO NOT OPERATE EQUIPMENT AND VEHICLES THAT SHOW EXCESSIVE EXHAUST GAS EMISSIONS UNTIL CORRECTIVE REPAIRS OR ADJUSTMENTS REDUCE SUCH EMISSIONS TO ACCEPTABLE LEVELS.

4. NOISE CONTROL

- A. DO NOT EXCEED 80 DECIBELS (DAYTIME), AS MEASURED AT NOISE-SENSITIVE AREAS SUCH AS RESIDENCES AND SCHOOLS DURING THE HOURS OF 7:00 A.M. TO 7:00 P.M. DO NOT EXCEED NOISE LEVELS OF 65 DECIBELS (NIGHTTIME) DURING THE HOURS OF 7:00 P.M. TO 7:00 A.M.
B. PROVIDE SPECIALTY MUFFLERS FOR CONTINUOUSLY RUNNING GENERATORS, PUMPS, AND OTHER STATIONARY EQUIPMENT TO MEET THE DECIBEL REQUIREMENTS ABOVE.
C. COMPRESSION BRAKES ARE NOT ALLOWED.
D. PERFORM OPERATIONS PRODUCING HIGH-INTENSITY IMPACT NOISE ONLY WEEKDAYS DURING THE HOURS OF 7:00 A.M. TO 7:00 P.M.

5. WATER POLLUTION CONTROL

- A. PERFORM CONSTRUCTION ACTIVITIES BY METHODS THAT WILL PREVENT ENTRANCE, OR ACCIDENTAL SPILLAGE, OF SOLID MATTER, CONTAMINANTS, DEBRIS, OR OTHER POLLUTANTS OR WASTES INTO STREAMS, FLOWING OR DRY WATERCOURSES, LAKES, WETLANDS, RESERVOIRS, OR UNDERGROUND WATER SOURCES. SUCH POLLUTANTS AND WASTES INCLUDE, BUT ARE NOT RESTRICTED TO REFUSE, GARBAGE, CEMENT, SANITARY WASTE, INDUSTRIAL WASTE, HAZARDOUS MATERIALS, RADIOACTIVE SUBSTANCES, OIL AND OTHER PETROLEUM PRODUCTS, AGGREGATE PROCESSING TAILINGS, MINERAL SALTS, AND THERMAL POLLUTION.

6. SURVEYING

- A. THE CONTRACTOR SHALL PROVIDE ALL SURVEYING TASKS NECESSARY FOR CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO: LOCATE SURVEY CONTROL AND REFERENCE POINTS, ESTABLISH HORIZONTAL AND VERTICAL CONTROL, PLACE GRADING STAKES, IDENTIFY AND STAKE THE CHANNEL CENTERLINE, IDENTIFY ALL MAJOR AND MINOR WORK COMPONENTS, AND PERIODICALLY VERIFY LOCATIONS AND ELEVATIONS OF ALL CONSTRUCTION ITEMS. AUTOCAD FILES FOR THE DESIGN ARE AVAILABLE UPON REQUEST.
B. CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING ANY ELEVATION OR HORIZONTAL DISCREPANCIES TO THE CONTRACTING OFFICER FOR CLARIFICATION. MINOR ADJUSTMENTS TO SUIT FIELD CONDITIONS ARE ANTICIPATED, AND IT SHALL BE THE RESPONSIBILITY OF THE ENGINEER TO MAKE DECISIONS REGARDING THESE ADJUSTMENTS.
C. ELECTRONIC VERSIONS OF THE TOPOGRAPHIC MAPPING AND DESIGN SURFACES ARE AVAILABLE IN AUTOCAD FORMAT UPON REQUEST. TOPOGRAPHIC MAPPING DO NOT INCLUDE UTILITIES AND SURFACE FEATURES, STRUCTURES, AND OTHER ITEMS MAY BE ENCOUNTERED AT THE PROJECT SITE THAT ARE NOT REFLECTED IN THE MAPPING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK EXISTING CONDITIONS PRIOR TO BIDDING OR COMMENCING WORK.
D. CONTROL POINTS IDENTIFIED ON THE DRAWINGS SHALL BE USED FOR ALL TIES TO SPATIAL AND ELEVATION DATA LISTED IN THE DRAWINGS.
E. ALL DIMENSIONS ON THE DRAWINGS ARE IN UNITS OF FEET AND DECIMALS, UNLESS OTHERWISE SPECIFIED.

FINAL SITE REVIEW

1. GENERAL

- A. THROUGHOUT THE PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF CHANGES IN THE CONTRACT DOCUMENTS.
B. PRIOR TO COMMENCING DEMOBILIZATION, THE CONTRACTOR SHALL REVIEW ALL CONSTRUCTION ELEMENTS WITH THE CONTRACTING OFFICER, WHO WILL GIVE APPROVAL OR PROVIDE A WRITTEN LIST FINAL ITEMS TO BE CORRECTED.
C. FINAL SITE REVIEW APPROVAL IS CONTINGENT ON THE SUCCESSFUL COMPLETION OF: CONSTRUCTION OF DESIGN ELEMENTS, CLEANING OF THE SITE, REMOVAL OF ALL CONSTRUCTION ACCESS ROADS, RUTS AND STAGING AREAS, RESTORATION OF AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, AND OTHER TASKS AS OUTLINED IN THESE SPECIFICATIONS AND ON THE DRAWINGS.

2. RECORD DOCUMENTS

- A. CONTRACTOR'S SET: SECURE FROM THE CONTRACTING AGENCY ONE COMPLETE SET OF CONTRACT DOCUMENTS FOR USE AS THE CONTRACTOR'S SET OF RECORD DOCUMENTS. LABEL IMMEDIATELY AS "RECORD DOCUMENTS-CONTRACTOR'S SET." USE THIS SET TO RECORD ALL CHANGES IN THE WORK AS THEY OCCUR ON A DAILY BASIS.
B. MAINTAIN THE CONTRACTOR'S SET OF RECORD DOCUMENTS PROTECTED FROM DETERIORATION AND FROM LOSS AND DAMAGE UNTIL COMPLETION OF THE WORK. IN THE EVENT OF LOSS OR DAMAGE USE WHATEVER MEANS NECESSARY TO AGAIN SECURE AND RECORD THE DATA.

3. FINAL CLEANUP

- A. COMPLETE THE FOLLOWING CLEANUP TASKS BEFORE REQUESTING INSPECTION FOR COMPLETION FOR THE ENTIRE PROJECT OR A PORTION OF THE PROJECT.
1. CLEAN THE PROJECT SITE AND GROUNDS IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES OF RUBBISH, WASTE MATERIALS, LITTER, AND FOREIGN SUBSTANCES. REMOVE ALL WASTE FROM THE PROPERTY, DO NOT BURN, BURY, OR OTHERWISE DISPOSE OF TRASH ON THE PROJECT SITE.
2. REMOVE CONSTRUCTION EQUIPMENT, TOOLS, MACHINERY, AND SURPLUS MATERIAL FROM THE SITE. WHERE EXTRA MATERIALS OF VALUE REMAIN AFTER COMPLETION, COORDINATE WITH THE CONTRACTING OFFICER ON WHERE TO LEAVE THEM ON THE PROJECT SITE.
3. PREPARE ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES THAT ARE ABOVE ORDINARY HIGH WATER FOR SEEDING SPECIFICATIONS OUTLINED IN THESE PLANS AND/OR THE SPECIFICATIONS.
4. LEFTOVER WOODY MATERIAL, WOOD AND OTHER NATIVE ORGANICS MAY BE BROKEN AND BROADCAST OVER THE RESTORED AREA AS APPROVED BY THE CONTRACTING OFFICER.
5. CONTRACTING OFFICER SHALL PROVIDE FINAL APPROVAL OF SITE CLEANUP PRIOR TO DEMOBILIZATION.



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET

95% DESIGN DRAWINGS

WOOD RIVER LAND TRUST WARM SPRINGS CREEK, KETCHUM, ID BLAINE COUNTY, IDAHO

WORKING DRAFT NOT FOR CONSTRUCTION

DATE: 11/6/2024 DESIGNED: ZS, MP, JY APPROVED: JY

DRAWING NAME GENERALS

GENERALS - 2

DRAWING NO. G3 SHEET 3 OF 44

FILE: B:\PROJECTS\WOOD_HICZUWARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCT\DWG_GENERAL\DWG_GENERAL.DWG-DATE: 11/06/2024 12:58 PM

GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS

THE ACTIVITIES COVERED UNDER THESE CONSERVATION MEASURES ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO FISH SPECIES. THE FOLLOWING GENERAL CONSERVATION MEASURES WILL BE APPLIED TO ALL ACTIONS OF THIS PROJECT.

PROJECT DESIGN AND SITE PREPARATION.

1. STATE AND FEDERAL PERMITS

- A. ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION.
B. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, AND USACE CLEAN WATER ACT (CWA) 404 PERMITS, CWA SECTION 401 WATER QUALITY CERTIFICATIONS.

2. TIMING OF IN-WATER WORK

- A. APPROPRIATE STATE (IDAHO DEPARTMENT OF FISH AND GAME) GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.
B. CHANGES TO ESTABLISHED WORK WINDOWS WILL BE APPROVED BY REGIONAL STATE BIOLOGISTS.

3. SITE LAYOUT AND FLAGGING

- A. CONSTRUCTION AREAS TO BE CLEARLY FLAGGED PRIOR TO CONSTRUCTION.
B. AREAS TO BE FLAGGED WILL INCLUDE:
1. SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;
2. EQUIPMENT ENTRY AND EXIT POINTS;
3. ROAD AND STREAM CROSSING ALIGNMENTS;
4. STAGING, STORAGE, AND STOCKPILE AREAS; AND
5. NO-SPRAY AREAS AND BUFFERS.

4. TEMPORARY ACCESS ROADS AND PATHS

- A. EXISTING ACCESS ROADS AND PATHS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER AND LENGTH OF TEMPORARY ACCESS ROADS AND PATHS THROUGH RIPARIAN AREAS AND FLOODPLAINS WILL BE MINIMIZED.
B. VEHICLE USE AND HUMAN ACTIVITIES, INCLUDING WALKING, IN AREAS OCCUPIED BY TERRESTRIAL ESA-LISTED SPECIES WILL BE MINIMIZED.
C. TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST A LIKELIHOOD OF EXCESSIVE EROSION OR FAILURE. IF SLOPES ARE STEEPER THAN 30%, THEN THE ROAD WILL BE DESIGNED BY A CIVIL ENGINEER WITH EXPERIENCE IN STEEP ROAD DESIGN.
D. THE REMOVAL OF RIPARIAN VEGETATION DURING CONSTRUCTION OF TEMPORARY ACCESS ROADS WILL BE MINIMIZED. WHEN TEMPORARY VEGETATION REMOVAL IS REQUIRED, VEGETATION WILL BE CUT AT GROUND LEVEL (NOT GRUBBED).
E. AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND REVEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES DECOMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.

5. TEMPORARY STREAM CROSSINGS

- A. EXISTING STREAM CROSSINGS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.
B. TEMPORARY BRIDGES AND CULVERTS WILL BE INSTALLED TO ALLOW FOR EQUIPMENT AND VEHICLE CROSSING OVER PERENNIAL STREAMS DURING CONSTRUCTION. TREATED WOOD SHALL NOT BE USED ON TEMPORARY BRIDGE CROSSINGS OR IN LOCATIONS IN CONTACT WITH OR DIRECTLY OVER WATER.
C. FOR PROJECTS THAT REQUIRE EQUIPMENT AND VEHICLES TO CROSS IN THE WET:
5. THE LOCATION AND NUMBER OF ALL WET CROSSINGS SHALL BE APPROVED BY THE BPA EC LEAD AND DOCUMENTED IN THE CONSTRUCTION PLANS;
6. VEHICLES AND MACHINERY SHALL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHENEVER POSSIBLE;
7. NO STREAM CROSSINGS WILL OCCUR 300 FEET UPSTREAM OR 100 FEET DOWNSTREAM OF AN EXISTING REDD OR SPAWNING FISH; AND
8. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND BANKS RESTORED.

6. STAGING, STORAGE, AND STOCKPILE AREAS

- A. STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND. STAGING AREAS CLOSER THAN 150 FEET WILL BE APPROVED BY THE CONTRACTING OFFICER.
B. NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN 150 FEET IF CLEARLY INDICATED IN THE PLANS THAT AREA IS FOR NATURAL MATERIALS ONLY.
C. ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.
D. ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE DISPOSED OF OUTSIDE THE 100-YEAR FLOODPLAIN.

7. EQUIPMENT

- A. MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS).
B. EQUIPMENT WILL BE STORED, FUELED, AND MAINTAINED IN AN CLEARLY IDENTIFIED STAGING AREA THAT MEETS STAGING AREA CONSERVATION MEASURES;
C. EQUIPMENT WILL BE REFUELED IN A VEHICLE STAGING AREA OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD (THIS MEASURE APPLIES ONLY TO GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS);
D. BIODEGRADABLE LUBRICANTS AND FLUIDS WILL BE USED ON EQUIPMENT OPERATING IN AND ADJACENT TO THE STREAM CHANNEL AND LIVE WATER.
E. EQUIPMENT WILL BE INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150 FEET OF ANY NATURAL WATER BODY OR WETLAND; AND
F. EQUIPMENT WILL BE THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

8. EROSION CONTROL

- A. TEMPORARY EROSION CONTROL MEASURES INCLUDE:
1. TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWNSLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE;
2. IF THERE IS A POTENTIAL FOR ERODED SEDIMENT TO ENTER THE STREAM, SEDIMENT BARRIERS WILL BE INSTALLED AND MAINTAINED FOR THE DURATION OF PROJECT IMPLEMENTATION;
3. TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE SEDGE MATS, FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC;
4. SOIL STABILIZATION UTILIZING WOOD FIBER MULCH AND TACKIFIER (HYDRO-APPLIED) MAY BE USED TO REDUCE EROSION OF BARE SOIL IF THE MATERIALS ARE NOXIOUS WEED FREE AND NONTOXIC TO AQUATIC AND TERRESTRIAL ANIMALS, SOIL MICROORGANISMS, AND VEGETATION;
5. SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL; AND
6. ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.
B. EMERGENCY EROSION CONTROLS. THE FOLLOWING MATERIALS FOR EMERGENCY EROSION CONTROL WILL BE AVAILABLE AT THE WORK SITE:
1. A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND
2. AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

9. DUST ABATEMENT

- A. THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES.
B. WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.
C. DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25 FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING MIXED 50:50 WITH WATER.
D. APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25 FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).
E. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.
F. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

10. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES.

- A. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.
B. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.
C. SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.
D. WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
E. ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A TARPULIN, UNTIL THEY CAN BE PROPERLY TRANSPORTED TO AND DISPOSED OF AT A FACILITY THAT IS APPROVED FOR RECEIPT OF HAZARDOUS MATERIALS.
F. PUMPS USED ADJACENT TO WATER SHALL USE SPILL CONTAINMENT SYSTEMS.

11. INVASIVE SPECIES CONTROL.

- A. PRIOR TO ENTERING THE SITE, ALL VEHICLES AND EQUIPMENT WILL BE POWER WASHED, ALLOWED TO FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE.
B. WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.
C. WADING BOOTS WITH FELT SOLES ARE NOT TO BE USED DUE TO THEIR PROPENSITY FOR AIDING IN THE TRANSFER OF INVASIVE SPECIES UNLESS DECONTAMINATION PROCEDURES HAVE BEEN APPROVED BY THE EC LEAD.

WORK AREA ISOLATION AND FISH SALVAGE.

1. WORK AREA ISOLATION.

- A. ANY WORK AREA WITHIN THE WETTED CHANNEL WILL BE ISOLATED FROM THE ACTIVE STREAM WHENEVER FISH ARE REASONABLY CERTAIN TO BE PRESENT, OR IF THE WORK AREA IS LESS THAN 300-FEET UPSTREAM FROM KNOWN SPAWNING HABITATS.
B. WORK AREA ISOLATION AND FISH SALVAGE ACTIVITIES WILL COMPLY WITH THE IN-WATER WORK WINDOW.
C. DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS AND AREAS (COFFER DAMS, PUMPS, DISCHARGE AREAS, FISH SCREENS, FISH RELEASE AREAS, ETC.).
D. WORK AREA ISOLATION AND FISH CAPTURE ACTIVITIES WILL OCCUR DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITONS APPROPRIATE TO MINIMIZE STRESS AND DEATH OF SPECIES PRESENT.

2. FISH SALVAGE.

- A. MONITORING AND RECORDING WILL TAKE PLACE FOR DURATION OF SALVAGE. THE SALVAGE REPORT WILL BE MAINTAINED BY THE CONTRACTING OFFICER.
B. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING CONDITIONS TO MINIMIZE STRESS TO FISH SPECIES, TYPICALLY PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES WHICH OCCUR IN THE MORNING VERSUS LATE IN THE DAY.
C. SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODOLOGIES, AND CONSERVATION MEASURES SPECIFIED BELOW:
1. SLOWLY REDUCE WATER FROM THE WORK AREA TO ALLOW SOME FISH TO LEAVE VOLITIONALLY.
2. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
3. BLOCK NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE. BLOCK NETS MAY BE LEFT IN PLACE FOR THE DURATION OF THE PROJECT TO EXCLUDE FISH AS LONG AS PASSAGE REQUIREMENTS ARE MET.
4. NETS WILL BE MONITORED HOURLY DURING IN-STREAM DISTURBANCE.
5. IF BLOCK NETS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED AND FREE OF ORGANIC ACCUMULATION. IF BULL TROUT ARE PRESENT, NETS ARE TO BE CHECKED EVERY 4 HOURS FOR FISH IMPINGEMENT.
6. CAPTURE FISH THROUGH SEINING AND RELOCATE TO STREAMS.
7. WHILE DEWATERING, ANY REMAINING FISH WILL BE COLLECTED BY HAND OR DIP NETS.
8. SEINES WITH A MESH SIZE TO ENSURE CAPTURE OF THE RESIDING ESA-LISTED FISH WILL BE USED.
9. MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.
10. ELECTROFISH TO CAPTURE AND RELOCATED FISH NOT CAUGHT DURING SEINING PER ELECTROFISH CONSERVATION MEASURES.
11. CONTINUE TO SLOWLY DEWATER STREAM REACH.
12. COLLECT ANY REMAINING FISH IN COLD-WATER BUCKETS AND RELOCATED TO THE STREAM.
13. LIMIT THE TIME FISH ARE IN A TRANSPORT BUCKET.
14. MINIMIZE PREDATION BY TRANSPORTING COMPARABLE SIZES IN BUCKETS.
15. BUCKET WATER TO BE CHANGED EVERY 15 MINUTES OR AERATED.
16. BUCKETS WILL BE KEPT IN SHADED AREAS OR COVERED.
17. DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
95% DESIGN DRAWINGS
WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

WORKING DRAFT
NOT FOR CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
GENERALS

CONSERVATION MEASURES - 1

DRAWING NO.
G4
SHEET 4 OF 44

FILE: E:\PROJECTS\BCE\WOOD_HICKZ\WARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCT\DWGS_GENERAL\DRAWING-95%_GENERAL.DWG SAVED BY: ZACH SUDMAN PLOT DATE: 11/06/2024 12:58 PM

WORK AREA ISOLATION AND FISH SALVAGE (CONTINUED)

3. ELECTROFISHING.

- A. INITIAL SITE SURVEY AND INITIAL SETTINGS.
1. IDENTIFY SPAWNING ADULTS AND ACTIVE REDDS TO AVOID.
2. RECORD WATER TEMPERATURE. ELECTROFISHING WILL NOT OCCUR WHEN WATER TEMPERATURES ARE ABOVE 18 DEGREES CELSIUS.
3. IF POSSIBLE, A BLOCK NET WILL BE PLACED DOWNSTREAM AND CHECKED REGULARLY TO CAPTURE STUNNED FISH THAT DRIFT DOWNSTREAM.
4. INITIAL SETTINGS WILL BE 100 VOLTS, PULSE WIDTH OF 500 MICRO SECONDS, AND PULSE RATE OF 30 HERTZ.
5. RECORDS FOR CONDUCTIVITY, WATER TEMPERATURE, AIR TEMPERATURE, ELECTROFISHING SETTINGS, ELECTROFISHER MODEL, ELECTROFISHER CALIBRATION, FISH CONDITIONS, FISH MORTALITIES, AND TOTAL CAPTURE RATES WILL BE INCLUDED IN THE SALVAGE LOG BOOK.
B. ELECTROFISHING TECHNIQUE.
1. SAMPLING WILL BEGIN USING STRAIGHT DC. POWER WILL REMAIN ON UNTIL THE FISH IS NETTED WHEN USING STRAIGHT DC. GRADUALLY INCREASE VOLTAGE WHILE REMAINING BELOW MAXIMUM LEVELS.
2. MAXIMUM VOLTAGE WILL BE 1100 VOLTS WHEN CONDUCTIVITY IS <100 MILLISECONDS, 800 VOLTS WHEN CONDUCTIVITY IS BETWEEN 100 AND 300 MILLISECONDS, AND 400 VOLTS WHEN CONDUCTIVITY IS >300 MILLISECONDS.
3. IF FISH CAPTURE IS NOT SUCCESSFUL USING STRAIGHT DC, THE ELECTROFISHER WILL BE SET TO INITIAL VOLTAGE FOR PDC. VOLTAGE, PULSE WIDTH, AND PULSE FREQUENCY WILL BE GRADUALLY INCREASED WITHIN MAXIMUM VALUES UNTIL CAPTURE IS SUCCESSFUL.
4. MAXIMUM PULSE WIDTH IS 5 MILLISECONDS. MAXIMUM PULSE RATE IS 70 HERTZ
5. ELECTROFISHING WILL NOT OCCUR IN ONE AREA FOR AN EXTENDED PERIOD.
6. THE ANODE WILL NOT INTENTIONALLY COME INTO CONTACT WITH FISH. THE ZONE FOR POTENTIAL INJURY OF 0.5 M FROM THE ANODE WILL BE AVOIDED.
7. SETTINGS WILL BE LOWERED IN SHALLOWER WATER SINCE VOLTAGE GRADIENTS LIKELY TO INCREASE.
8. ELECTROFISHING WILL NOT OCCUR IN TURBID WATER WHERE VISIBILITY IS POOR (I.E. UNABLE TO SEE THE BED OF THE STREAM).
9. OPERATIONS WILL IMMEDIATELY STOP IF MORTALITY OR OBVIOUS FISH INJURY IS OBSERVED. ELECTROFISHING SETTINGS WILL BE REEVALUATED.
C. SAMPLE PROCESSING.
1. FISH SHOULD BE SORTED BY SIZE TO AVOID PREDATION DURING SAMPLING.
2. SAMPLERS WILL REGULARLY CHECK CONDITIONS OF FISH HOLDING CONTAINERS, AIR PUMPS, WATER TRANSFERS, ETC.
3. FISH WILL BE OBSERVED FOR GENERAL CONDITIONS AND INJURIES
4. EACH FISH WILL BE COMPLETELY REVIVED BEFORE RELEASE. ESA-LISTED SPECIES WILL BE PRIORITIZED FOR SUCCESSFUL RELEASE.

4. DEWATERING.

- A. DEWATERING WILL OCCUR AT A RATE SLOW ENOUGH TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.
B. WHERE A GRAVITY FEED DIVERSION IS NOT POSSIBLE, A PUMP MAY BE USED. PUMPS WILL BE INSTALLED TO AVOID REPETITIVE DEWATERING AND REWATERING.
C. WHEN FISH ARE PRESENT, PUMPS WILL BE SCREENED IN ACCORDANCE WITH NMFS FISH SCREEN CRITERIA. NMFS ENGINEERING REVIEW AND APPROVAL WILL BE OBTAINED FOR PUMPS EXCEEDING 3 CUBIC FEET PER SECOND.
D. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO THE STREAM CHANNEL AND RIPARIAN VEGETATION.
E. SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OF INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL AND VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.

CONSTRUCTION AND POST CONSTRUCTION CONSERVATION MEASURES.

4. FISH PASSAGE.

- A. FISH PASSAGE WILL BE PROVIDED FOR ADULT AND JUVENILE FISH LIKELY TO BE PRESENT DURING CONSTRUCTION UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION, THE STREAM IS NATURALLY IMPASSABLE, OR PASSAGE WILL NEGATIVELY IMPACT ESA-LISTED SPECIES OR THEIR HABITAT.
B. FISH PASSAGE ALTERNATIVES WILL BE APPROVED BY THE BPA EC LEAD UNDER ADVISEMENT BY THE NMFS HABITAT BIOLOGIST.

2. CONSTRUCTION AND DISCHARGE WATER.

- A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.
B. DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.
C. CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS, AND OTHER POLLUTANTS.

3. TIME AND EXTENT OF DISTURBANCE.

- A. EARTHWORK REQUIRING IN-STREAM MECHANIZED EQUIPMENT (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING, AND COMPACTING) WILL BE COMPLETED AS QUICKLY AS POSSIBLE.
B. MECHANIZED EQUIPMENT WILL WORK FROM TOP OF BANK UNLESS WORK FROM ANOTHER LOCATION WILL RESULT IN LESS HABITAT DISTURBANCE (TURBIDITY, VEGETATION DISTURBANCE, ETC.).

4. CESSATION OF WORK.

- A. PROJECT OPERATIONS WILL CEASE WHEN HIGH FLOW CONDITIONS MAY RESULT IN INUNDATION OF THE PROJECT AREA (FLOOD EFFORTS TO DECREASE DAMAGES TO NATURAL RESOURCES PERMITTED).
B. WATER QUALITY LEVELS EXCEEDED. SEE CWA SECTION 401 WATER QUALITY CERTIFICATION AND TURBIDITY MEASURES.

5. SITE RESTORATION.

- A. DISTURBED AREAS, STREAM BANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED TO IMPROVED OR PRE-PROJECT CONDITIONS.
B. PROJECT-RELATED WASTE WILL BE REMOVED.
C. TEMPORARY ACCESS ROADS AND STAGING WILL BE DECOMPACTED AND RESTORED. SOILS WILL BE LOOSENED IF NEEDED FOR REVEGETATION OR WATER INFILTRATION.
D. THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE TO MONITOR AND MAINTAIN THE SITE OVER THE LIFE OF THE PROJECT.

6. REVEGETATION.

- A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.
B. A MIX OF NATIVE SPECIES (INVASIVE SPECIES NOT ALLOWED) APPROPRIATE TO THE SITE WILL BE USED TO REESTABLISH VEGETATION, PROVIDE SHADE, AND REDUCE EROSION. REESTABLISHED VEGETATION SHOULD BE AT LEAST 70% OF PRE-PROJECT CONDITIONS WITHIN THREE YEARS.
C. VEGETATION SUCH AS WILLOWS, SEDGES, OR RUSH MATS WILL BE SALVAGED FROM DISTURBED OR ABANDONED AREAS TO BE REPLANTED.
D. SHORT-TERM STABILIZATION MEASURE MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, OR OTHER SIMILAR TECHNIQUES.
E. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM, WATE BODY, OR WETLAND.
F. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.
G. INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY THREE YEARS POST-CONSTRUCTION).

7. SITE ACCESS AND IMPLEMENTATION MONITORING.

- A. THE PROJECT SPONSOR WILL PROVIDE CONSTRUCTION MONITORING DURING IMPLEMENTATION TO ENSURE ALL CONSERVATION MEASURES ARE ADEQUATELY FOLLOWED, EFFECTS TO LISTED SPECIES ARE NOT GREATER THAN PREDICTED, AND INCIDENTAL TAKE LIMITATIONS ARE NOT EXCEEDED.
B. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL SUBMIT THE PROJECT COMPLETION FORM (PCF) WITHIN 30 DAYS OF PROJECT COMPLETION.

8. CWA SECTION 401 WATER QUALITY CERTIFICATION.

- A. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL COMPLETE AND RECORD WATER QUALITY OBSERVATIONS (SEE TURBIDITY MONITORING) TO ENSURE IN-WATER WORK IS NOT DEGRADING WATER QUALITY.
B. DURING CONSTRUCTION, WATER QUALITY PROVISIONS PROVIDED BY THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY WILL BE FOLLOWED.

9. STAGED REWATERING PLAN.

- A. WHEN REINTRODUCING WATER TO DEWATERED AREAS AND NEWLY CONSTRUCTED CHANNELS, A STAGED REWATERING PLAN WILL BE APPLIED.
B. THE FOLLOWING WILL BE APPLIED TO ALL REWATERING EFFORTS. COMPLEX REWATERING EFFORTS MAY REQUIRE ADDITIONAL NOTES OR A DEDICATED SHEET IN THE CONSTRUCTION DETAILS.
1. TURBIDITY MONITORING PROTOCOL WILL BE APPLIED TO REWATERING EFFORTS.
2. PRE-WASH THE AREA BEFORE REWATERING. TURBID WASH WATER WILL BE DETAINED AND PUMPED TO THE FLOODPLAIN OR SEDIMENT CAPTURE AREAS RATHER THAN DISCHARGING TO FISH-BEARING STREAMS.
3. INSTALL SEINE NETS AT UPSTREAM END TO PREVENT FISH FROM MOVING DOWNSTREAM UNTIL 2/3 OF TOTAL FLOW IS RESTORED TO THE CHANNEL.
4. STARTING IN EARLY MORNING INTRODUCE 1/3 OF NEW CHANNEL FLOW OVER PERIOD OF 1-2 HOURS.
5. INTRODUCE SECOND THIRD OF FLOW OVER NEXT 1 TO 2 HOURS AND BEGIN FISH SALVAGE OF BYPASS CHANNEL IF FISH ARE PRESENT.
6. REMOVE UPSTREAM SEINE NETS ONCE 2/3 FLOW IN REWATERED CHANNEL AND DOWNSTREAM TURBIDITY IS WITHIN ACCEPTABLE RANGE (LESS THAN 40 NTU OR LESS THAN 10% BACKGROUND).
7. INTRODUCE FINAL THIRD OF FLOW ONCE FISH SALVAGE EFFORTS ARE COMPLETE AND DOWNSTREAM TURBIDITY VERIFIED TO BE WITHIN ACCEPTABLE RANGE.
8. INSTALL PLUG TO BLOCK FLOW INTO OLD CHANNEL OR BYPASS. REMOVE ANY REMAINING SEINE NETS.
9. IN LAMPREY SYSTEMS, PERFORM LAMPREY SALVAGE AND DRY SHOCKING MAY BE NECESSARY.

10. TURBIDITY MONITORING.

- A. RECORD THE READING, LOCATION, AND TIME FOR THE BACKGROUND READING APPROXIMATELY 100 FEET UPSTREAM OF THE PROJECT AREA USING A RECENTLY CALIBRATED TURBIDIMETER OR VIA VISUAL OBSERVATION (SEE THE HIP HANDBOOK TURBIDITY MONITORING SECTION FOR A VISUAL OBSERVATION KEY).
B. RECORD THE TURBIDITY READING, LOCATION, AND TIME AT THE MEASUREMENT COMPLIANCE LOCATION POINT.
1. 50 FEET DOWNSTREAM FOR STREAMS LESS THAN 30 FEET WIDE.
2. 100 FEET DOWNSTREAM FOR STREAMS BETWEEN 30 AND 100 FEET WIDE.
3. 200 FEET DOWNSTREAM FOR STREAMS GREATER THAN 100 FEET WIDE.
4. 300 FEET FROM THE DISCHARGE POINT OR NONPOINT SOURCE FOR LOCATIONS SUBJECT TO TIDAL OR COASTAL SCOUR.
C. TURBIDITY SHALL BE MEASURED (BACKGROUND LOCATION AND COMPLIANCE POINTS) EVERY 4 HOURS WHILE WORK IS BEING IMPLEMENTED.
D. IF THERE IS A VISIBLE DIFFERENCE BETWEEN A COMPLIANCE POINT AND THE BACKGROUND, THE EXCEEDANCE WILL BE NOTED IN THE PROJECT COMPLETION FORM (PCF). ADJUSTMENTS OR CORRECTIVE MEASURES WILL BE TAKEN IN ORDER TO REDUCE TURBIDITY.
E. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 8 HOURS), THE ACTIVITY WILL STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND. THE BPA EC LEAD WILL BE NOTIFIED OF ALL EXCEEDANCES AND CORRECTIVE ACTIONS AT PROJECT COMPLETION.
F. IF TURBIDITY CONTROLS (COFFER DAMS, WADDLES, FENCING, ETC.) ARE DETERMINED INEFFECTIVE, CREWS WILL BE MOBILIZED TO MODIFY AS NECESSARY. OCCURRENCES WILL BE DOCUMENTED IN THE PROJECT COMPLETION FORM (PCF).
G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO THE BPA EC LEAD USING THE PROJECT COMPLETION FORM (PCF).



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
95% DESIGN DRAWINGS
WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

WORKING DRAFT
NOT FOR CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
GENERALS

CONSERVATION MEASURES - 2

DRAWING NO.
G5
SHEET 5 OF 44

FILE: E:\PROJECTS\BCE_WOOD_HICZZUWARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCTION\DWG_GENERAL\5.DWG-SAVED.B17 - ZACH SUOMAIN PLOT DATE: 11/06/2024 12:58 PM

QUANTITIES

ITEM DESCRIPTION	QUANTITY	UNIT
GENERAL		
MOBILIZATION AND DEMOBILIZATION	1	LS
COFFERDAMS, PUMPING, DEWATERING, & WATER MANAGEMENT	1	LS
STORMWATER, SITE ACCESS, PREPARATION, & HOUSEKEEPING	1	LS
SURVEYING/CONSTRUCTION STAKING/MACHINE CONTROL	1	LS
SITE WORK		
CHANNEL AND FLOODPLAIN EXCAVATION	36,359	CY
DEMOLITION	1	LS
CLASS 1 CONSTRUCTED RIFFLE MATERIAL	866	CY
CLASS 2 CONSTRUCTED RIFFLE MATERIAL	323	CY
CLASS 3 CONSTRUCTED RIFFLE MATERIAL	570	CY
HABITAT BOULDER	157	EA
WOOD MATERIAL ACQUISITION AND DELIVERY	1	LS
HS-1: SIX LOG STRUCTURE	7	EA
HS-3: SINGLE LOG STRUCTURE	55	EA
HS-4: WHOLE TREE STRUCTURE	18	EA
HS-5: CONSTRICTION JAM	1	EA
HS-6: SMALL APEX JAM	1	EA
HS-7: FLOODPLAIN INUNDATION STRUCTURE	70	LF
HS-8: BLEEDER JAM	2	EA
SHORT ROUGHENED EDGE TREATMENT	550	LF
WILLOW BAFFLE	320	LF
ROLLED STEEL GIRDER BRIDGE	1	LS
2 - 36" DIA. 60-FT CORRUGATED METAL PIPE CULVERT	1	LS
BALDY CHANNEL INLET	1	LS

LARGE WOOD MATERIAL QUANTITIES

MATERIAL TYPE	SIZE (DBH) (IN)	MIN. LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	TOTAL (EA)
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	99
TYPE 2	13 - 22	30 - 40	NO	NA	NO	95
TYPE 3	13 - 22	40 - 60	YES	4	YES	20
TYPE 4	12 - 14	20 - 35	NO	NA	NO	1
TYPE 5	13 - 22	40 - 50	YES	4.5	NO	5
RACKING-1	4 - 12	15 - 25	YES	2.5	YES	224
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	578
SLASH-1	1 - 4	5 - 15	NA	NA	YES	855
SLASH-2	1 - 4	5 - 15	NA	NA	YES	487
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	1453

NOTE:
ONE RACKING-1 OR RACKING-2 MEMBER PER STRUCTURE MAY BE COTTONWOOD (UP TO 144 COTTONWOOD RACKING MEMBERS).



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
95% DESIGN DRAWINGS
 WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

**WORKING DRAFT
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CONSTRUCTION**

DATE: 11/6/2024
 DESIGNED: ZS, MP, JY
 APPROVED: JY

DRAWING NAME
GENERALS

QUANTITIES

DRAWING NO.
G6
 SHEET 6 OF 44

FILE: R:\PROJECTS\BCE_WOOD_HICZZ\WARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CAD\PRODUCTION\WSP_GENERAL.dwg SAVED BY: ZACH SUDMAN PLOT DATE: 11/06/2024 1:27 PM

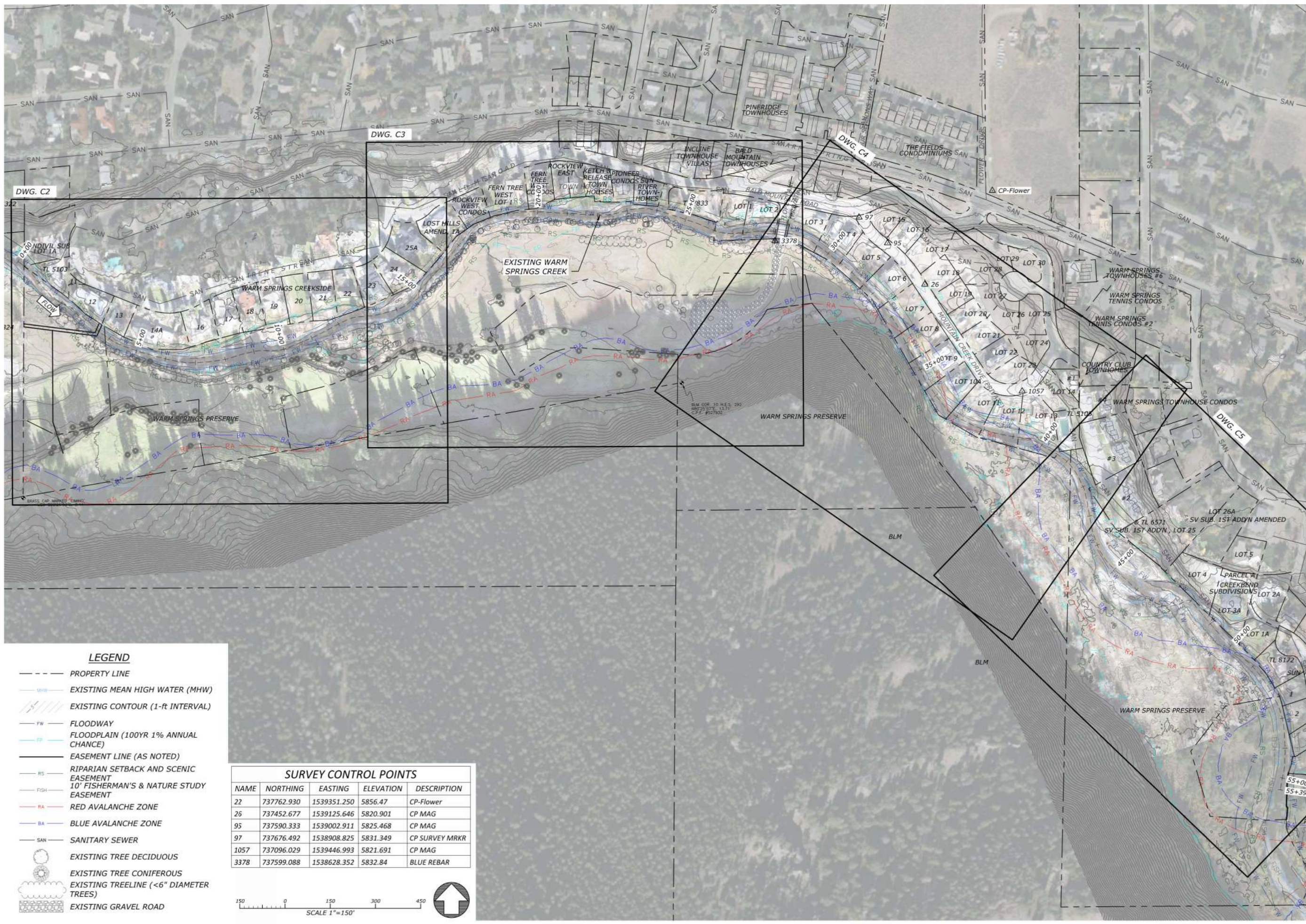
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CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
EXISTING CONDITIONS

OVERVIEW

DRAWING NO.
C1
SHEET 7 OF 44

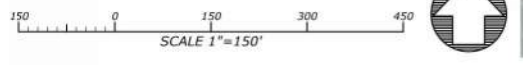


LEGEND

- PROPERTY LINE
- EXISTING MEAN HIGH WATER (MHW)
- EXISTING CONTOUR (1-ft INTERVAL)
- FW FLOODWAY
- FLOODPLAIN (100YR 1% ANNUAL CHANCE)
- EASEMENT LINE (AS NOTED)
- RS RIPARIAN SETBACK AND SCENIC EASEMENT
- FISH 10' FISHERMAN'S & NATURE STUDY EASEMENT
- RA RED AVALANCHE ZONE
- BA BLUE AVALANCHE ZONE
- SAN SANITARY SEWER
- EXISTING TREE DECIDUOUS
- EXISTING TREE CONIFEROUS
- EXISTING TREELINE (<6" DIAMETER TREES)
- EXISTING GRAVEL ROAD

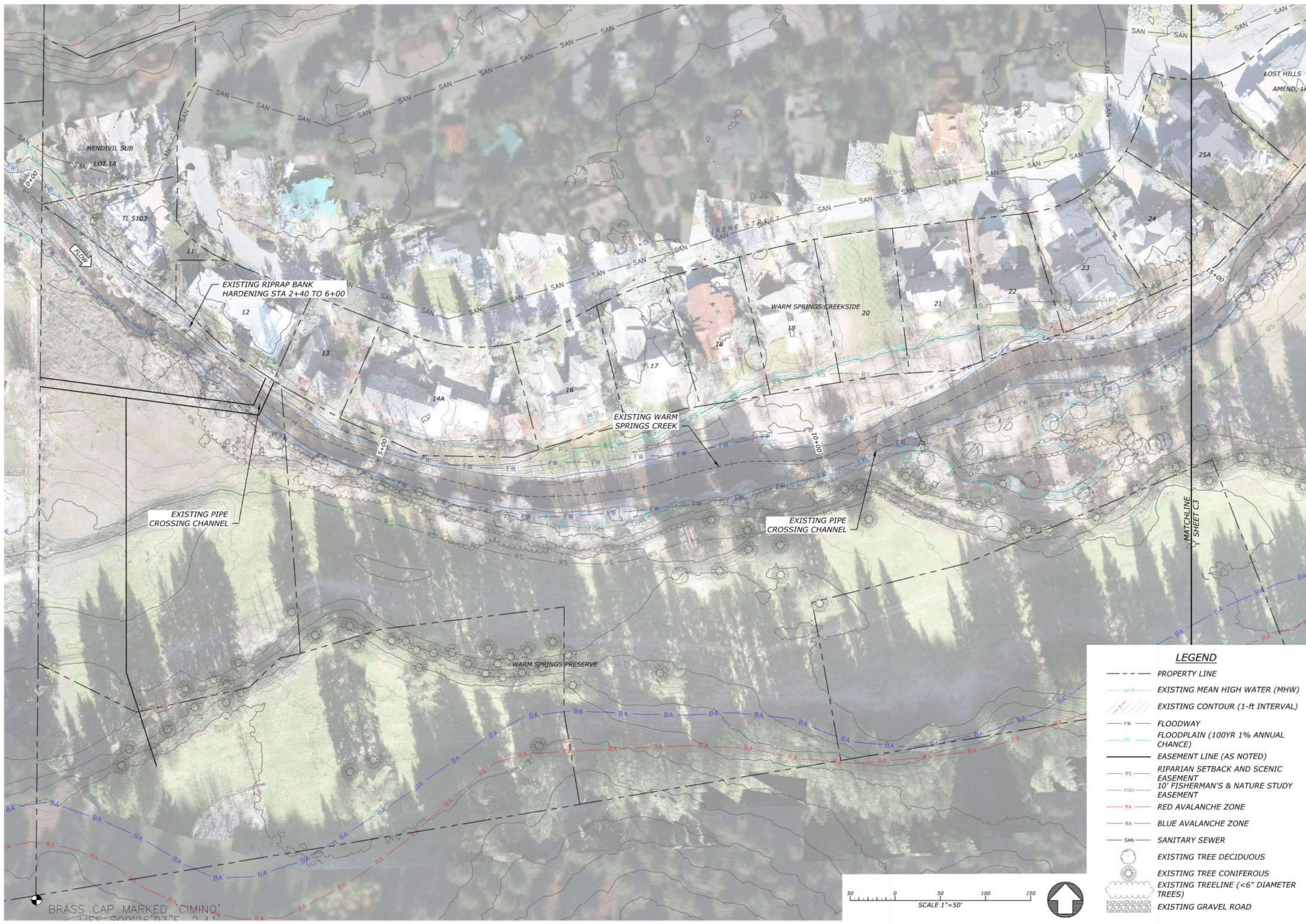
SURVEY CONTROL POINTS

NAME	NORTHING	EASTING	ELEVATION	DESCRIPTION
22	737762.930	1539351.250	5856.47	CP-Flower
26	737452.677	1539125.646	5820.901	CP MAG
95	737590.333	1539002.911	5825.468	CP MAG
97	737676.492	1538908.825	5831.349	CP SURVEY MRKR
1057	737096.029	1539446.993	5821.691	CP MAG
3378	737599.088	1538628.352	5832.84	BLUE REBAR



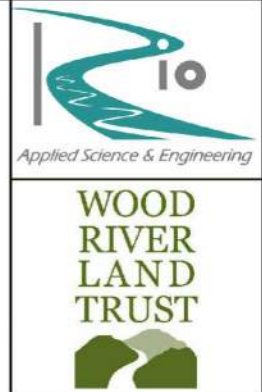
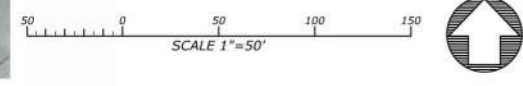
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LEGEND

- PROPERTY LINE
- MHW — EXISTING MEAN HIGH WATER (MHW)
- EXISTING CONTOUR (1-ft INTERVAL)
- FW — FLOODWAY
- FLOODPLAIN (100YR 1% ANNUAL CHANCE)
- EASEMENT LINE (AS NOTED)
- RS — RIPARIAN SETBACK AND SCENIC EASEMENT
- FISH — 10' FISHERMAN'S & NATURE STUDY EASEMENT
- RA — RED AVALANCHE ZONE
- BA — BLUE AVALANCHE ZONE
- SAN — SANITARY SEWER
- EXISTING TREE DECIDUOUS
- EXISTING TREE CONIFEROUS
- EXISTING TREELINE (<6" DIAMETER TREES)
- ▒ EXISTING GRAVEL ROAD



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET

95% DESIGN DRAWINGS

WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

**WORKING DRAFT
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CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

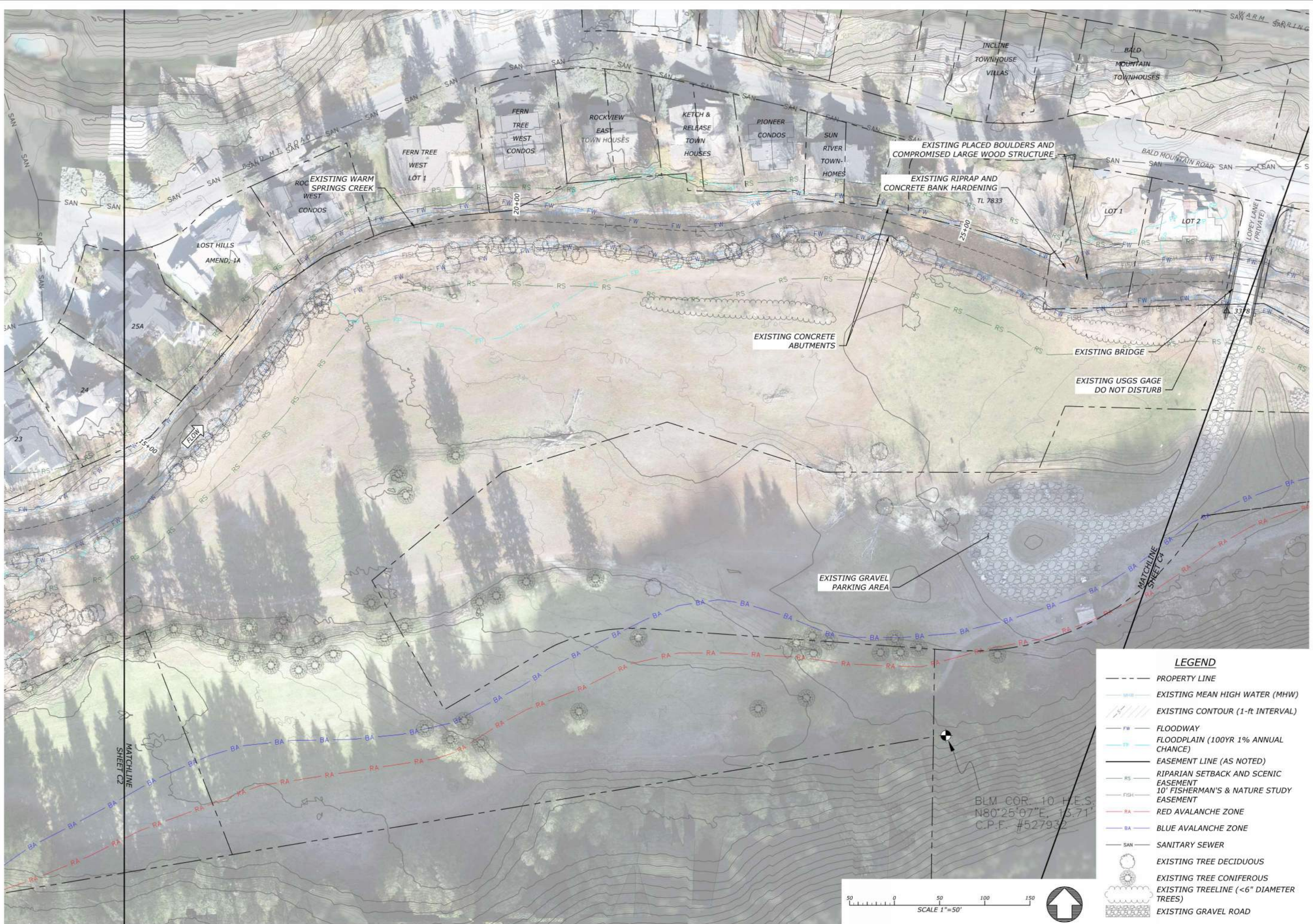
DRAWING NAME
EXISTING CONDITIONS

PLAN 1

DRAWING NO.
C2

SHEET 8 OF 33

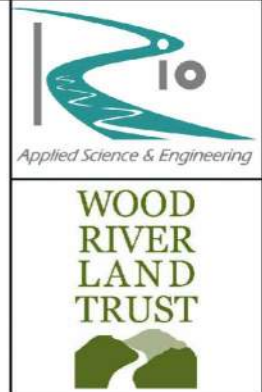
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LEGEND

- PROPERTY LINE
- MHW — EXISTING MEAN HIGH WATER (MHW)
- EXISTING CONTOUR (1-ft INTERVAL)
- FW FLOODWAY
- FLOODPLAIN (100YR 1% ANNUAL CHANCE)
- EASEMENT LINE (AS NOTED)
- RS RIPARIAN SETBACK AND SCENIC EASEMENT
- FISH 10' FISHERMAN'S & NATURE STUDY EASEMENT
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- EXISTING TREE DECIDUOUS
- EXISTING TREE CONIFEROUS
- EXISTING TREELINE (<6" DIAMETER TREES)
- ▒ EXISTING GRAVEL ROAD

BLM COR. 10 H.E.S.
N80°25'07"E, 13.71'
C.P.F. #527932



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET

95% DESIGN DRAWINGS

WOOD RIVER LAND TRUST
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DATE:	11/6/2024
DESIGNED:	ZS.MP. JY
APPROVED:	JY
DRAWING NAME	EXISTING CONDITIONS
DRAWING NO.	C3
	SHEET 9 OF 33

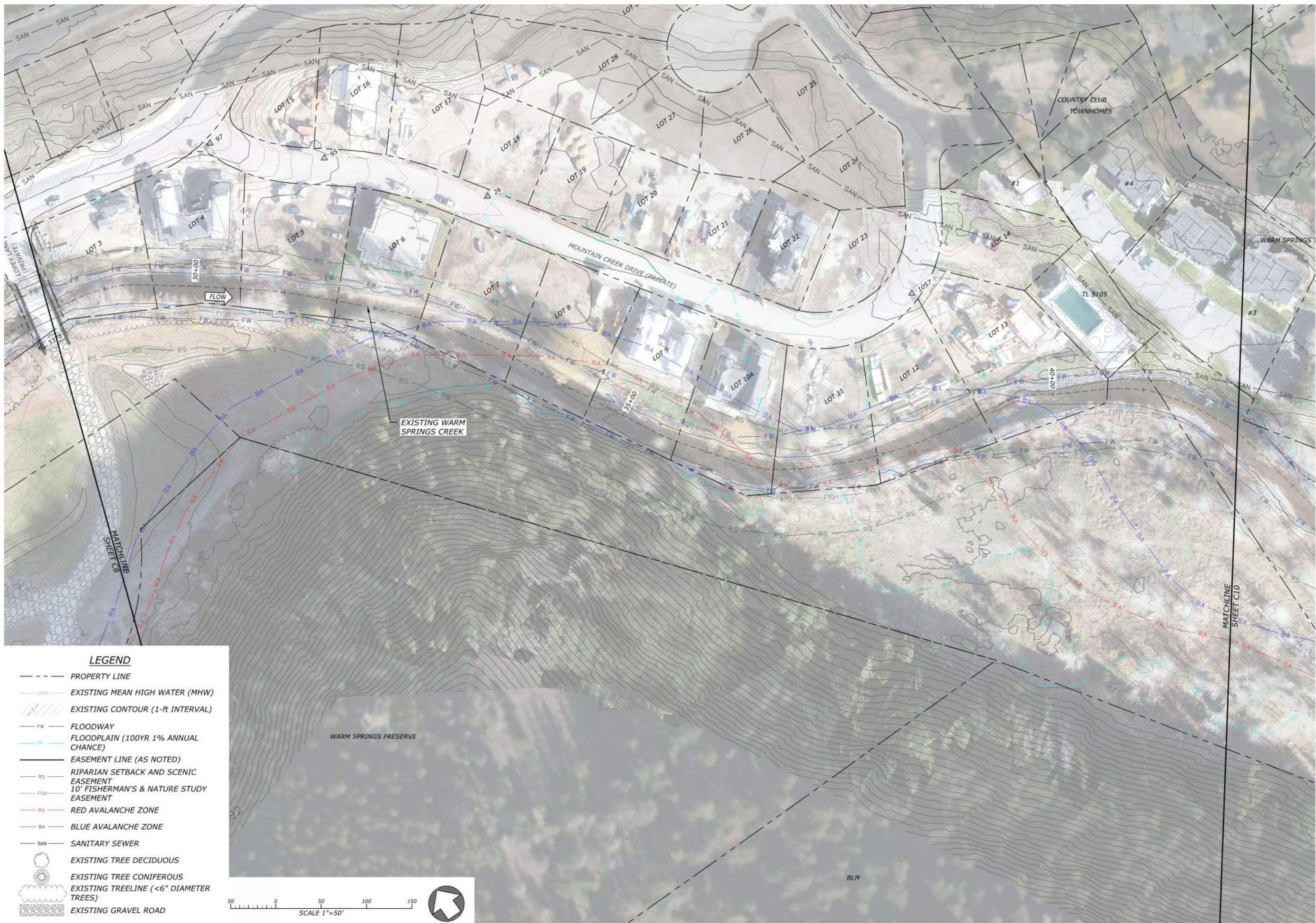
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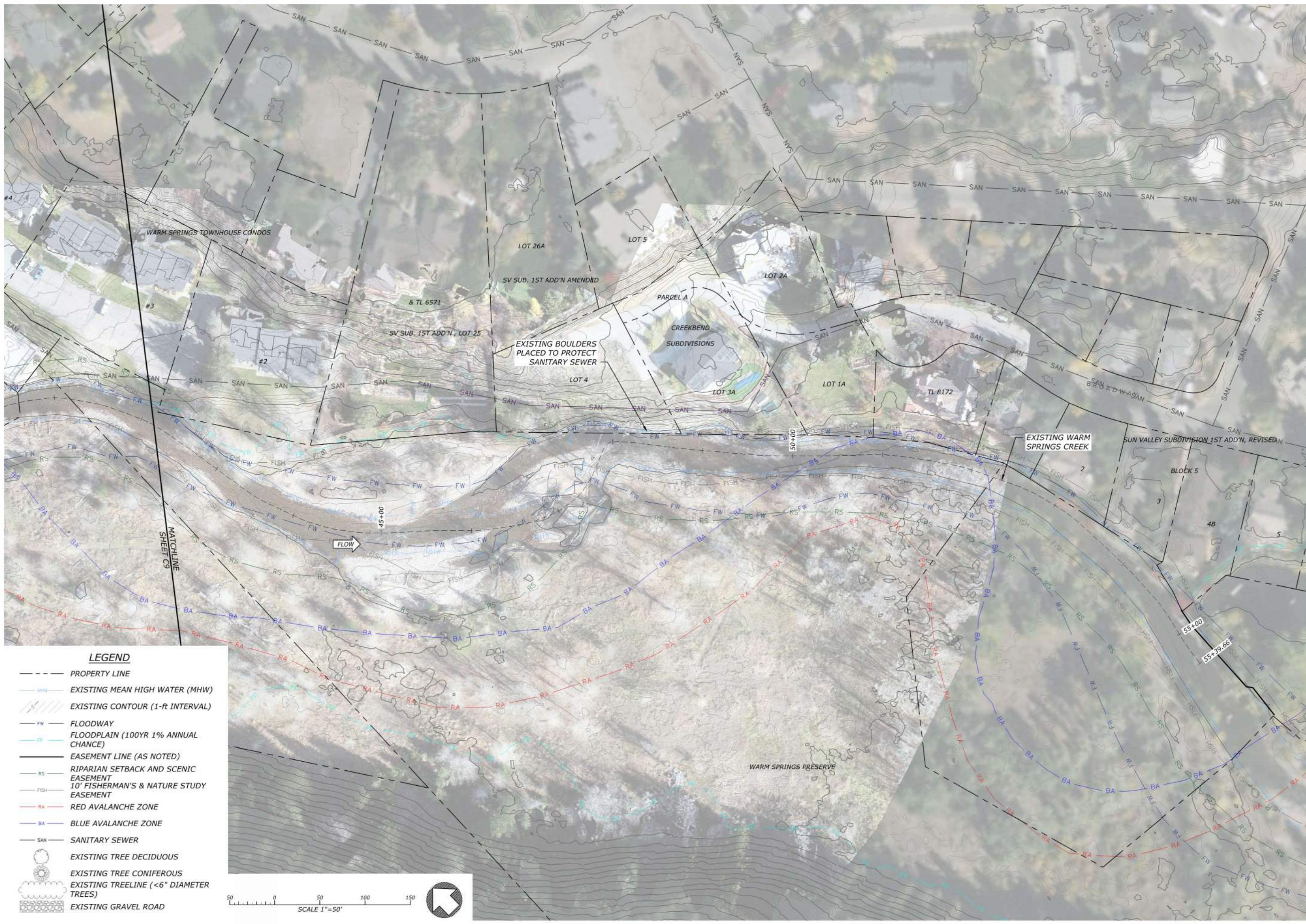
DRAWING NAME
EXISTING CONDITIONS

PLAN 3

DRAWING NO.
C4
SHEET 10 OF 33

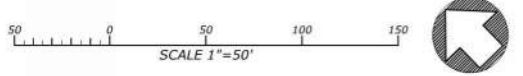


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LEGEND

- PROPERTY LINE
- EXISTING MEAN HIGH WATER (MHW)
- EXISTING CONTOUR (1-ft INTERVAL)
- FW FLOODWAY
- FLOODPLAIN (100YR 1% ANNUAL CHANCE)
- EASEMENT LINE (AS NOTED)
- RS RIPARIAN SETBACK AND SCENIC EASEMENT
- FISH 10' FISHERMAN'S & NATURE STUDY EASEMENT
- RA RED AVALANCHE ZONE
- BA BLUE AVALANCHE ZONE
- SAN SANITARY SEWER
- EXISTING TREE DECIDUOUS
- EXISTING TREE CONIFEROUS
- EXISTING TREELINE (<6" DIAMETER TREES)
- EXISTING GRAVEL ROAD



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APPROVED: JY

DRAWING NAME
EXISTING CONDITIONS

PLAN 4

DRAWING NO.
C5
SHEET 11 OF 33

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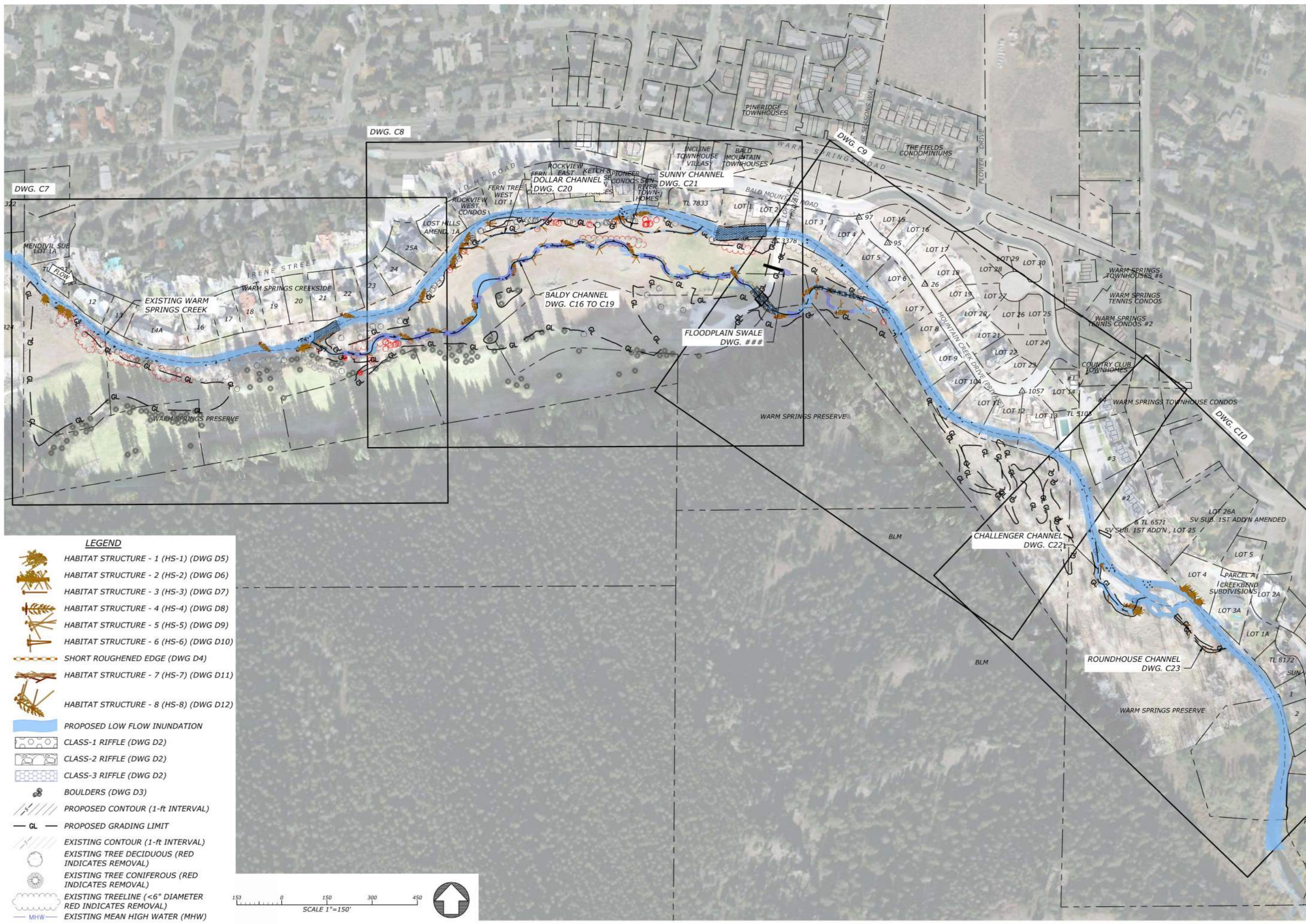
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DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
PROPOSED CONDITIONS

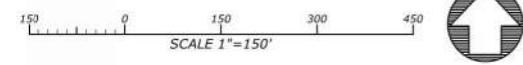
OVERVIEW

DRAWING NO.
C6
SHEET 12 OF 44



LEGEND

- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
- HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
- HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
- HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
- HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
- HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
- HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
- HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
- PROPOSED LOW FLOW INUNDATION
- CLASS-1 RIFFLE (DWG D2)
- CLASS-2 RIFFLE (DWG D2)
- CLASS-3 RIFFLE (DWG D2)
- BOULDERS (DWG D3)
- PROPOSED CONTOUR (1-ft INTERVAL)
- PROPOSED GRADING LIMIT
- EXISTING CONTOUR (1-ft INTERVAL)
- EXISTING TREE DECIDUOUS (RED INDICATES REMOVAL)
- EXISTING TREE CONIFEROUS (RED INDICATES REMOVAL)
- EXISTING TREELINE (<6" DIAMETER RED INDICATES REMOVAL)
- EXISTING MEAN HIGH WATER (MHW)



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APPROVED: JY

DRAWING NAME
PROPOSED CONDITIONS

PLAN - 1

DRAWING NO.
C7
SHEET 13 OF 44



- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - PROPOSED LOW FLOW INUNDATION
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - EXISTING CONTOUR (1-ft INTERVAL)
 - EXISTING TREE DECIDUOUS (RED INDICATES REMOVAL)
 - EXISTING TREE CONIFEROUS (RED INDICATES REMOVAL)
 - EXISTING TREELINE (<6" DIAMETER RED INDICATES REMOVAL)
 - EXISTING MEAN HIGH WATER (MHW)

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WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET

95% DESIGN DRAWINGS

WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

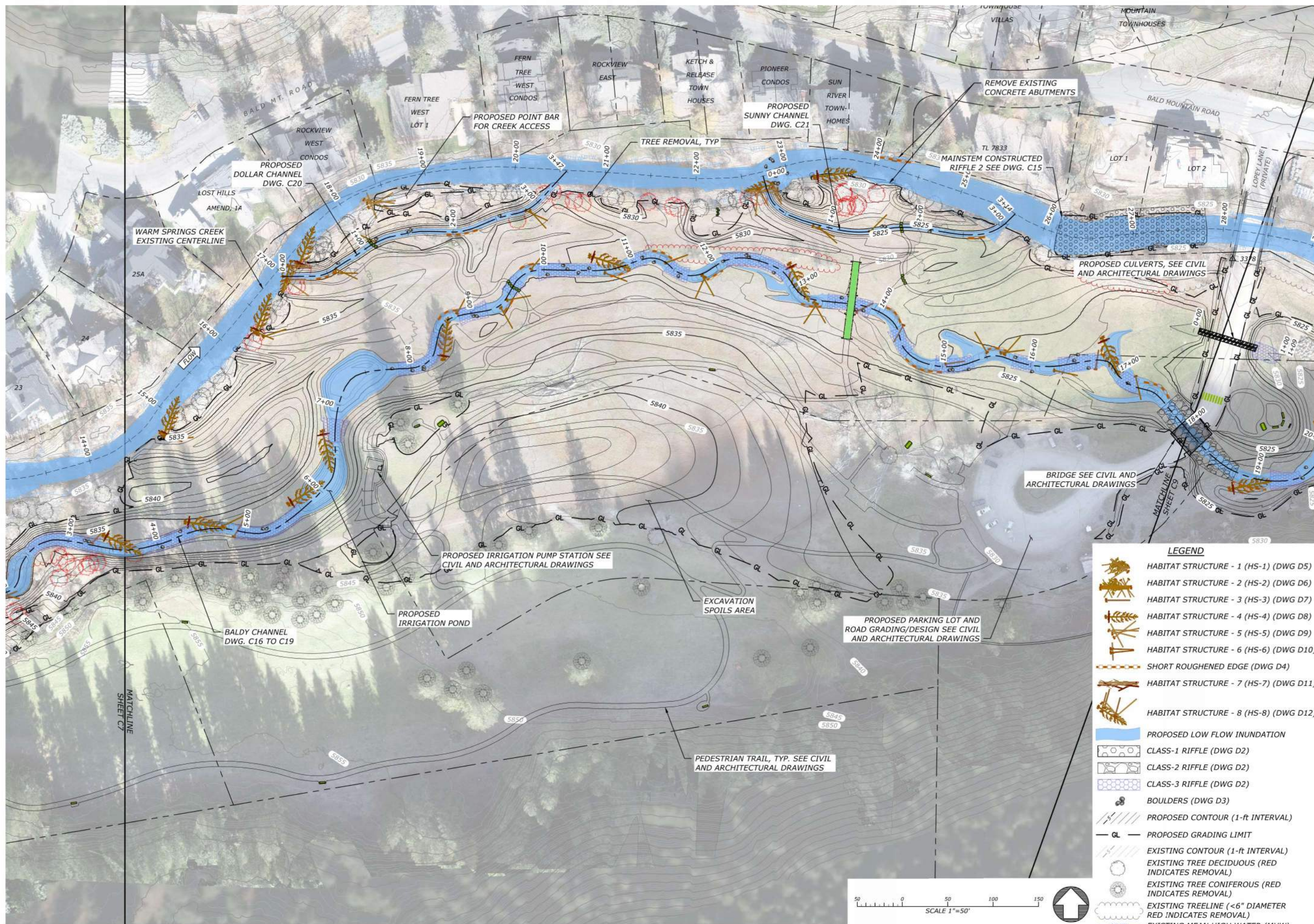
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DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

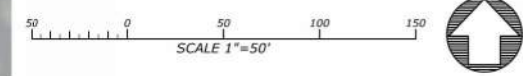
DRAWING NAME
PROPOSED CONDITIONS

PLAN - 2

DRAWING NO.
C8
SHEET 14 OF 44

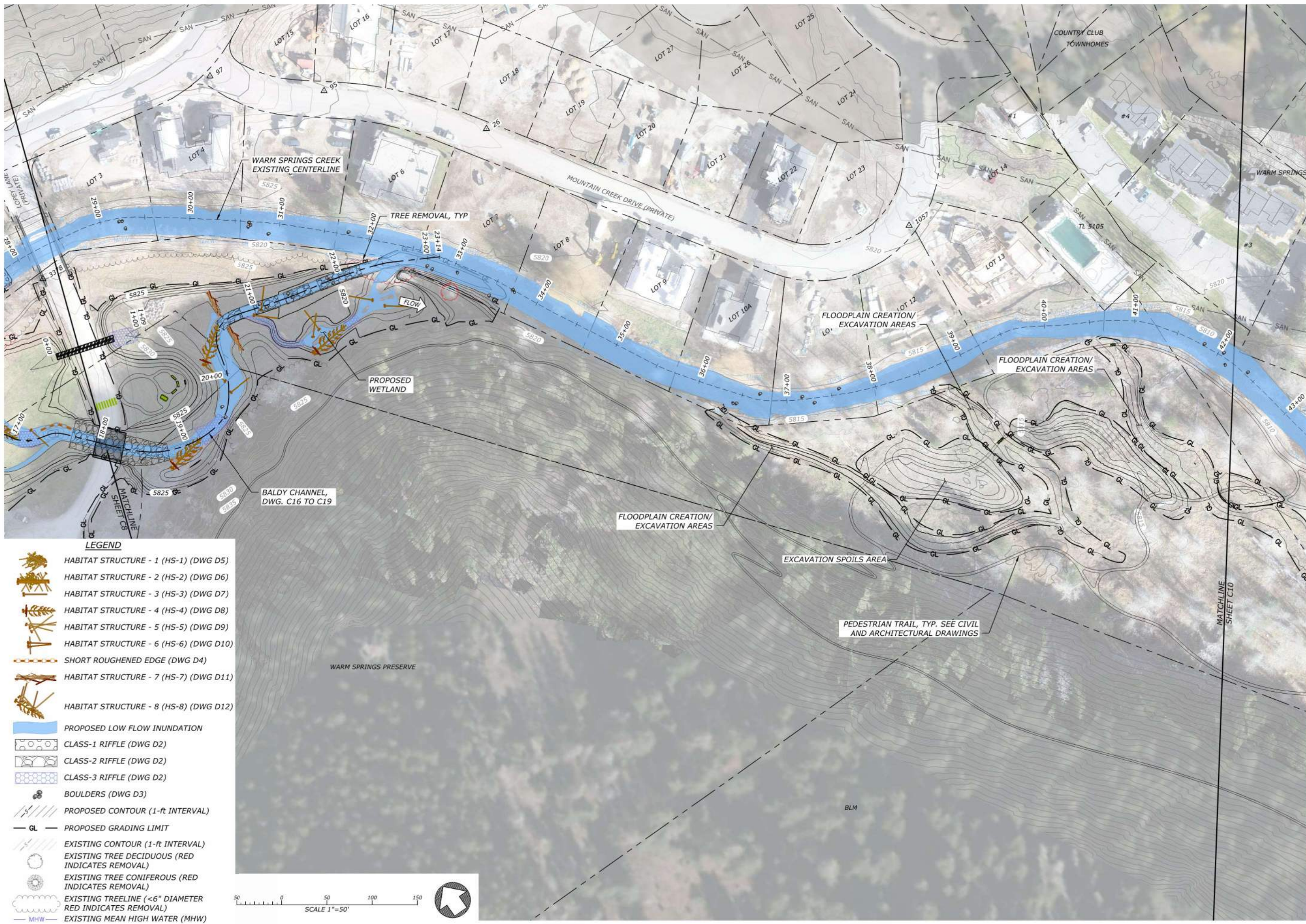


- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - PROPOSED LOW FLOW INUNDATION
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - EXISTING CONTOUR (1-ft INTERVAL)
 - EXISTING TREE DECIDUOUS (RED INDICATES REMOVAL)
 - EXISTING TREE CONIFEROUS (RED INDICATES REMOVAL)
 - EXISTING TREELINE (<6" DIAMETER RED INDICATES REMOVAL)
 - EXISTING MEAN HIGH WATER (MHW)



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WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
95% DESIGN DRAWINGS
 WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

**WORKING DRAFT
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 CONSTRUCTION**

DATE: 11/6/2024
 DESIGNED: ZS, MP, JY
 APPROVED: JY

DRAWING NAME
 PROPOSED CONDITIONS

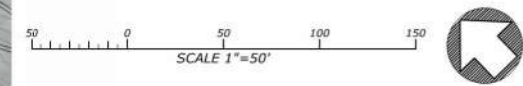
PLAN - 3

DRAWING NO.
C9
 SHEET 15 OF 44



LEGEND

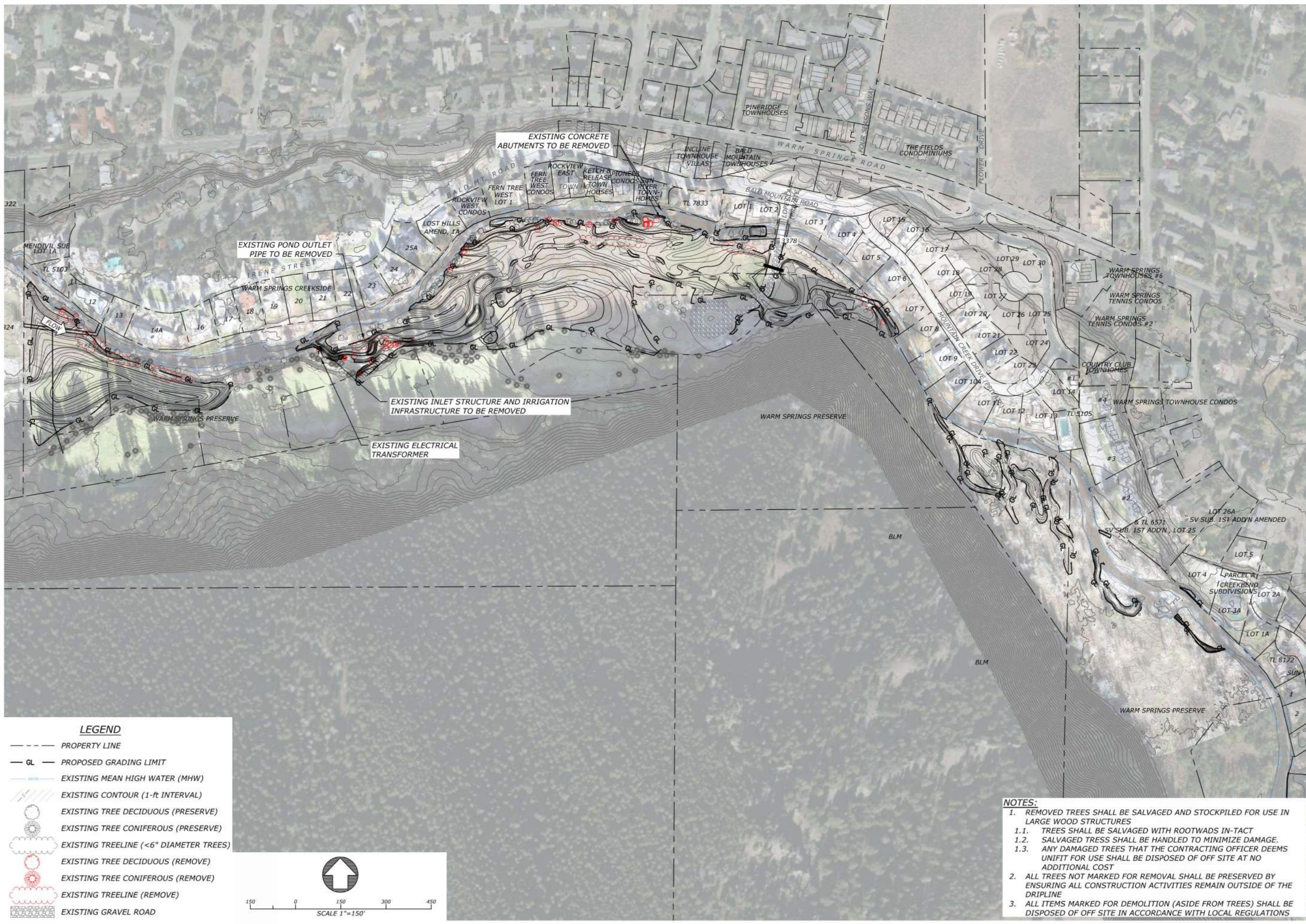
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	HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
	HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
	HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
	HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
	HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
	HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
	HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
	PROPOSED LOW FLOW INUNDATION
	CLASS-1 RIFFLE (DWG D2)
	CLASS-2 RIFFLE (DWG D2)
	CLASS-3 RIFFLE (DWG D2)
	BOULDERS (DWG D3)
	PROPOSED CONTOUR (1-ft INTERVAL)
	PROPOSED GRADING LIMIT
	EXISTING CONTOUR (1-ft INTERVAL)
	EXISTING TREE DECIDUOUS (RED INDICATES REMOVAL)
	EXISTING TREE CONIFEROUS (RED INDICATES REMOVAL)
	EXISTING TREELINE (<6" DIAMETER RED INDICATES REMOVAL)
	EXISTING MEAN HIGH WATER (MHW)



**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE:	11/6/2024
DESIGNED:	ZS.MP. JY
APPROVED:	JY
DRAWING NAME	PROPOSED CONDITIONS
DRAWING NO.	C10
	SHEET 16 OF 44

FILE: R:\PROJECTS\BCE WOOD_HICZUWARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCT\DWG_PROPOSED_CONDITIONS.DWG SAVED BY: ZACH SUDMAN PLOT DATE: 11/6/2024 1:03 PM



**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

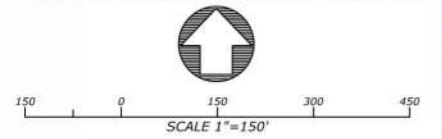
DRAWING NAME
PROPOSED CONDITIONS

DEMO OVERVIEW

DRAWING NO.
C11
SHEET 17 OF 44

LEGEND

- PROPERTY LINE
- GL — PROPOSED GRADING LIMIT
- MHW — EXISTING MEAN HIGH WATER (MHW)
- EXISTING CONTOUR (1-ft INTERVAL)
- EXISTING TREE DECIDUOUS (PRESERVE)
- EXISTING TREE CONIFEROUS (PRESERVE)
- EXISTING TREELINE (<6" DIAMETER TREES)
- EXISTING TREE DECIDUOUS (REMOVE)
- EXISTING TREE CONIFEROUS (REMOVE)
- EXISTING TREELINE (REMOVE)
- ▨ EXISTING GRAVEL ROAD



NOTES:

1. REMOVED TREES SHALL BE SALVAGED AND STOCKPILED FOR USE IN LARGE WOOD STRUCTURES
 - 1.1. TREES SHALL BE SALVAGED WITH ROOTWADS IN-TACT
 - 1.2. SALVAGED TREES SHALL BE HANDLED TO MINIMIZE DAMAGE.
 - 1.3. ANY DAMAGED TREES THAT THE CONTRACTING OFFICER DEEMS UNFIT FOR USE SHALL BE DISPOSED OF OFF SITE AT NO ADDITIONAL COST
2. ALL TREES NOT MARKED FOR REMOVAL SHALL BE PRESERVED BY ENSURING ALL CONSTRUCTION ACTIVITIES REMAIN OUTSIDE OF THE DRIPLINE
3. ALL ITEMS MARKED FOR DEMOLITION (ASIDE FROM TREES) SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH LOCAL REGULATIONS

FILE: R:\PROJECTS\BLM\WOOD_HICZUWARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCT\DWGSET_DEMO_PLAN.DWG SAVED BY: ZACH SUOMAN PLOT DATE: 11/6/2024 1:04 PM



**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

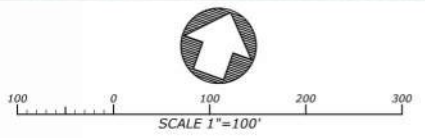
DRAWING NAME
PROPOSED CONDITIONS

ACCESS, STAGING, & EROSION CONTROL PLAN-1

DRAWING NO.
C12
SHEET 18 OF 44

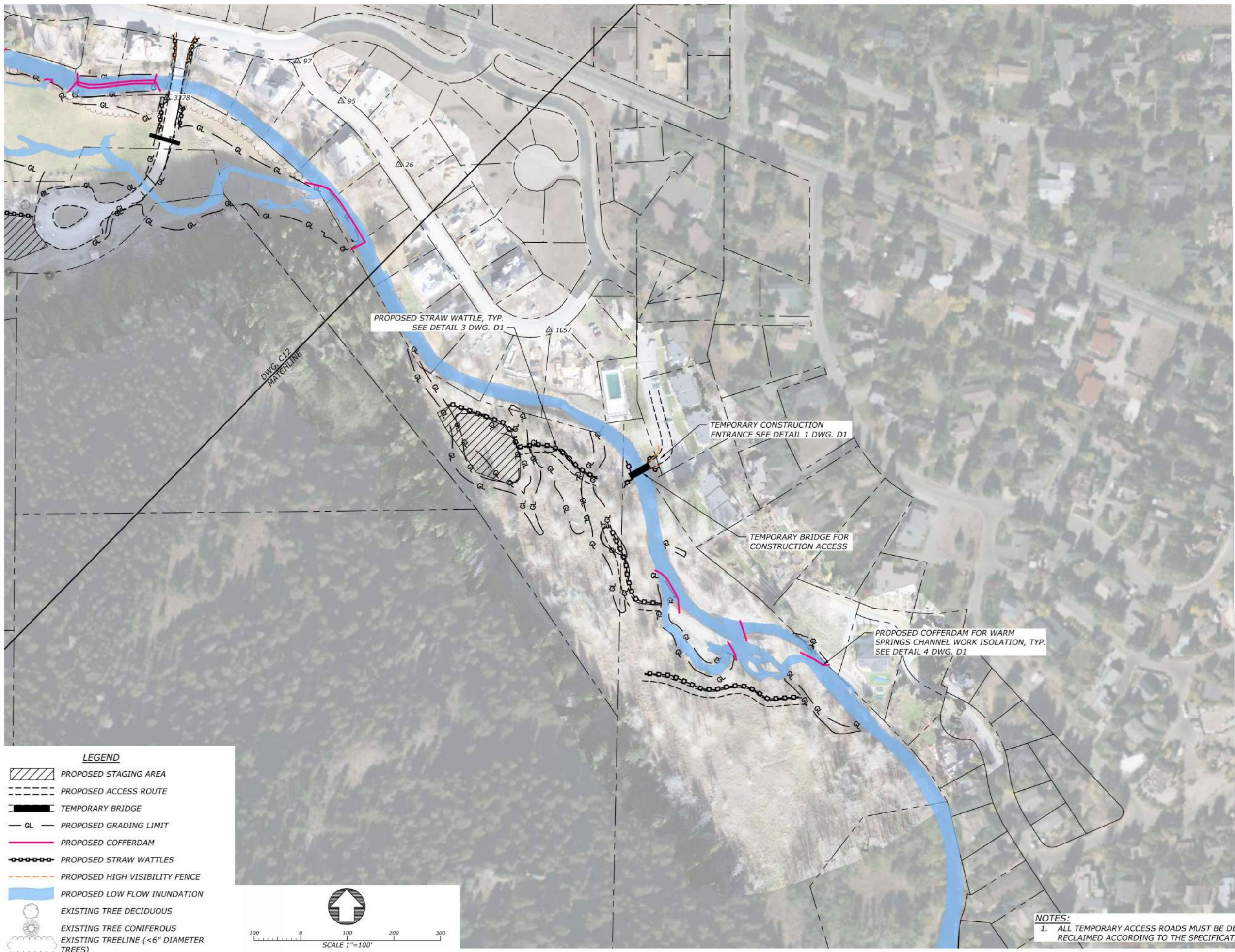
LEGEND

- PROPOSED STAGING AREA
- PROPOSED ACCESS ROUTE
- TEMPORARY BRIDGE
- PROPOSED GRADING LIMIT
- PROPOSED COFFERDAM
- PROPOSED STRAW WATTLES
- PROPOSED HIGH VISIBILITY FENCE
- PROPOSED LOW FLOW INUNDATION
- EXISTING TREE DECIDUOUS
- EXISTING TREE CONIFEROUS
- EXISTING TREELINE (<6" DIAMETER TREES)



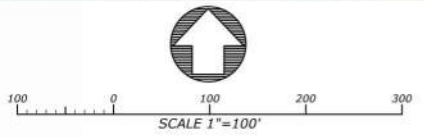
NOTES:
1. ALL TEMPORARY ACCESS ROADS MUST BE DECOMPACTED AND RECLAIMED ACCORDING TO THE SPECIFICATIONS AND PLANTING PLAN

FILE: R:\PROJECTS\BCE_WOOD_HICZUWARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CAD\PRODUCT\DWG\SSP_ACCESS_STAGING.DWG SAVED BY: ISABELLE.PLOT DATE: 11/06/2024 1:05 PM



LEGEND

- PROPOSED STAGING AREA
- PROPOSED ACCESS ROUTE
- TEMPORARY BRIDGE
- PROPOSED GRADING LIMIT
- PROPOSED COFFERDAM
- PROPOSED STRAW WATTLES
- PROPOSED HIGH VISIBILITY FENCE
- PROPOSED LOW FLOW INUNDATION
- EXISTING TREE DECIDUOUS
- EXISTING TREE CONIFEROUS
- EXISTING TREELINE (<6" DIAMETER TREES)



NOTES:

1. ALL TEMPORARY ACCESS ROADS MUST BE DECOMPACTED AND RECLAIMED ACCORDING TO THE SPECIFICATIONS AND PLANTING PLAN

**WORKING DRAFT
NOT FOR
CONSTRUCTION**

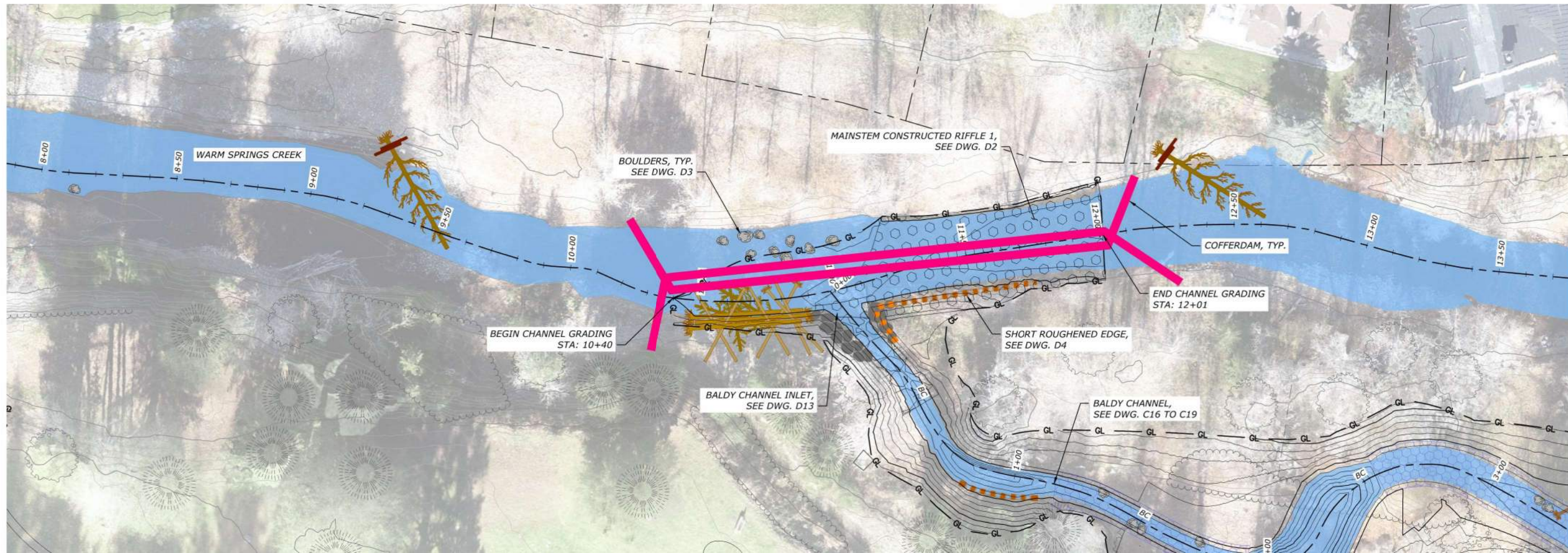
DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
PROPOSED CONDITIONS

ACCESS STAGING & EROSION CONTROL PLAN-2

DRAWING NO.
C13
SHEET 19 OF 44

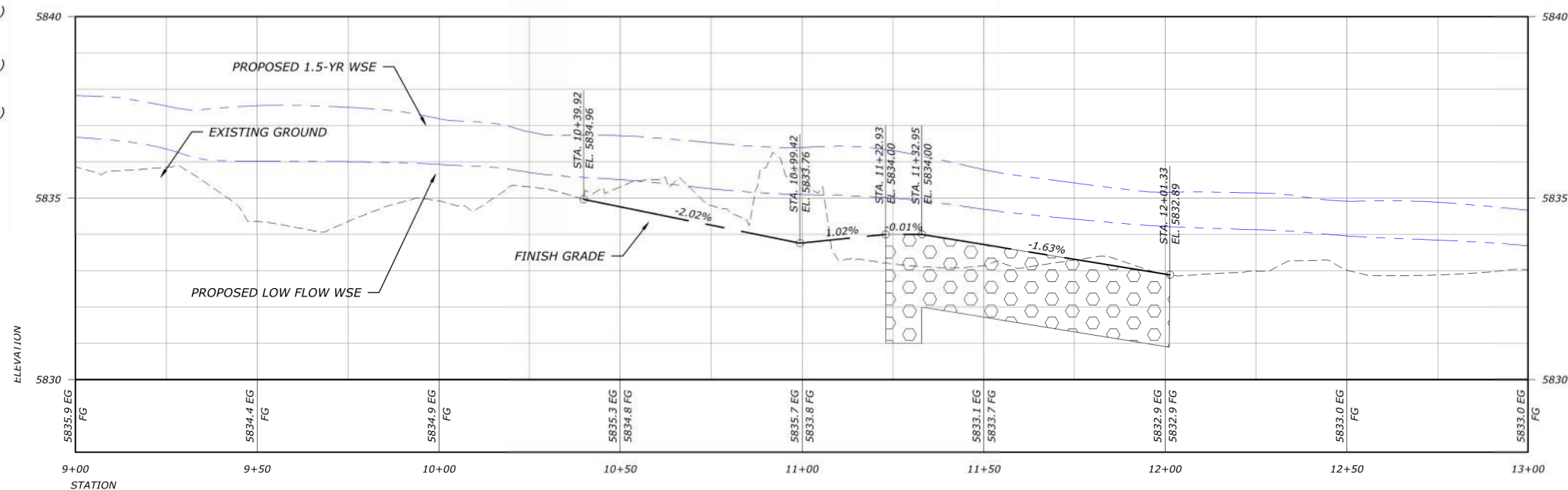
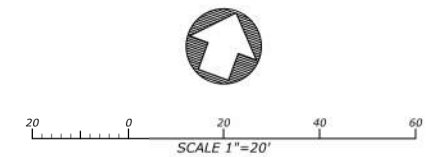
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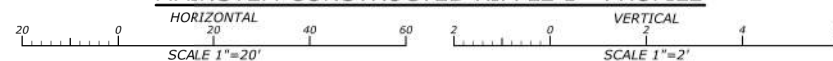
MAINSTEM CONSTRUCTED RIFFLE 1 - PLAN

LEGEND

- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
- HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
- HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
- HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
- HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
- HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
- HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
- HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
- PROPOSED LOW FLOW INUNDATION
- CLASS-1 RIFFLE (DWG D2)
- CLASS-2 RIFFLE (DWG D2)
- CLASS-3 RIFFLE (DWG D2)
- BOULDERS (DWG D3)
- PROPOSED CONTOUR (1-ft INTERVAL)
- PROPOSED GRADING LIMIT
- PROPOSED COFFERDAM
- EXISTING CONTOUR (1-ft INTERVAL)



MAINSTEM CONSTRUCTED RIFFLE 1 - PROFILE



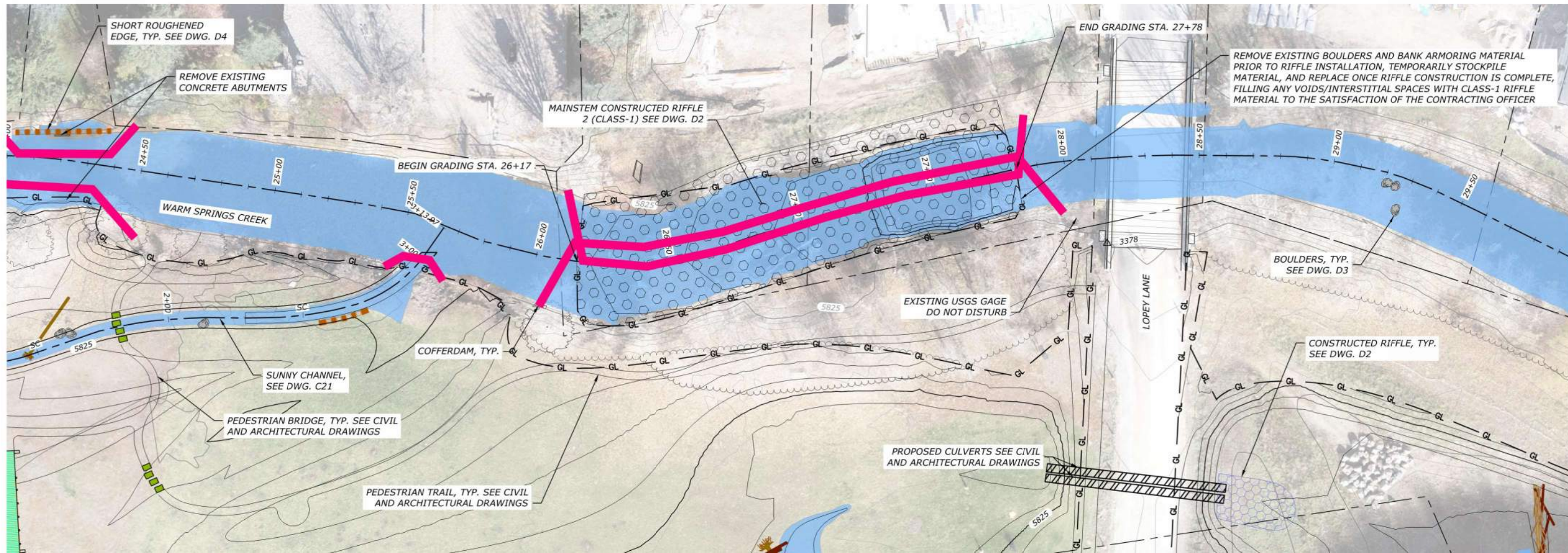
WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

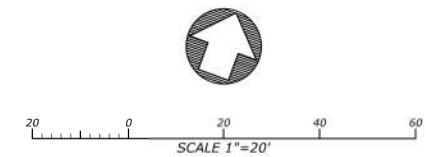
DRAWING NAME
MAINSTEM PLAN AND PROFILE

RIFFLE 1 - STA 10+39 TO 12+01

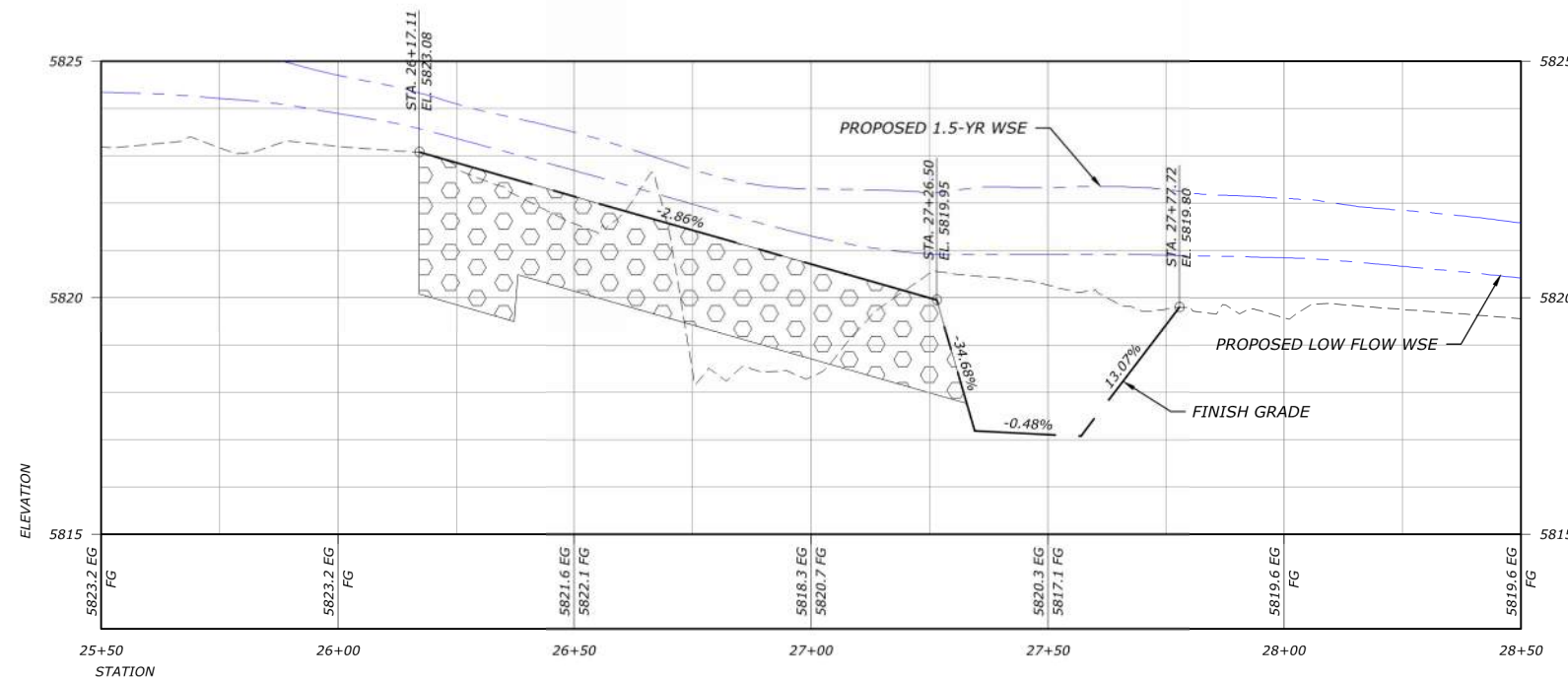
DRAWING NO.
C14
SHEET 20 OF 44



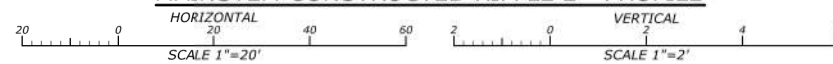
MAINSTEM CONSTRUCTED RIFFLE 2 - PLAN



- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - SHORT ROUGHENED EDGE (DWG D4)
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - PROPOSED COFFERDAM
 - EXISTING CONTOUR (1-ft INTERVAL)



MAINSTEM CONSTRUCTED RIFFLE 2 - PROFILE



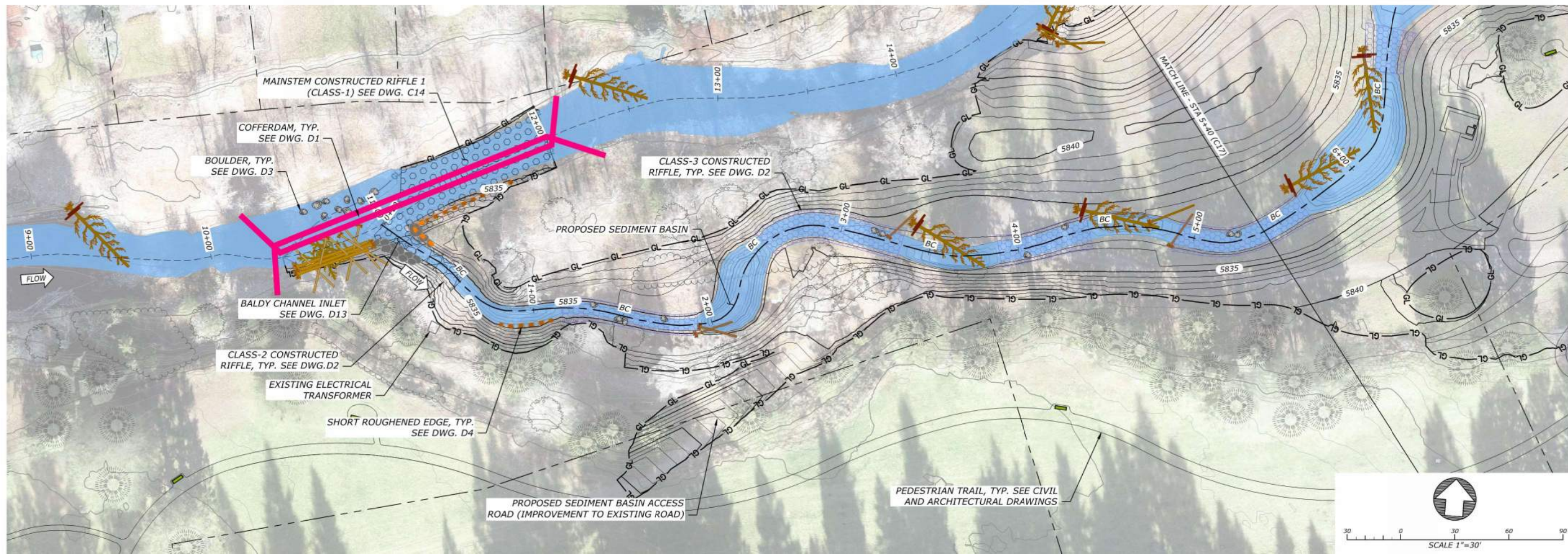
**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
MAINSTEM PLAN AND PROFILE

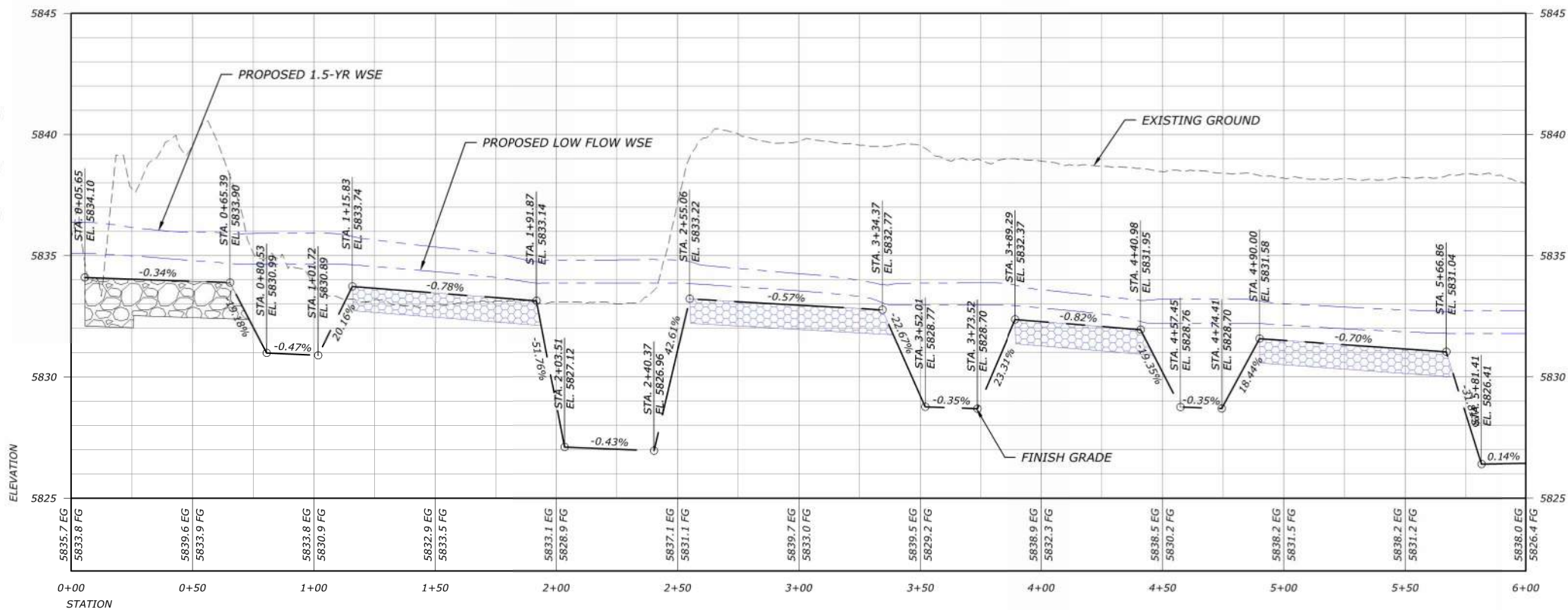
RIFFLE 2 - STA 26+17 TO 27+77

DRAWING NO.
C15
SHEET 21 OF 44

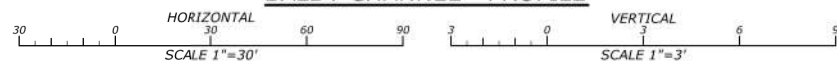


BALDY CHANNEL - PLAN

- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - PROPOSED LOW FLOW INUNDATION
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - PROPOSED COFFERDAM
 - EXISTING CONTOUR (1-ft INTERVAL)
 - FESL BANK TREATMENT



BALDY CHANNEL - PROFILE



**WORKING DRAFT
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CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
BALDY CHANNEL PLAN
AND PROFILE

STA 0+00 TO 6+00

DRAWING NO.
C16
SHEET 22 OF 44

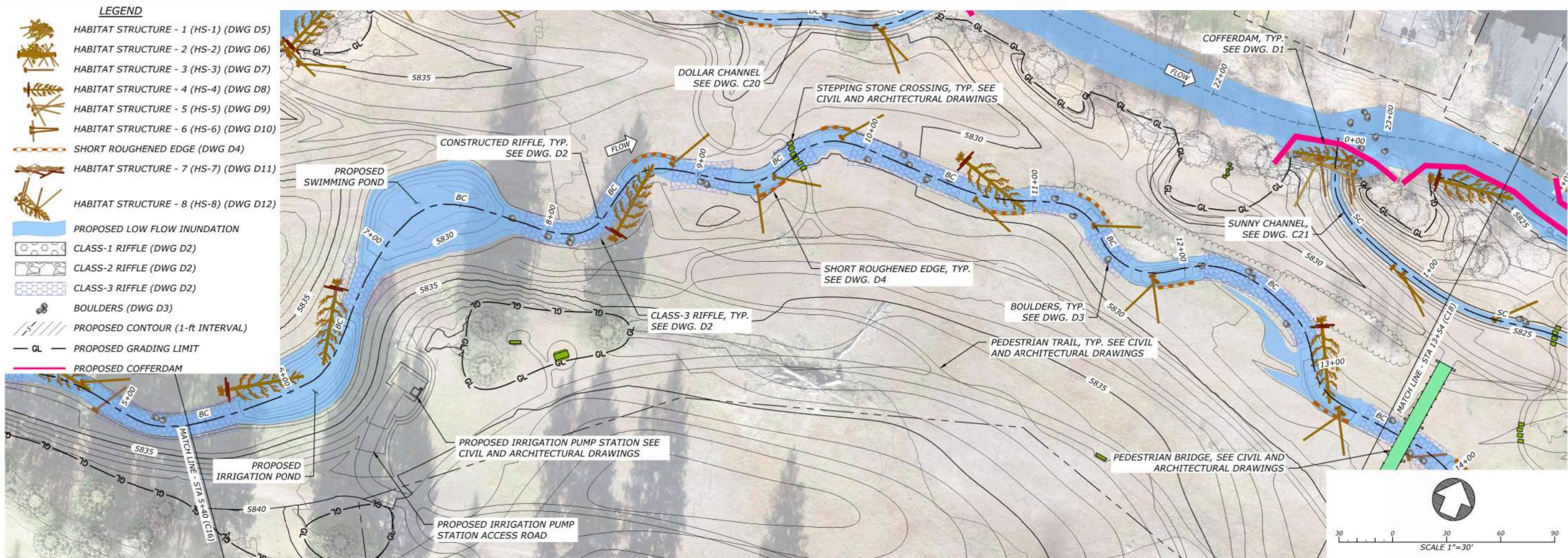
**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

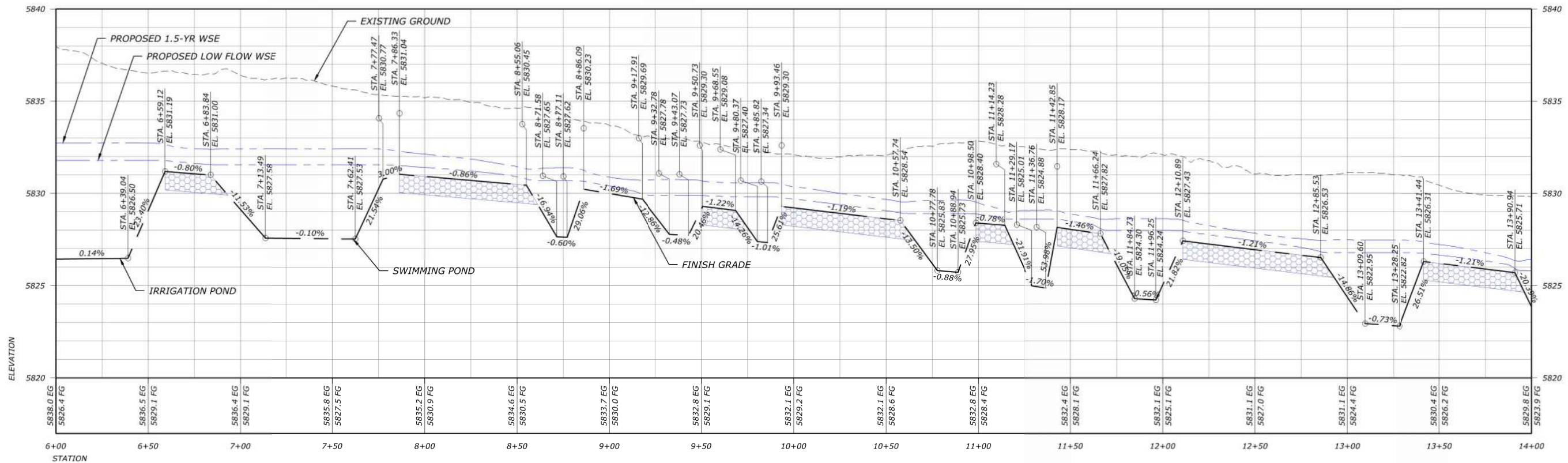
DRAWING NAME
BALDY CHANNEL PLAN AND PROFILE

STA 6+00 TO 14+00

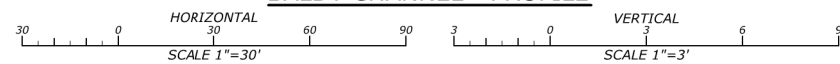
DRAWING NO.
C17
SHEET 23 OF 44



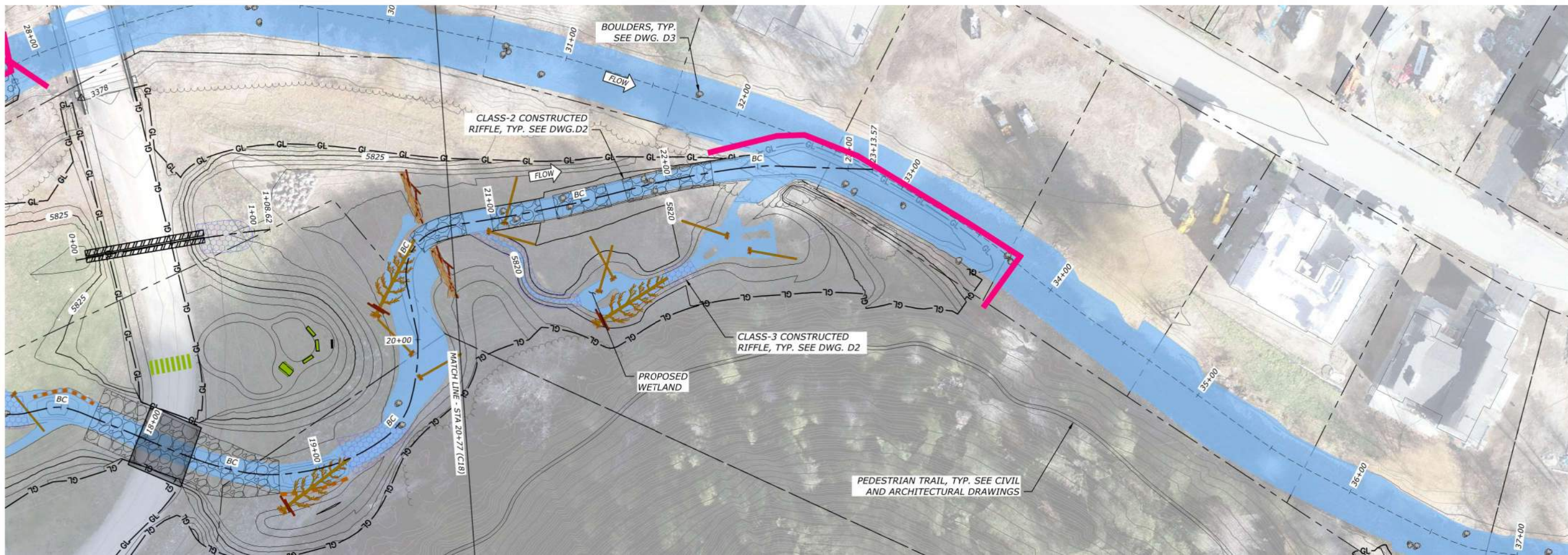
BALDY CHANNEL - PLAN



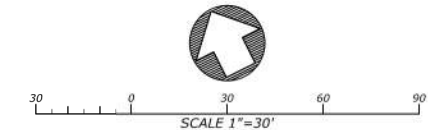
BALDY CHANNEL - PROFILE



FILE: R:\PROJECTS\BCE_WOOD_HUCKLEBERRY_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CD\PRODUCTION\WD PLAN PROFILE_BALDY.DWG SAVED BY: ZACH SUDMAN PLOT DATE: 11/6/2024 1:09 PM

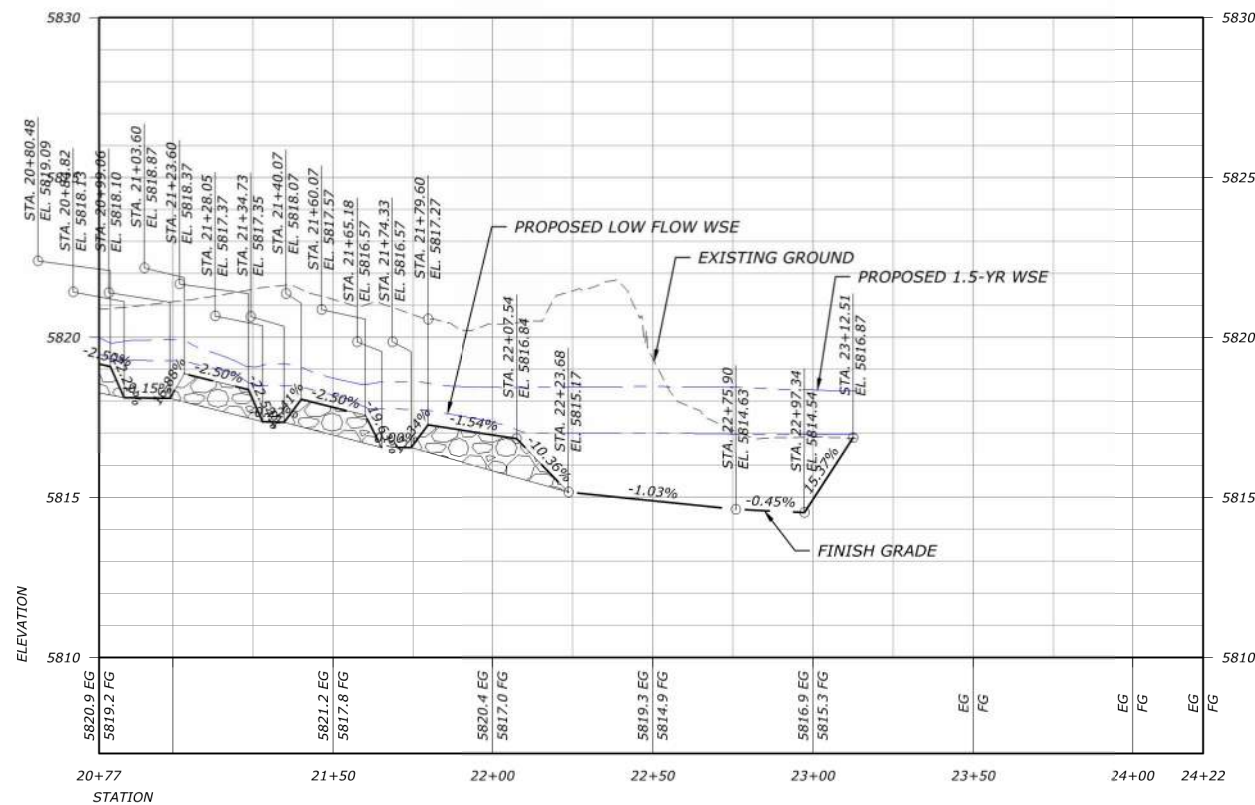


BALDY CHANNEL - PLAN

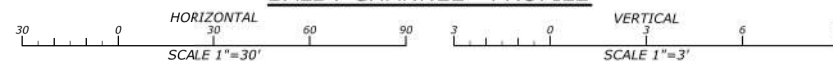


LEGEND

- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
- HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
- HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
- HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
- HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
- HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
- HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
- HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
- PROPOSED LOW FLOW INUNDATION
- CLASS-1 RIFFLE (DWG D2)
- CLASS-2 RIFFLE (DWG D2)
- CLASS-3 RIFFLE (DWG D2)
- BOULDERS (DWG D3)
- PROPOSED CONTOUR (1-ft INTERVAL)
- PROPOSED GRADING LIMIT
- PROPOSED COFFERDAM
- EXISTING CONTOUR (1-ft INTERVAL)



BALDY CHANNEL - PROFILE



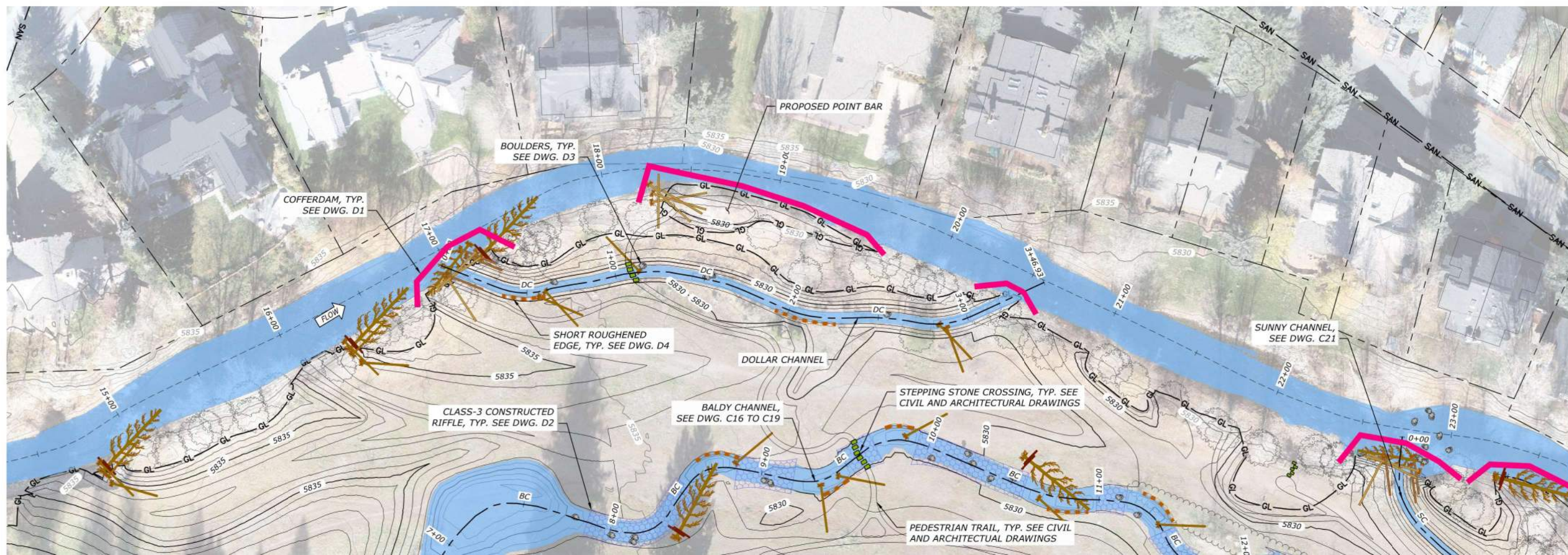
WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
BALDY CHANNEL PLAN
AND PROFILE

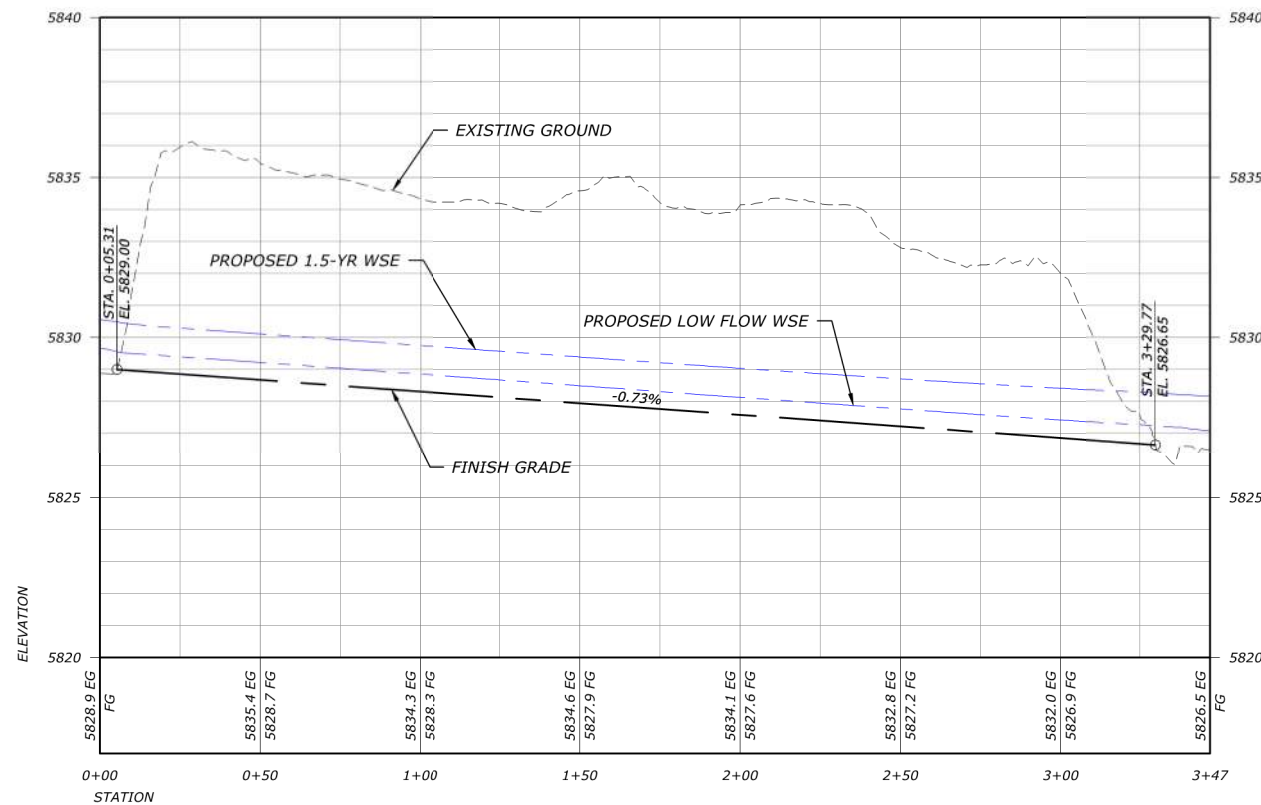
STA 20+77 TO 24+22

DRAWING NO.
C19
SHEET 25 OF 44

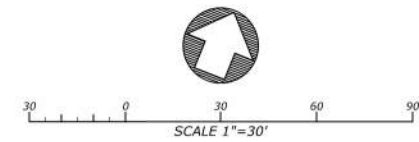
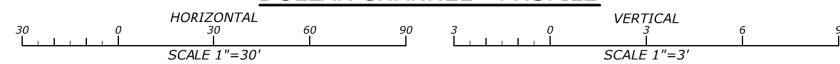


DOLLAR CHANNEL - PLAN

- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - PROPOSED LOW FLOW INUNDATION
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - PROPOSED COFFERDAM
 - EXISTING CONTOUR (1-ft INTERVAL)



DOLLAR CHANNEL - PROFILE



**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
DOLLAR CHANNEL PLAN
AND PROFILE

STA 0+00 TO 3+47

DRAWING NO.
C20
SHEET 26 OF 44

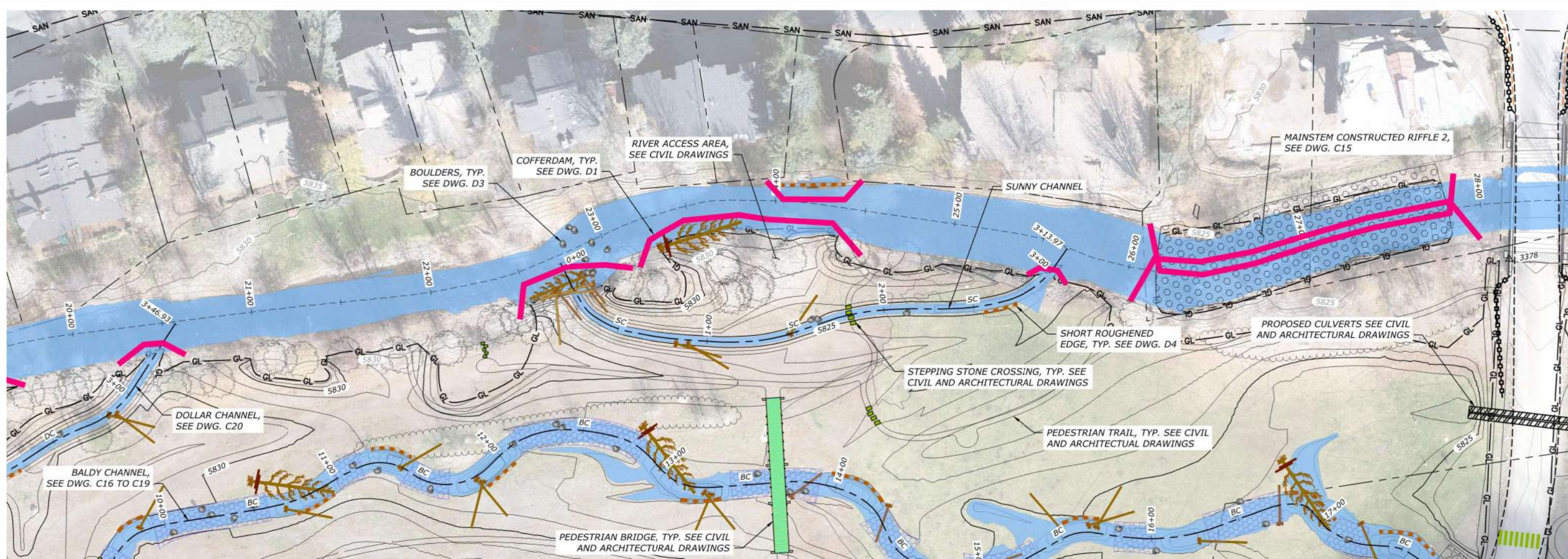
**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
SUNNY CHANNEL PLAN AND PROFILE

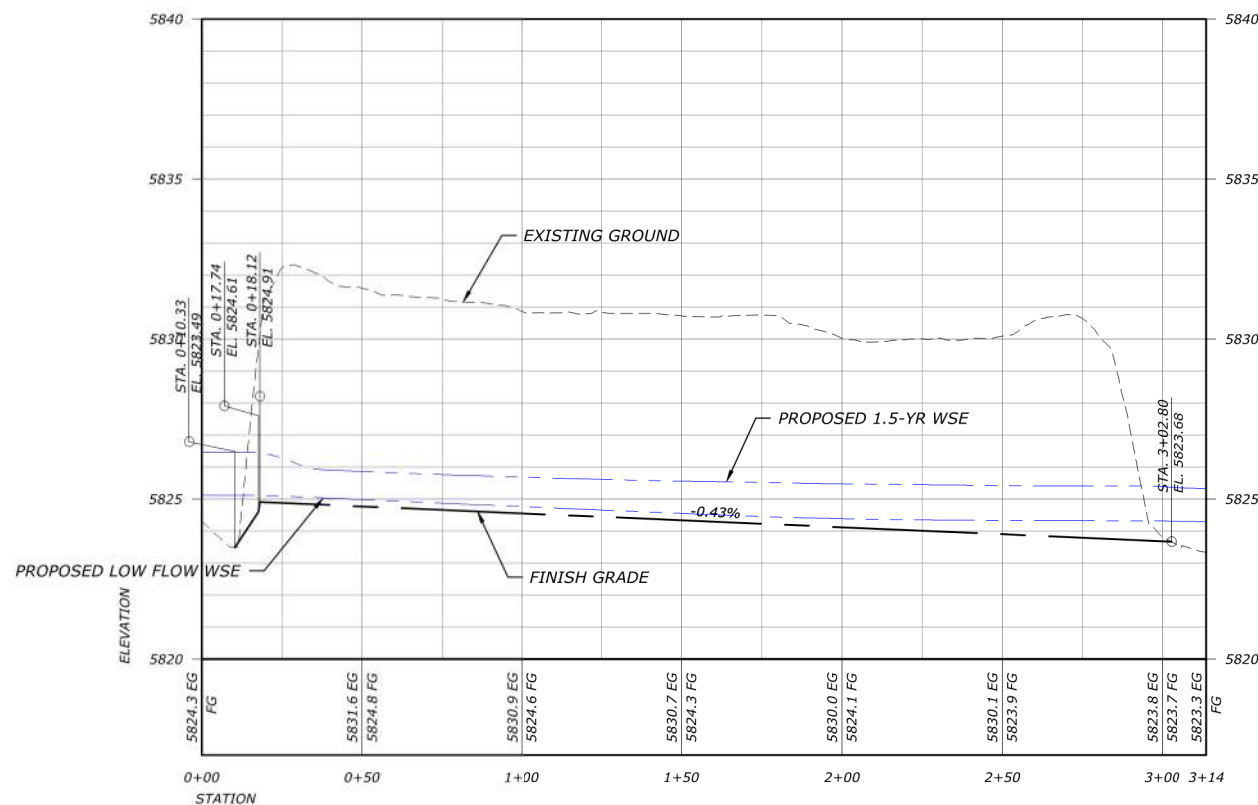
STA 0+00 TO 3+38

DRAWING NO.
C21
SHEET 27 OF 44

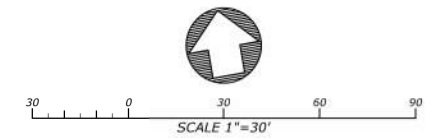
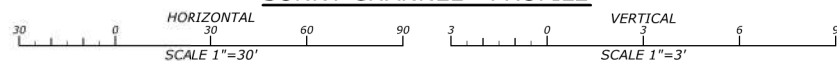


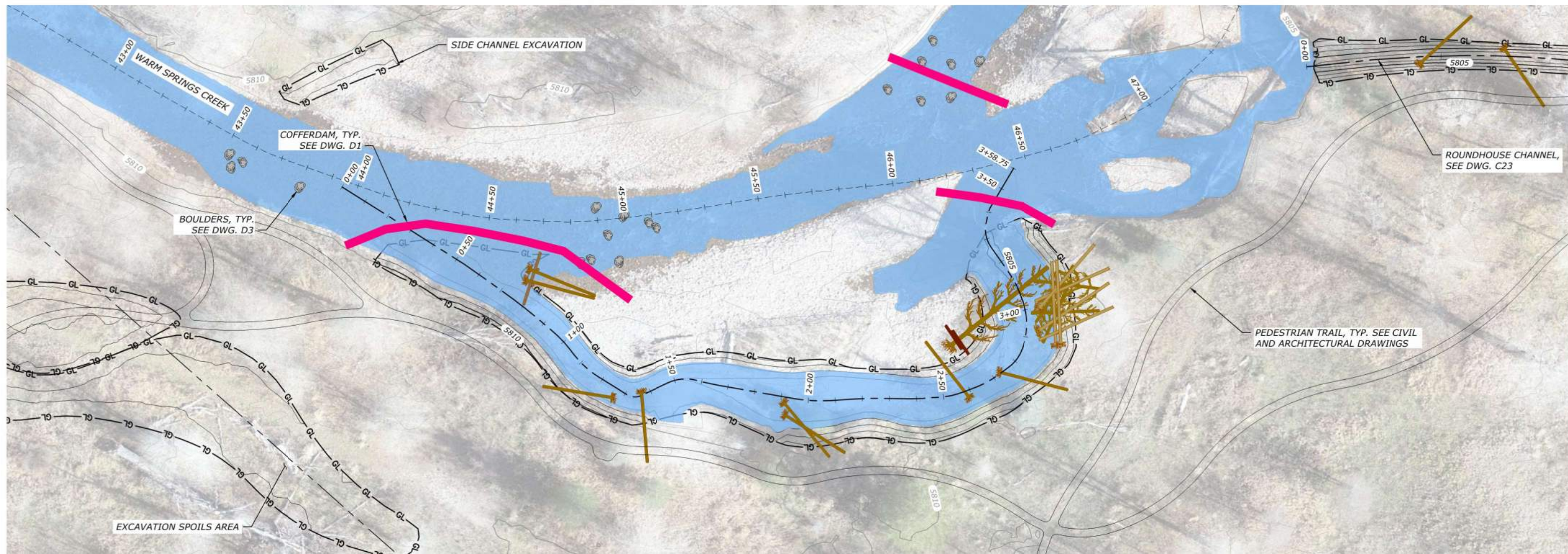
SUNNY CHANNEL - PLAN

- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - PROPOSED LOW FLOW INUNDATION
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - PROPOSED COFFERDAM
 - EXISTING CONTOUR (1-ft INTERVAL)

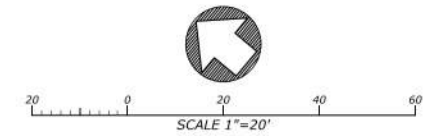


SUNNY CHANNEL - PROFILE

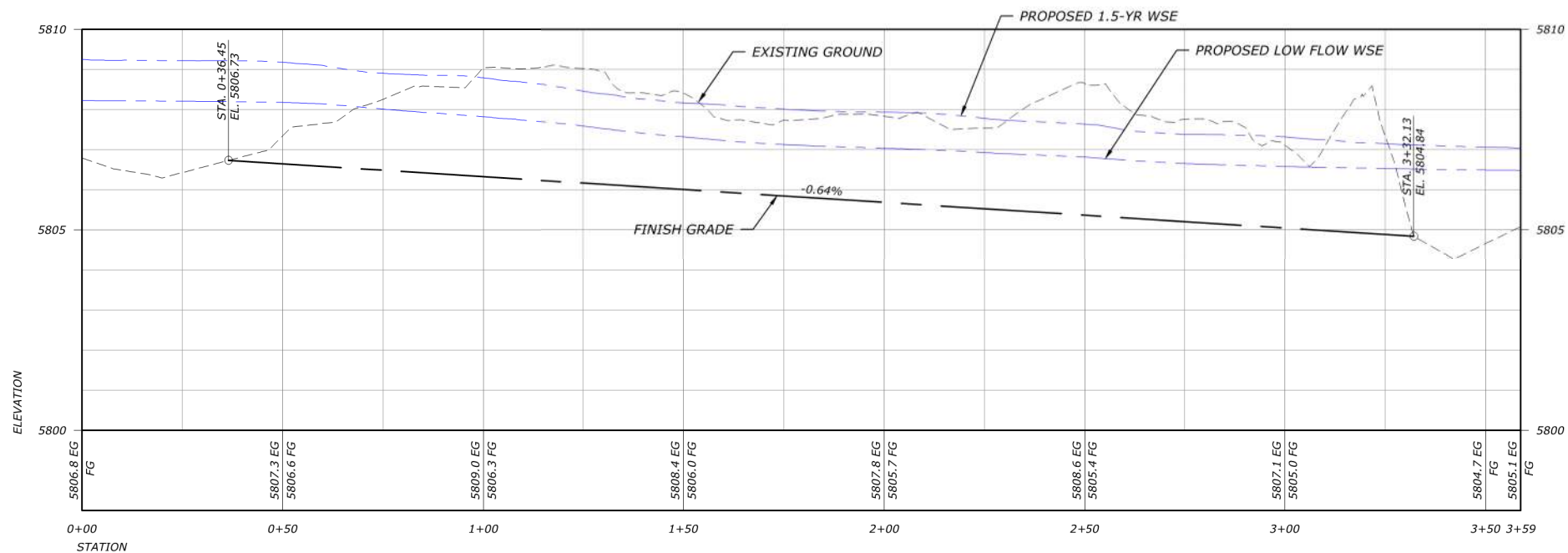




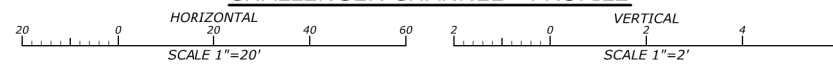
CHALLENGER CHANNEL - PLAN



- LEGEND**
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
 - HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
 - HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
 - HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
 - HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
 - HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
 - HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
 - HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
 - PROPOSED LOW FLOW INUNDATION
 - CLASS-1 RIFFLE (DWG D2)
 - CLASS-2 RIFFLE (DWG D2)
 - CLASS-3 RIFFLE (DWG D2)
 - BOULDERS (DWG D3)
 - PROPOSED CONTOUR (1-ft INTERVAL)
 - PROPOSED GRADING LIMIT
 - PROPOSED COFFERDAM
 - EXISTING CONTOUR (1-ft INTERVAL)



CHALLENGER CHANNEL - PROFILE



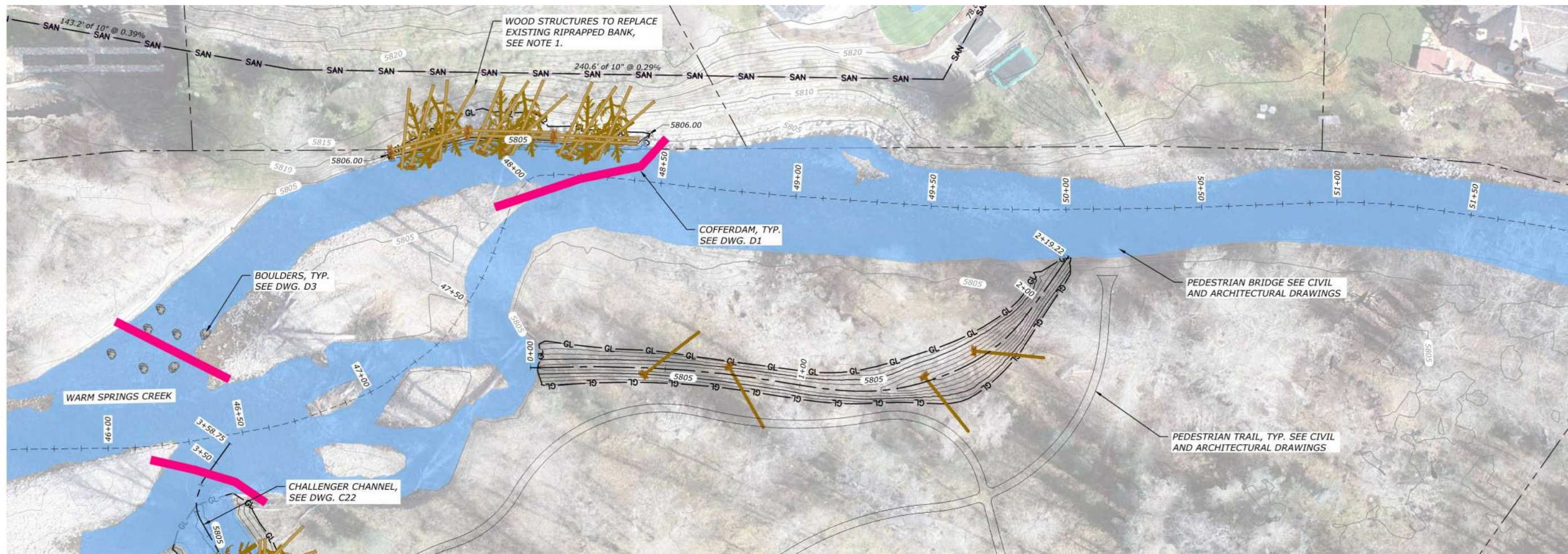
**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
CHALLENGER CHANNEL
PLAN AND PROFILE

STA 0+00 TO 3+59

DRAWING NO.
C22
SHEET 28 OF 44



ROUNDHOUSE CHANNEL - PLAN

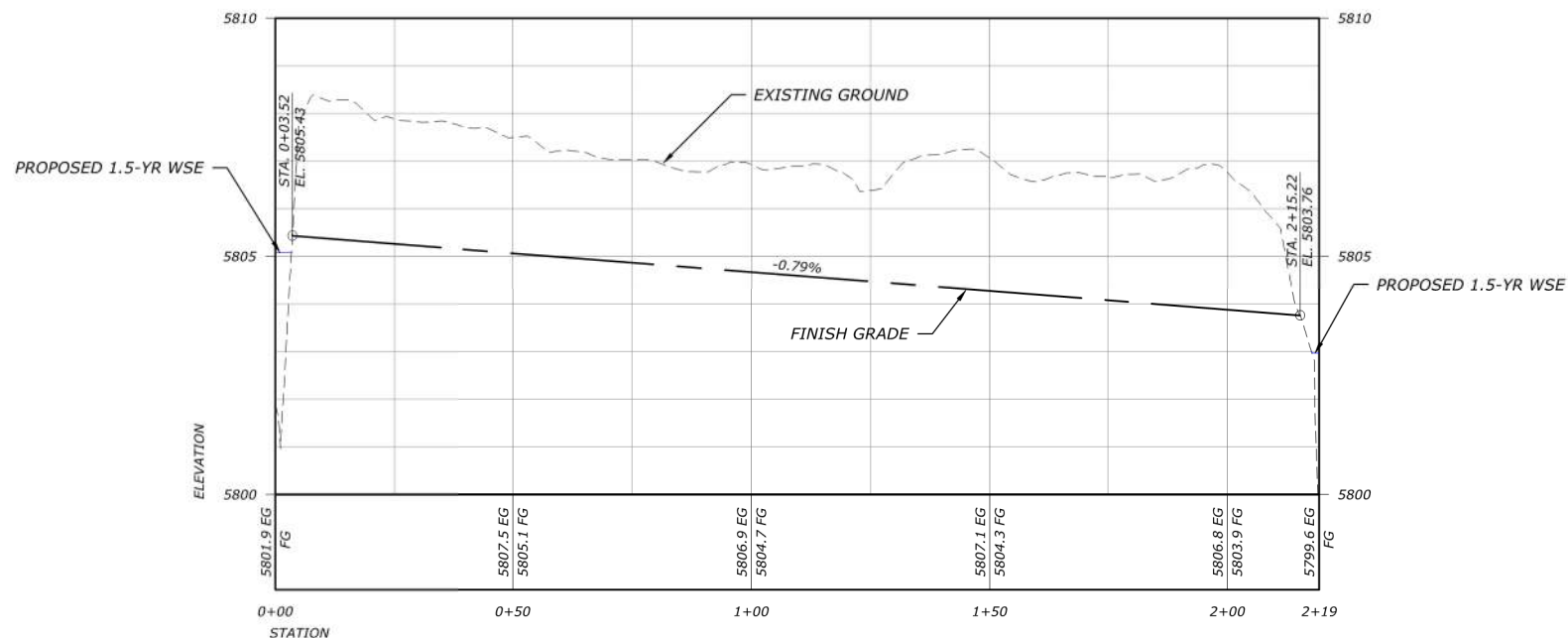


LEGEND

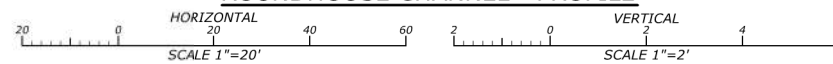
- HABITAT STRUCTURE - 1 (HS-1) (DWG D5)
- HABITAT STRUCTURE - 2 (HS-2) (DWG D6)
- HABITAT STRUCTURE - 3 (HS-3) (DWG D7)
- HABITAT STRUCTURE - 4 (HS-4) (DWG D8)
- HABITAT STRUCTURE - 5 (HS-5) (DWG D9)
- HABITAT STRUCTURE - 6 (HS-6) (DWG D10)
- HABITAT STRUCTURE - 7 (HS-7) (DWG D11)
- HABITAT STRUCTURE - 8 (HS-8) (DWG D12)
- PROPOSED LOW FLOW INUNDATION
- CLASS-1 RIFFLE (DWG D2)
- CLASS-2 RIFFLE (DWG D2)
- CLASS-3 RIFFLE (DWG D2)
- BOULDERS (DWG D3)
- PROPOSED CONTOUR (1-ft INTERVAL)
- PROPOSED GRADING LIMIT
- PROPOSED COFFERDAM
- EXISTING CONTOUR (1-ft INTERVAL)

NOTES:

1. REMOVE EXISTING RIPRAP AND INSTALL WOOD STRUCTURE IN ACCORDANCE WITH DWG. D5 TAKING CARE TO NOT DISTURB OR EXPOSE THE SEWER LINE. BACKFILL THE WOOD STRUCTURE WITH THE REMOVED RIPRAP AND CLASS 1 RIFFLE MATERIAL TO DESIGN GRADES.



ROUNDHOUSE CHANNEL - PROFILE



**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

DRAWING NAME
ROUNDHOUSE CHANNEL
PLAN AND PROFILE

STA 0+00 TO 2+19

DRAWING NO.
C23
SHEET 29 OF 44

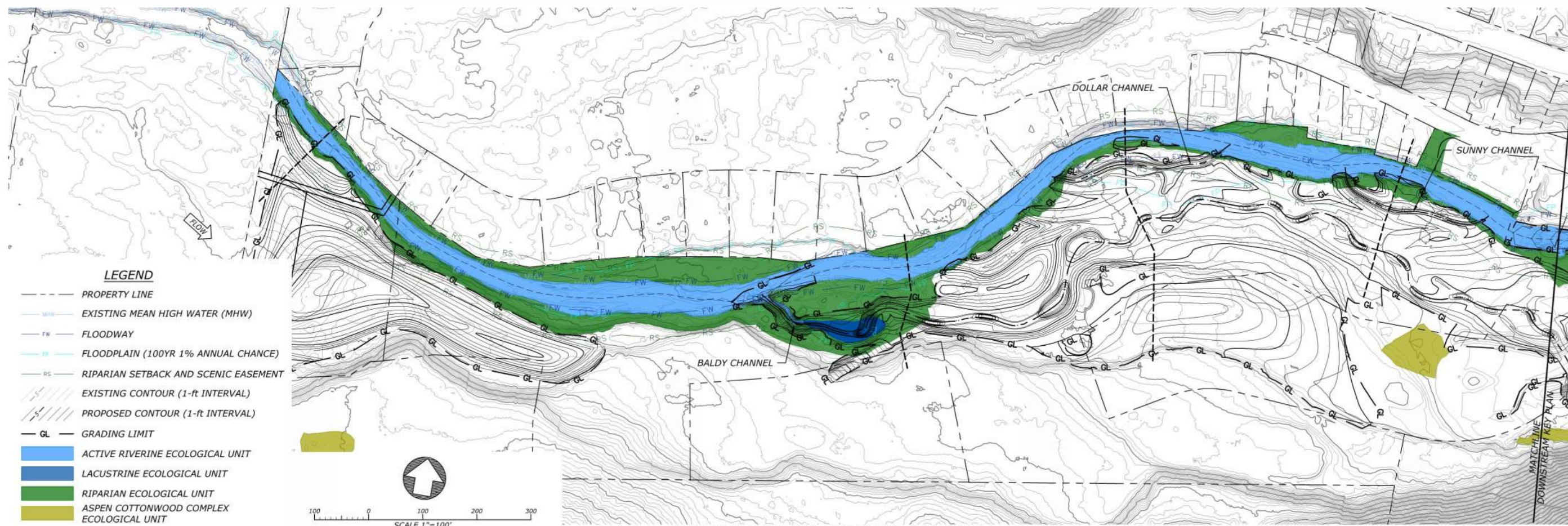
**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

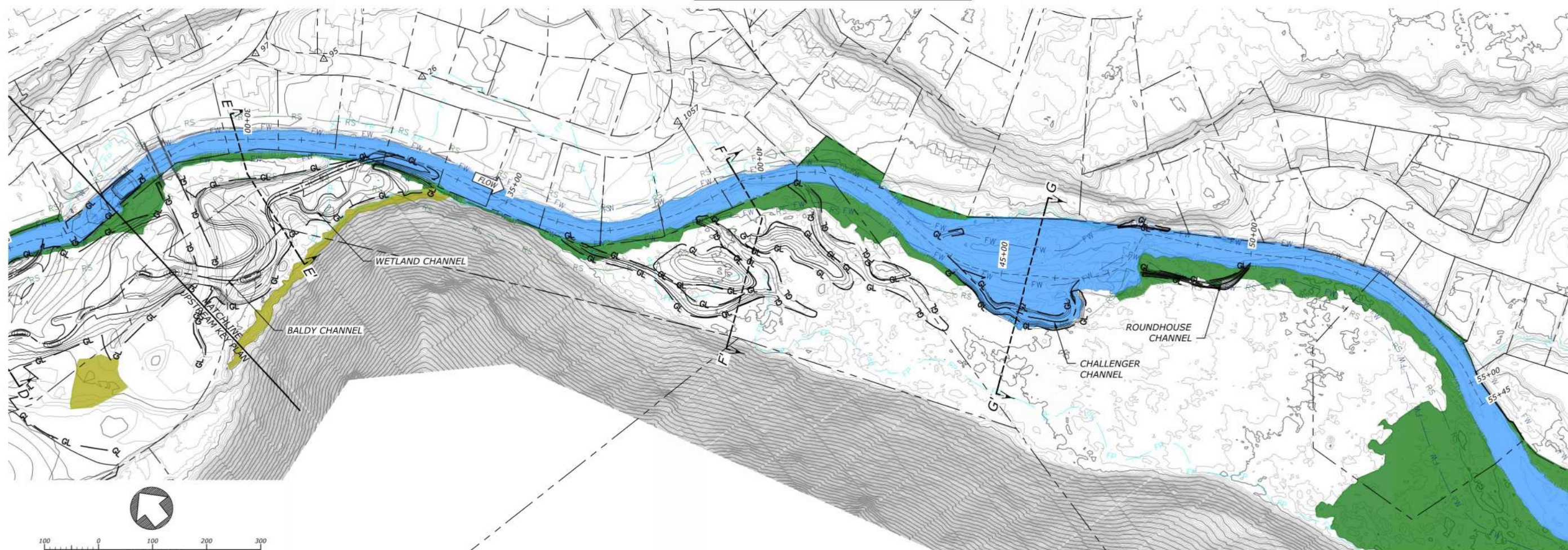
DRAWING NAME
VALLEY SECTIONS

VALLEY SECTION OVERVIEW

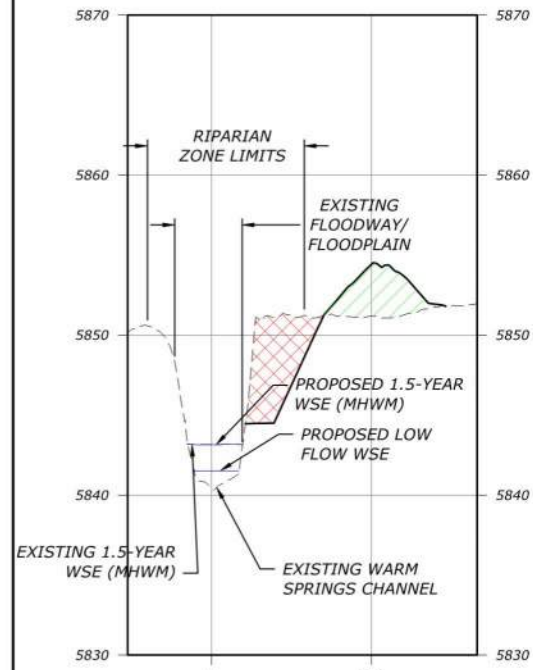
DRAWING NO.
C24
SHEET 30 OF 44



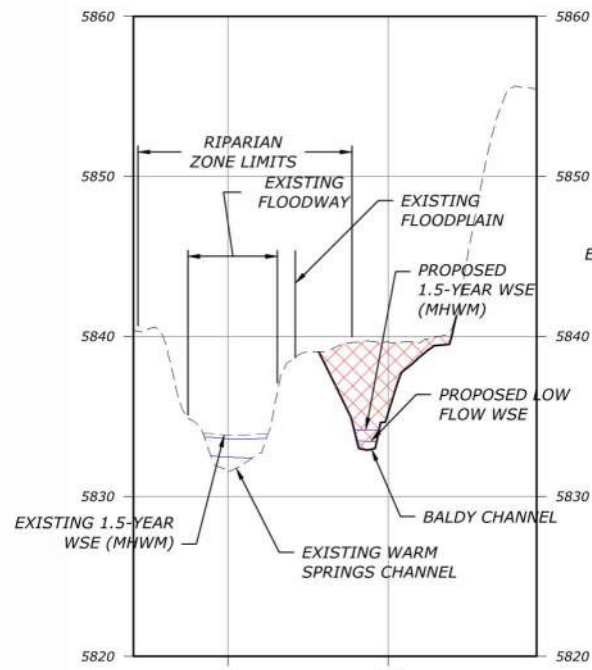
VALLEY SECTIONS - UPSTREAM KEY PLAN



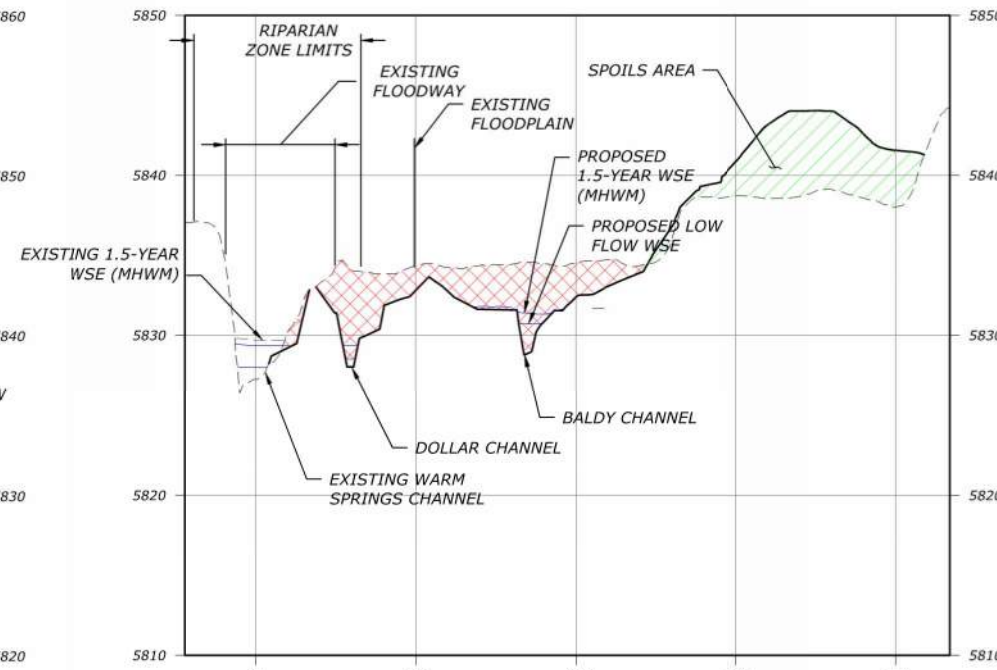
VALLEY SECTIONS - DOWNSTREAM KEY PLAN



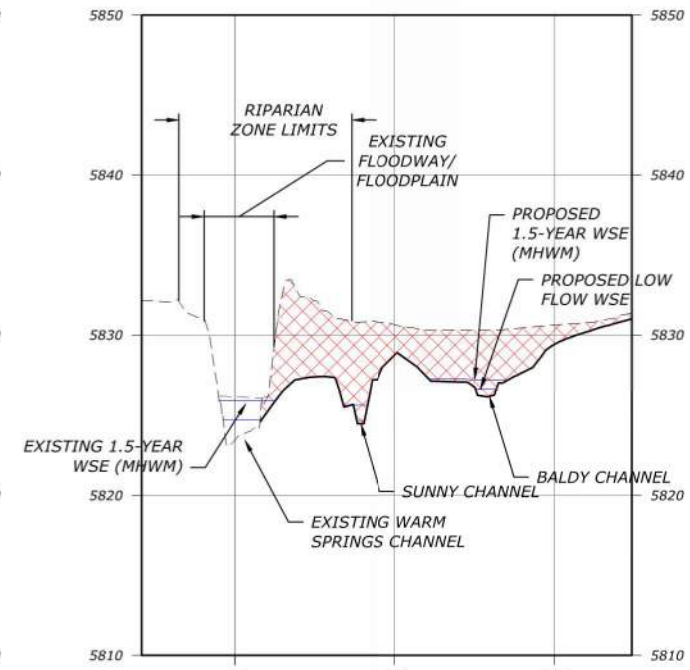
SECTION A-A'



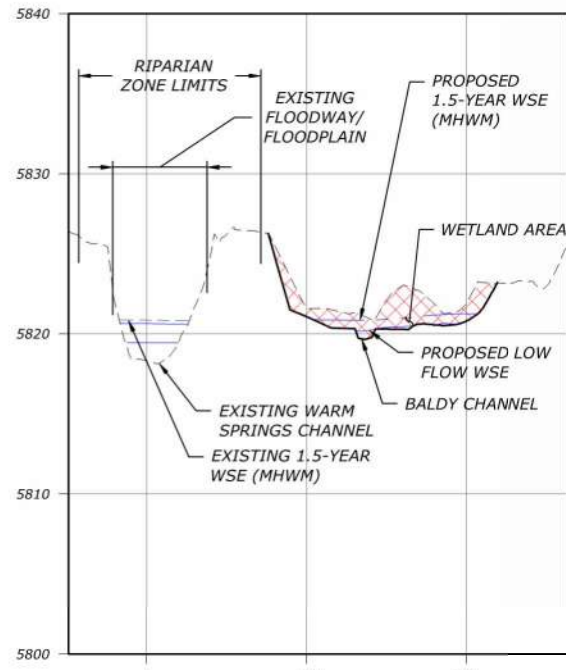
SECTION B-B'



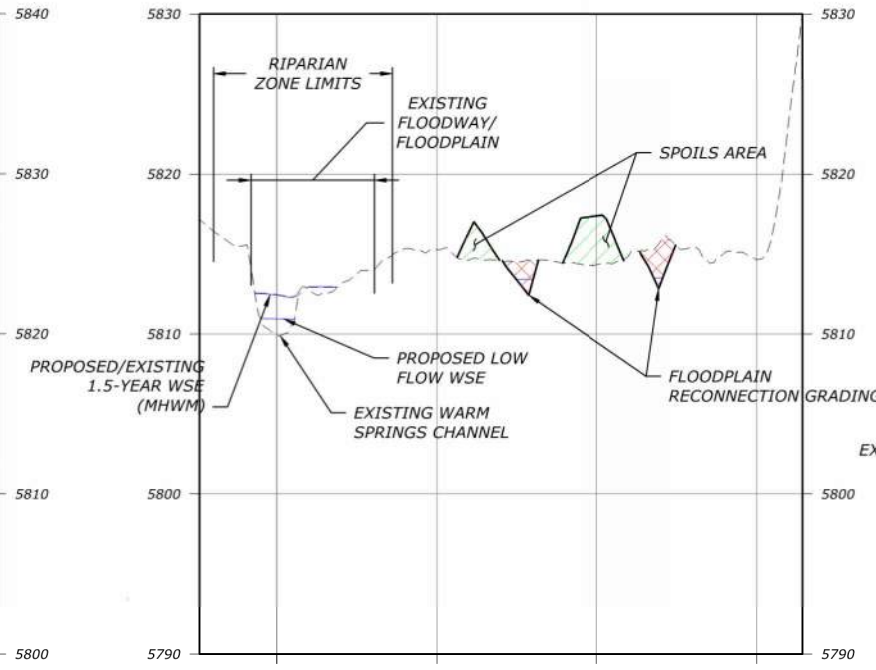
SECTION C-C'



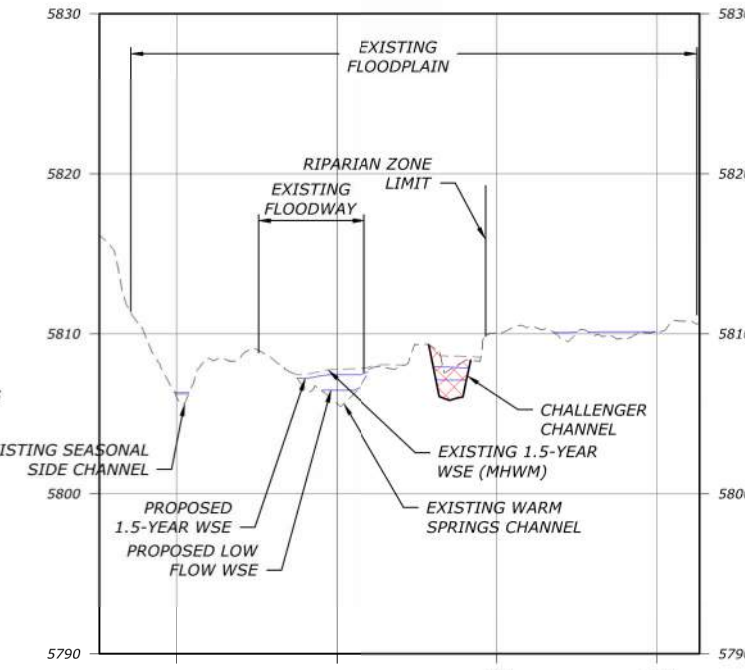
SECTION D-D'



SECTION E-E'



SECTION F-F'



SECTION G-G'

ESTIMATED FLOWS		
CHANNEL NAME	LOW FLOW (cfs)	1.5-YEAR FLOW (cfs)
WARM SPRINGS (UPSTREAM OF PROJECT)	29	330
BALDY	5	58
DOLLAR	2	28
SUNNY	1	14

LEGEND

- EXISTING GRADE
- FINISH GRADE
- PROPOSED WATER SURFACE ELEVATION (1.5-YR AND LOW FLOW)
- EXISTING WATER SURFACE ELEVATION (1.5-YR FLOW)
- CUT
- FILL



FILE: R:\PROJECTS\BCE_WOOD_HICZZ\WARM_SPRINGS_PRESERVE_CITY_OF_KETCHUM\CAD\PRODUCT\DWG\VALLEY_SECTIONS.DWG SAVED BY: ZACH SUDMAN PLOT DATE: 11/6/2024 11:16 PM

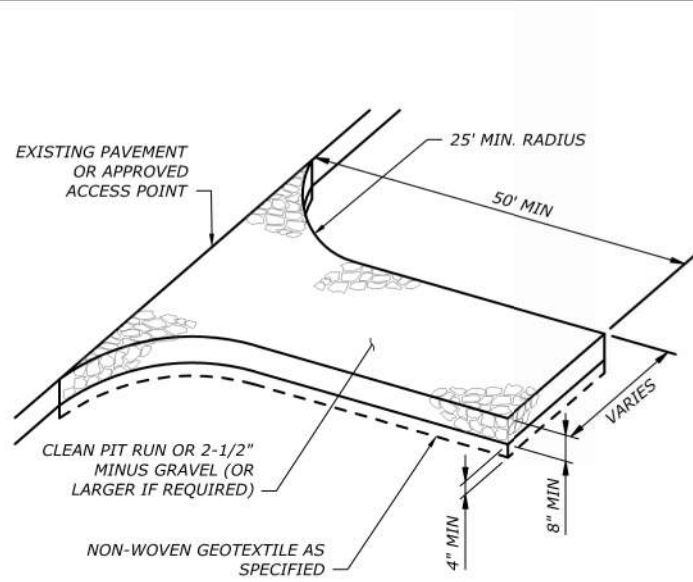
WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
VALLEY SECTIONS

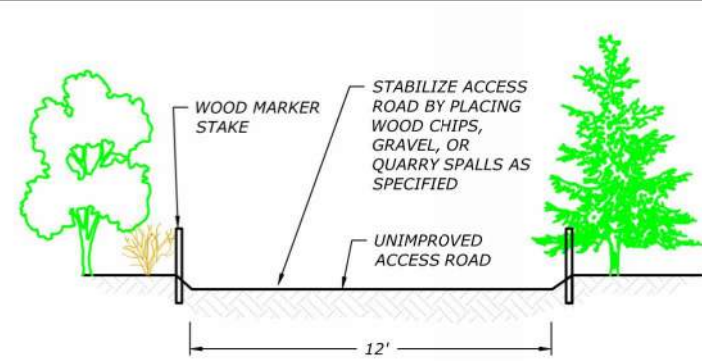
VALLEY SECTIONS

DRAWING NO.
C25
SHEET 31 OF 33



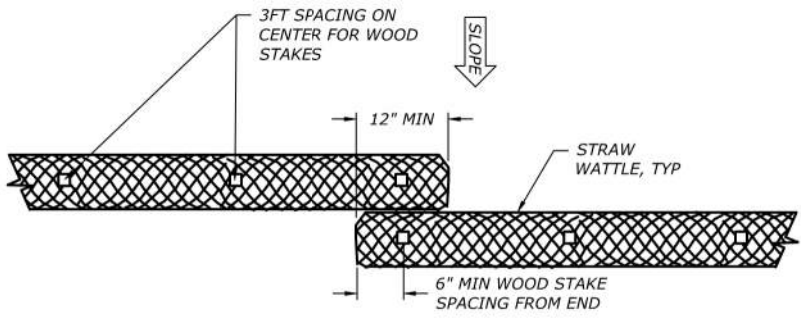
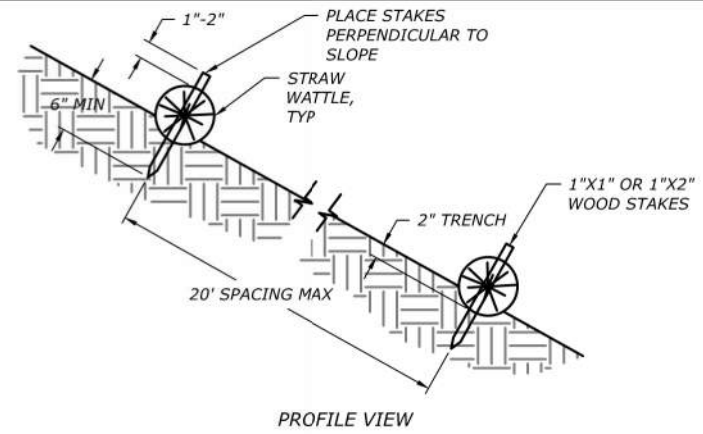
- NOTES:**
- ADDITIONAL GRAVEL SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
 - REMOVE GRAVEL ENTRANCE AND REPLACE WITH BASE COURSE PRIOR TO COMPLETION OF THE PROJECT.

1 TEMPORARY CONSTRUCTION ENTRANCE
NTS

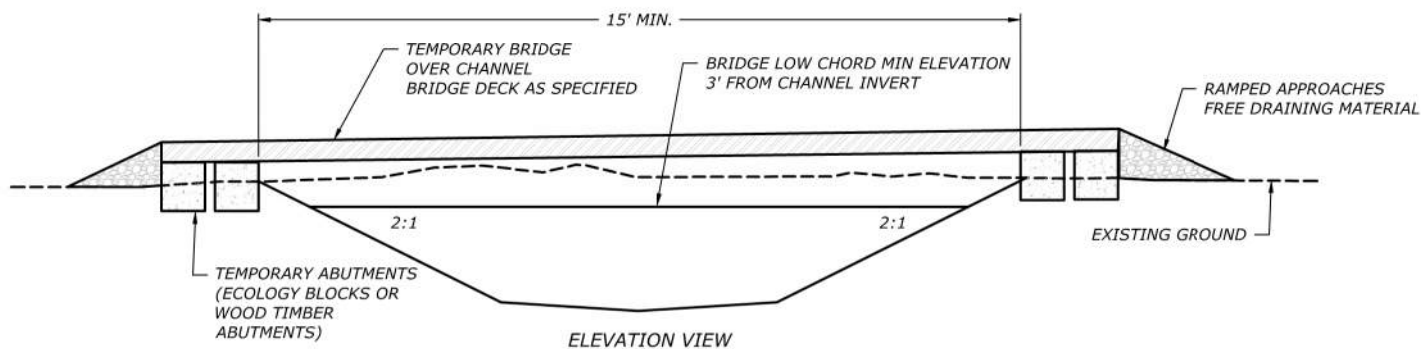


- NOTES:**
- CLEARED ACCESS TO BE ROUTED TO MINIMIZE VEGETATION DISTURBANCE AND FOREST CLEARING.
 - CONTRACTOR SHALL MARK CLEARING LIMITS. CLEARING LIMITS TO BE APPROVED BY ENGINEER PRIOR TO ANY CLEARING ACTIVITIES.
 - ANY TREES GREATER THAN 18" Ø SHALL BE REMOVED W/ ROOTWADS INTACT AND STOCKPILED FOR USE IN LOGJAM CONSTRUCTION.
 - TREES AND SHRUBS WITH 6"-18" Ø SHALL BE STOCKPILED FOR USE AS RACKING MATERIAL IN LOGJAM CONSTRUCTION.
 - VEGETATION AND ORGANIC SOIL SHALL BE STRIPPED, TEMPORARILY STOCKPILED, AND REPLACED ON ROAD ALIGNMENT AFTER WORK IS COMPLETE AND ACCEPTED.
 - ACCESS SHALL BE MAINTAINED BY MINOR GRADING AND PLACEMENT OF WOOD CHIPS, GRAVEL AND/OR QUARRY SPALLS. ALL GRAVEL OR QUARRY SPALLS (IF PLACED) SHALL BE UNDERLAIN WITH A GEOTEXTILE AND REMOVED.
 - RESTORE ACCESS ROADS AND SEED IN ACCORDANCE WITH SEEDING SPECIFICATIONS.

2 ACCESS ROAD
NTS



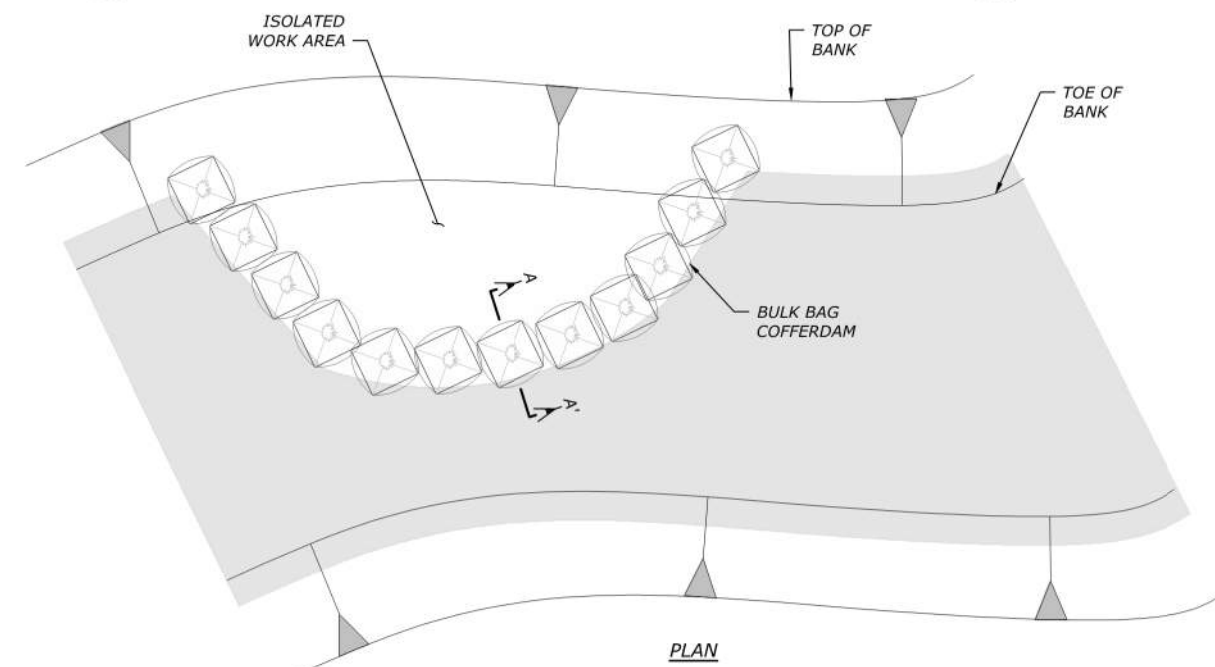
3 STRAW WATTLE
NTS



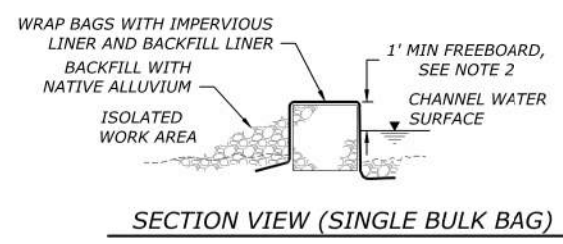
- TEMPORARY BRIDGE NOTES:**
- CONTRACTOR TO DESIGN TEMPORARY BRIDGE FOR CHANNEL CROSSINGS.
 - BRIDGE SHALL BE LOCATED SUCH THAT ONLY ONE SPAN IS USED AT CHANNEL CROSSINGS.
 - END OF BRIDGE SHALL BEAR ON HIGH BANKS WITH SUFFICIENT BEARING CAPACITY TO PREVENT SLOUGHING OR COLLAPSE OF CHANNEL BANKS.
 - CONCRETE ECOLOGY BLOCKS OR WOOD ABUTMENTS MAY BE USED TO SUPPORT ENDS OF TEMPORARY BRIDGE AS NEEDED.
 - BRIDGES MAY BE CONSTRUCTED FROM LOGS, RAIL CAR BEDS OR APPROVED EQUAL AND DECKED WITH STEEL SHEET, WOOD LAGGING OR APPROVED EQUAL.

5 TEMPORARY BRIDGE
NTS

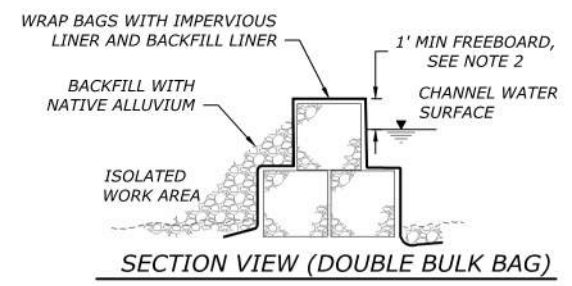
- GENERAL EROSION AND SEDIMENT CONTROL AND WORK AREA ISOLATION NOTES:**
- THE DETAILS SHOWN ON THIS SHEET ARE EXAMPLES OF ACCEPTABLE METHODS TO USE DURING CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING A COFFERDAM, PUMPING, AND DEWATERING PLAN FOR REVIEW AND APPROVAL BY THE CONTRACTING AGENCY OR ENGINEER. THE PLAN SHALL INCLUDE SUFFICIENT DETAIL OF MEANS AND METHODS SATISFYINGLY MEETING THE PROJECT SPECIFICATIONS AND PERMIT REQUIREMENTS. IF APPROVED, OTHER METHODS MAY BE USED SUCH AS UTILIZING INFLATABLE BLADDERS, PLATES, OR BARRIERS OF VARIOUS MATERIALS. COFFERDAMS SHALL INCLUDE PLASTIC LINER OR FINE MESH SILT FENCE TO REDUCE TURBIDITY AND FINES FROM ENTERING THE FREE FLOWING PORTION OF LIVE WATER.
 - COFFERDAMS SHALL BE CONSTRUCTED TO ACCOMMODATE ALL FLOW CONDITIONS AND WATER SURFACE ELEVATIONS EXPECTED DURING CONSTRUCTION PLUS A MINIMUM OF 1-FOOT OF FREEBOARD. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH WATER QUALITY STANDARDS, SAFETY AND CONSTRUCTION STANDARDS, DAMAGE OR LOSS TO EQUIPMENT, MATERIALS, AND DAMAGES TO PRIVATE PROPERTY.
 - THE CONTRACTING AGENCY IS RESPONSIBLE FOR MEASURING TURBIDITY HOWEVER THE CONTRACTOR SHALL ADHERE TO THE SPECIAL PROCEDURES REGARDING IN-STREAM WORK, TURBIDITY, AND DEWATERING (DRAWINGS XXXX). ADDITIONALLY, THIS PROJECT SHALL ADHERE TO HIP CONSERVATION MEASURES. CONSERVATION MEASURES ARE SUMMARIZED ON DRAWINGS XXXX AND SHALL BE STRICTLY ADHERED TO.
 - THE CONTRACTOR SHALL NOTIFY THE OWNER AND CONTRACTING OFFICER AT LEAST 5 DAYS BEFORE EACH COFFERDAM INSTALLATION DATE SO THAT FISH SALVAGE ACTIVITIES CAN BE SCHEDULED. ANTICIPATED COFFERDAM LOCATIONS ARE SHOWN IN THE PLANS.
 - FILL MATERIAL FOR BULK BAGS SHALL BE CLEAN, WASHED, AND ROUNDED MATERIAL MEETING STANDARD SPECIFICATIONS FOR DRAIN ROCK, STREAMBED AGGREGATES, STREAMBED SEDIMENTS, OR STREAMBED COBBLES. MATERIAL USED TO FILL BULK BAGS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE PERMITS.
 - DEWATERING PUMP DISCHARGE FROM WITHIN COFFERDAM WORK AREAS SHALL BE RELEASED ONTO FLOODPLAIN AREAS AWAY FROM WETLANDS AND CONSTRUCTION ACTIVITIES. DISCHARGE SHALL BE COMPLETELY INFILTRATED PRIOR TO REACHING WETLANDS OR SURFACE WATERS UNLESS APPROVED BY THE CONTRACTING OFFICER. ALL RETURN FLOWS MUST MEET PERMIT REQUIREMENTS FOR TURBIDITY.
 - EXCAVATIONS ASSOCIATED WITH CHANNEL, FLOODPLAIN, AND WOOD HABITAT STRUCTURES SHALL BE DEWATERED IN ACCORDANCE WITH THE SPECIFICATIONS.
 - ALL PUMP INTAKES SHALL BE SCREENED FOR FISH PROTECTION AS REQUIRED BY NOAA.
 - ALL EARTHWORK ACTIVITIES AND WOOD HABITAT STRUCTURE CONSTRUCTION WITHIN THE ORDINARY HIGH WATER CHANNEL SHALL CONFORM TO THE WATER QUALITY STANDARDS ESTABLISHED BY REGULATORY AGENCY PERMITS FOR THIS PROJECT.



PLAN



SECTION VIEW (SINGLE BULK BAG)



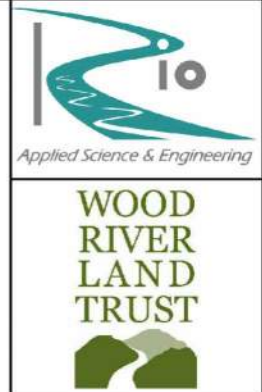
SECTION VIEW (DOUBLE BULK BAG)

- NOTES:**
- WRAP BULK BAGS WITH IMPERVIOUS PLASTIC LINER TO PREVENT SEEPAGE.
 - BACKFILL THE DOWNSTREAM SIDE OF THE COFFERDAM WITH NATIVE ADJACENT ALLUVIUM.
 - USE BULK BAGS AS A BUTTRESS AS REQUIRED.
 - BULK BAG MATERIAL SHALL BE 8 OZ. (MIN) WOVEN FABRIC HAVING A 1200 HOUR UV RESISTANCE WITH LIFTING LOOPS.
 - PLACE BULK BAGS CAREFULLY TO PREVENT TEARING OR CUTTING OF BAGS.
 - BULK BAG FILL MATERIAL SHALL BE CLEAN, WASHED, ALLUVIUM.

4 BULK BAG COFFERDAM
NTS

STRAW WATTLE SPACING TABLE				
SLOPE	SPACING BASED ON WATTLE DIAMETER (FT)			
	6"	9"	12"	20"
1:1	5	10	15	20
2:1	10	20	30	40
3:1	15	30	45	60
4:1 OR FLATTER	20	40	60	80

- STRAW WATTLE NOTES:**
- INSTALL WATTLES ON THE UPPER SLOPE IN SEEDING ZONE 5 (DISTURBED HILLSLOPES OUTSIDE OF THE FLOODPLAIN LIMITS).
 - WATTLES SHALL BE INSTALLED ON CONTOUR.
 - TURN THE TERMINATING END OF EACH ROW UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE WATTLE.
 - EXTERIOR NETTING SHALL BE MADE OF BIODEGRADABLE FIBERS.
 - ANY DAMAGED WATTLE SHALL BE REPLACED AS DIRECTED BY THE CONTRACTING OFFICER AT THE CONTRACTOR'S EXPENSE.
 - STRAW WATTLE DIAMETER SHALL BE 9" UNLESS APPROVED BY CONTRACTING OFFICER.
 - INSTALL STRAW WATTLES PRIOR TO PLANTING AND SEEDING ACTIVITIES.



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
95% DESIGN DRAWINGS
 WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

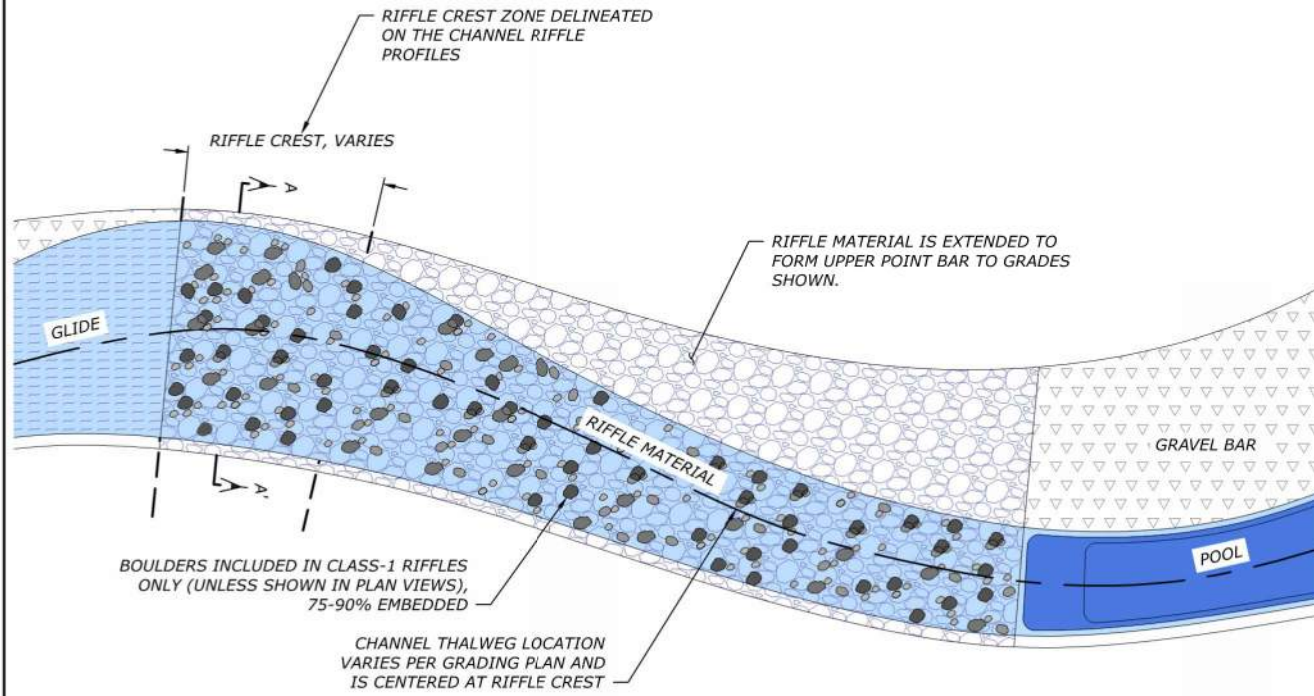
WORKING DRAFT
 NOT FOR
 CONSTRUCTION

DATE: 11/6/2024
 DESIGNED: ZS, MP, JY
 APPROVED: JY
 DRAWING NAME: DETAILS
 ACCESS AND ISOLATION DETAILS
 DRAWING NO. D1
 SHEET 32 OF 44

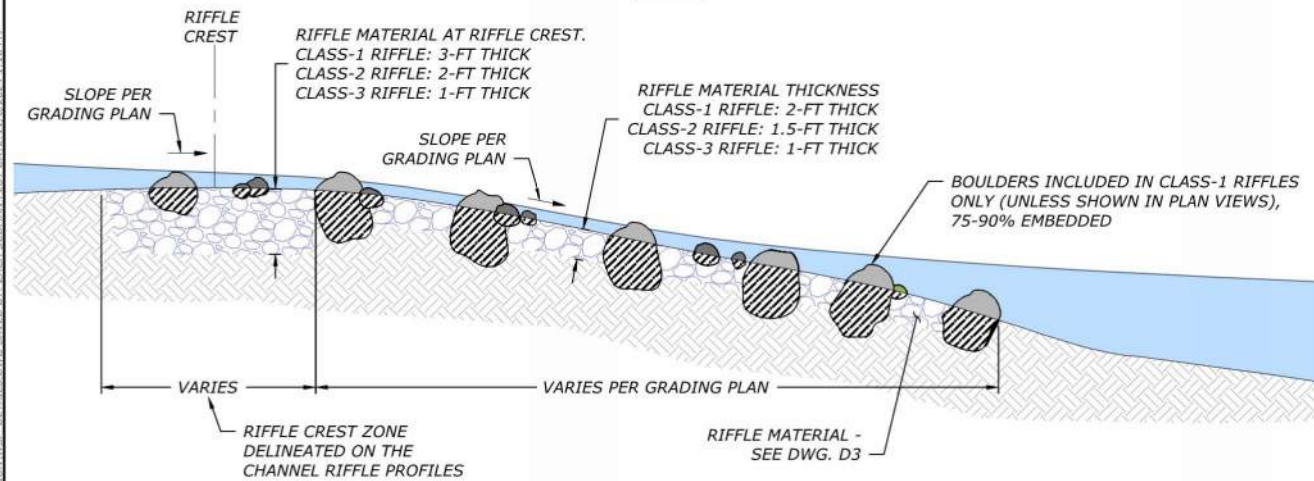
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RIFFLE OVERVIEW NOTES:

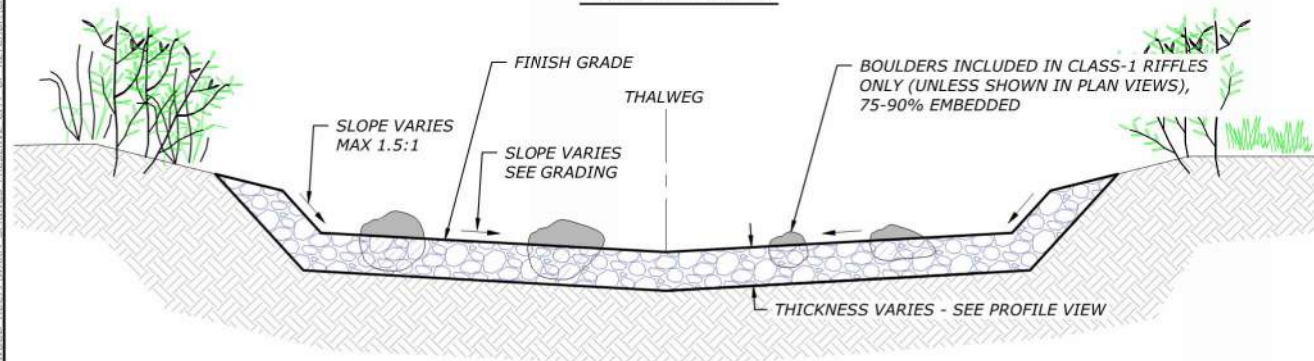
CONSTRUCTED RIFFLES ARE TO BE INSTALLED AT LOCATIONS SHOWN IN THE GRADING PLANS. CLASS 1 AND 2 RIFFLES SHALL BE OVER EXCAVATED AND CONSTRUCTED WITH SORTED NATIVE MATERIAL AND/OR IMPORTED MATERIAL THAT MEETS GRADATIONS SHOWN ON DRAWING D3. IF IN-SITU MATERIAL MEETS THE SPECIFICATION FOR CLASS 3 RIFFLE MATERIAL (CLASS 3 RIFFLE LOCATIONS ONLY) PER THE GRADATION ON DRAWING D3 THEN RIFFLE SHALL BE GRADED WITHOUT OVER-EXCAVATION AND PLACEMENT OF CLASS 3 CONSTRUCTED RIFFLE MATERIAL. IF IN-SITU MATERIAL DOES NOT MEET THE SPECIFICATION FOR CLASS 3 RIFFLE MATERIAL, RIFFLE SHALL BE OVER-EXCAVATED AND CLASS 3 CONSTRUCTED RIFFLE MATERIAL SHALL BE INSTALLED PER THE RIFFLE



PLAN



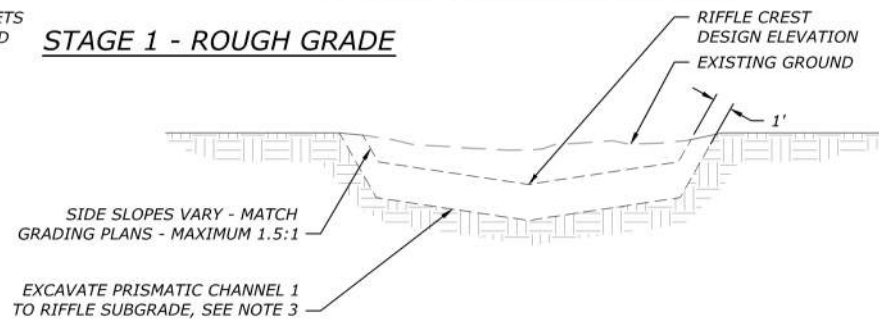
PROFILE VIEW



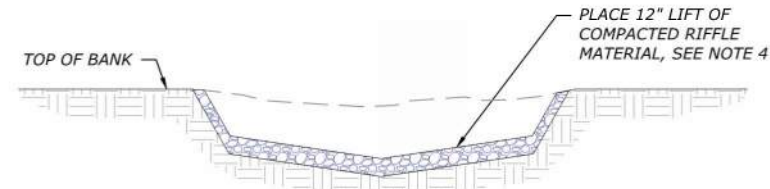
SECTION A-A'

CONSTRUCTION SEQUENCING

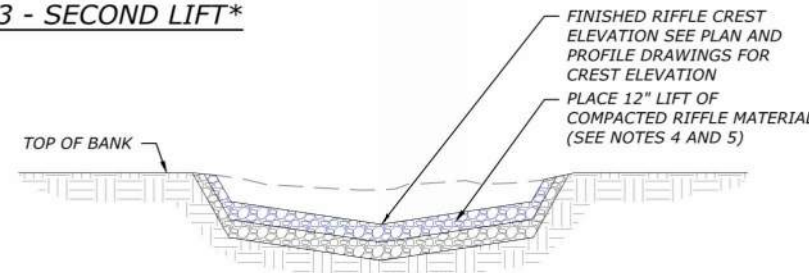
STAGE 1 - ROUGH GRADE



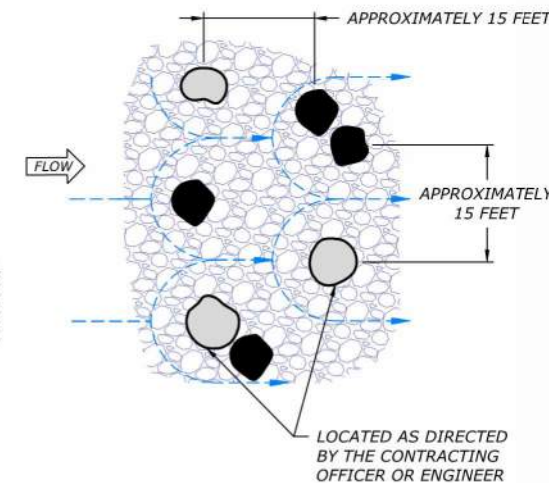
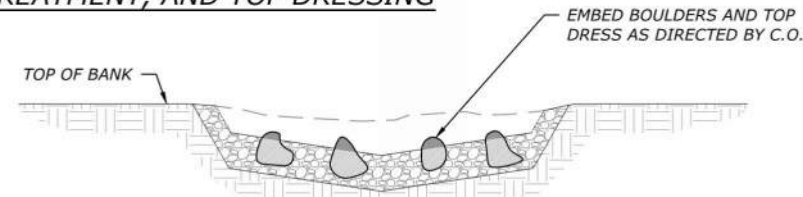
STAGE 2 - FIRST LIFT*



STAGE 3 - SECOND LIFT*



STAGE 4 - BOULDER PLACMENT (CLASS-1 ONLY), BANK TREATMENT, AND TOP DRESSING



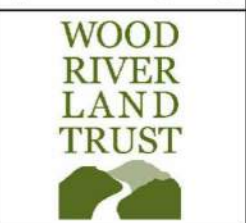
BOULDER PLACEMENT (CLASS-1 ONLY)

CONSTRUCTED RIFFLE NOTES:

- SEE DWG. D3. FOR RIFFLE MATERIALS.
- THREE PLACEMENTS ARE REQUIRED AS FOLLOWS:
 - CONSTRUCTED RIFFLE MATERIAL
 - BOULDERS FOR CLASS-1 ONLY (EMBEDDED)
 - ROUGHNESS ROCK (TOP DRESSING)
- REMOVE ORGANICS AND/OR CHANNEL MATERIAL TO FINISH GRADE OF RIFFLE IN ACCORDANCE WITH THE CHANNEL PROFILE AND DESIGN CONTOURS ON THE GRADING DRAWINGS. THEN, EXCAVATE TO RIFFLE MATERIAL SUBGRADE (TO THE SPECIFIED RIFFLE MATERIAL THICKNESS ON THE CHANNEL BED AND BANKS)
- SCARIFY THE CHANNEL BED TO A DEPTH OF 4 INCHES (MINIMUM) FOR IMPROVED BONDING OF RIFFLE MATERIAL TO EXISTING GROUND.
- IMPORT WELL-MIXED CLASS-1, CLASS-2, AND CLASS-3 RIFFLE MATERIAL AND/OR CREATE MATERIAL FROM SCREENING NATIVE ALLUVIUM FROM PROJECT EXCAVATIONS AND/OR IMPORTED MATERIAL MEETING THE SPECIFICATIONS FOR CONSTRUCTED RIFFLE MATERIAL.
- PLACE RIFFLE MATERIAL IN LIFTS OF 12 INCHES (MAXIMUM) AND COMPACT BY TRACKING OVER THE MATERIAL (300 SERIES EXCAVATOR OR LARGER OR EQUIPMENT APPROVED BY THE CONTRACTING OFFICER) TO SUFFICIENTLY COMPACT THE MATERIAL.
- REPEAT RIFFLE CONSTRUCTION BY PLACING ANOTHER 12-INCH LIFT WHERE REQUIRED TO MEET DESIGN FINISH GRADES AND CROSS SECTION SHAPE.
- FOR CLASS-1 RIFFLES AND WHERE SHOWN IN PLAN VIEWS, INSTALL BOULDERS (SPECIFIED ON DRAWING D3) TO THE SURFACE OF THE RIFFLE IN ACCORDANCE WITH THE DETAILS ON THIS DRAWING.
- TOP DRESS THE SURFACE OF THE RIFFLE BY INSTALLING A THIN LAYER OF LOOSE RIFFLE MATERIAL (NOT COMPACTED) AS DIRECTED BY THE ENGINEER OR CONTRACTING OFFICER TO ACHIEVE A NATURAL APPEARANCE. SEEK APPROVAL OF FINISH GRADES PRIOR TO INSTALLING TOP DRESSING.
- IF HABITAT STRUCTURES OR BANK TREATMENTS ARE SPECIFIED WITHIN THE CONSTRUCTED RIFFLE EXTENTS, THE RIFFLE SHALL BE CONSTRUCTED BEFORE INSTALLATION OF THOSE FEATURES
- COMPLETED RIFFLES OR CHANNELS (APPROVED BY THE ENGINEER OR CONTRACTING OFFICER) SHALL BE LEFT UNDISTURBED (NOT DRIVEN ON BY MACHINERY) UNLESS APPROVED BY THE CONTRACTING OFFICER



CONSTRUCTED RIFFLE ON THE LEMHI RIVER WITH BANK TREATMENTS - ONE YEAR AFTER CONSTRUCTION.



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
95% DESIGN DRAWINGS
WOOD RIVER LAND TRUST
WARM SPRINGS CREEK, KETCHUM, ID
BLAINE COUNTY, IDAHO

WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
DETAILS

CONSTRUCTED RIFFLE

DRAWING NO.
D2
SHEET 33 OF 44

CLASS 1 RIFFLE MATERIAL NOTES:

1. THE LARGER COMPONENT (50% PASSING AND LARGER) OF THE CLASS 1 RIFFLE MATERIAL SHALL BE IMPORTED MATERIAL CONSISTING OF ANGULAR OR SUBANGULAR MATERIAL. THE SMALLER COMPONENT (50% PASSING AND SMALLER) CAN BE IMPORTED OR DEVELOPED ONSITE BY SCREENING AND MIXING OF NATIVE ALLUVIUM FROM PROJECT EXCAVATIONS. THE FINAL CLASS 1 RIFFLE MATERIAL SHALL BE A WELL GRADED AND UNIFORMLY MIXED SUBSTRATE BOULDERS SHALL BE INCLUDED IN CLASS-1 RIFFLE MATERIAL.

CLASS 2 RIFFLE MATERIAL NOTES:

1. CLASS 2 RIFFLE MATERIAL SHALL BE IMPORTED OR DEVELOPED BY CONTRACTOR ONSITE BY SCREENING AND MIXING OF NATIVE ALLUVIUM FROM PROJECT EXCAVATIONS TO FORM A WELL GRADED AND UNIFORMLY MIXED SUBSTRATE.

CLASS 3 RIFFLE MATERIAL NOTES:

1. THE C.O. OR ENGINEER SHALL INSPECT SUITABILITY OF IN-SITU MATERIAL (IN EXCAVATION AREAS) AND ACCEPT OR REJECT BASED UPON THE CLASS 3 RIFFLE MATERIAL GRADATION SHOWN ON THIS DRAWING.
2. IF IN-SITU MATERIAL DOES NOT MEET THE SPECIFIED CLASS 3 RIFFLE GRADATION AT CLASS 3 RIFFLE LOCATIONS, THE CONTRACTOR SHALL OVER-EXCAVATE UNSUITABLE MATERIAL AND INSTALL A CONSTRUCTED RIFFLE PER THE DETAIL ON DRAWING D2 USING ACCEPTABLE CLASS 3 MATERIAL.
3. WHERE PLACEMENT OF CLASS 3 RIFFLE MATERIAL IS REQUIRED TO MEET FINISH GRADE (FILL AREAS), THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF A CONSTRUCTED RIFFLE PER DRAWING D2. THE FULL THICKNESS OF FILL MATERIAL SHALL MEET CLASS 3 RIFFLE MATERIAL SPECIFICATIONS (IF THICKER THAN 1-FT REQUIRED THICKNESS).

BOULDERS	
DESCRIPTION	SIZE CLASS
BOULDERS	36 INCH - 48 INCH
EXTRA LARGE HABITAT BOULDERS	48 INCH MIN.

BOULDER NOTES:

1. SEE TYPICAL BOULDER PLACEMENT DETAIL, DWG. D2.
2. BOULDERS SHALL BE IMPORTED.
3. NOMINAL DIAMETER SHALL BE MEASURED AS THE INTERMEDIATE AXIS WHERE THE SMALL AND LARGE AXIS SHALL NOT BE MORE THAN 3 TIMES LESS THAN OR GREATER THAN THE NOMINAL DIAMETER. THIS PREVENTS LONG AND/OR THIN PLATE LIKE BOULDERS FROM BEING APPROVED.
4. BOULDERS SHALL BE ROUNDED TO SUB-ANGULAR.

GRADATION NOTES:

1. PERCENT PASSING SIZE CLASS IS BASED ON THE NOMINAL DIAMETER OF ROCK.
2. NOMINAL DIAMETER SHALL BE MEASURED AS THE INTERMEDIATE AXIS WHERE THE SMALL AND LARGE AXIS SHALL NOT BE MORE THAN 3 TIMES LESS THAN OR GREATER THAN THE NOMINAL DIAMETER.
3. SIZE CLASS IS UNIQUE TO THESE DRAWINGS AND IS NOT THE UNIFIED SOIL CLASSIFICATION.
4. ACCEPTABLE RIFFLE MATERIAL MAY BE CREATED FROM STOCKPILES OF VARIOUS SIZED SCREENED MATERIALS.

CLASS 1 RIFFLE MATERIAL	
PERCENT PASSING	SIZE CLASS
100%	32 INCHES
84%	26 INCHES
50%	16 INCHES
30%	12 INCHES
16%	8 INCH
10%	<0.8 INCH

CLASS 2 RIFFLE MATERIAL	
PERCENT PASSING	MIN. SIZE CLASS
100%	18 INCHES
84%	14 INCHES
50%	9 INCHES
30%	7 INCHES
16%	4.5 INCH
10%	<0.5 INCH

CLASS 3 RIFFLE MATERIAL	
PERCENT PASSING	MIN. SIZE CLASS
100%	8.0 INCHES
84%	6.0 INCHES
50%	4.0 INCHES
30%	3.0 INCHES
16%	2.0 INCH
10%	<0.2 INCH

RIFFLE SCHEDULE NOTES:

1. RIFFLE CREST IS DEFINED AS THE LONGITUDINAL (PARALLEL TO STREAM FLOW) LENGTH OF THE 0% SLOPE PORTION OF THE UPSTREAM END OF THE RIFFLE.

MAIN CHANNEL RIFFLE SCHEDULE						
START STA (FT)	END STA (FT)	CREST LENGTH (FT)	RIFFLE CLASS	AREA (SQ.FT.)	RIFFLE VOLUME (CY)	BOULDER S (EA)
11+01	12+01	10	CLASS-1	3311	274	6
26+17	27+34	0	CLASS-1	7516	592	10

BALDY CHANNEL RIFFLE SCHEDULE						
START STA (FT)	END STA (FT)	CREST LENGTH (FT)	RIFFLE CLASS	AREA (SQ.FT.)	RIFFLE VOLUME (CY)	BOULDER S (EA)
0+00	0+54	10	CLASS-2	499	30	0
1+16	1+91	0	CLASS-3	907	34	0
2+55	3+34	0	CLASS-3	1353	51	0
3+89	4+41	0	CLASS-3	889	33	0
4+90	5+66	0	CLASS-3	1272	48	0
6+59	6+84	0	CLASS-3	609	23	0
7+87	8+55	0	CLASS-3	1080	41	0
8+86	9+18	0	CLASS-3	548	21	0
9+51	9+69	0	CLASS-3	323	12	0
9+94	10+58	0	CLASS-3	1017	38	0
10+98	11+15	0	CLASS-3	253	10	0
11+43	11+67	0	CLASS-3	374	14	0
12+11	12+85	0	CLASS-3	1126	42	0
13+42	13+91	0	CLASS-3	797	30	0
14+29	14+58	0	CLASS-3	514	20	0
14+92	15+34	0	CLASS-3	701	26	0
15+80	16+02	0	CLASS-3	375	14	0
16+31	16+74	0	CLASS-3	745	28	0
17+09	17+30	0	CLASS-3	376	14	0
17+69	18+77	10	CLASS-2	3140	180	0
19+16	19+51	0	CLASS-3	629	24	0
20+55	20+84	10	CLASS-2	373	24	0
20+99	21+28	10	CLASS-2	377	24	0
21+35	21+65	10	CLASS-2	402	25	0
21+75	22+25	10	CLASS-2	674	40	0

WETLAND CHANNEL RIFFLE SCHEDULE						
START STA (FT)	END STA (FT)	CREST LENGTH (FT)	RIFFLE CLASS	AREA (SQ.FT.)	RIFFLE VOLUME (CY)	BOULDER S (EA)
0+00	0+76	0	CLASS-3	646	24	0
1+28	1+44	0	CLASS-3	160	6	0

CULVERT RIFFLE SCHEDULE						
START STA (FT)	END STA (FT)	CREST LENGTH (FT)	RIFFLE CLASS	AREA (SQ.FT.)	RIFFLE VOLUME (CY)	BOULDER S (EA)
N/A	N/A	0	CLASS-3	472	17	0



WARM SPRINGS PRESERVE STREAM & FLOODPLAIN ENHANCEMENT DESIGN SET
 95% DESIGN DRAWINGS
 WOOD RIVER LAND TRUST
 WARM SPRINGS CREEK, KETCHUM, ID
 BLAINE COUNTY, IDAHO

WORKING DRAFT
 NOT FOR
 CONSTRUCTION

DATE: 11/6/2024
 DESIGNED: ZS.MP.JY
 APPROVED: JY

DRAWING NAME
DETAILS

CONSTRUCTED RIFFLE MATERIALS AND SCHEDULES

DRAWING NO.
 D3
 SHEET 34 OF 44

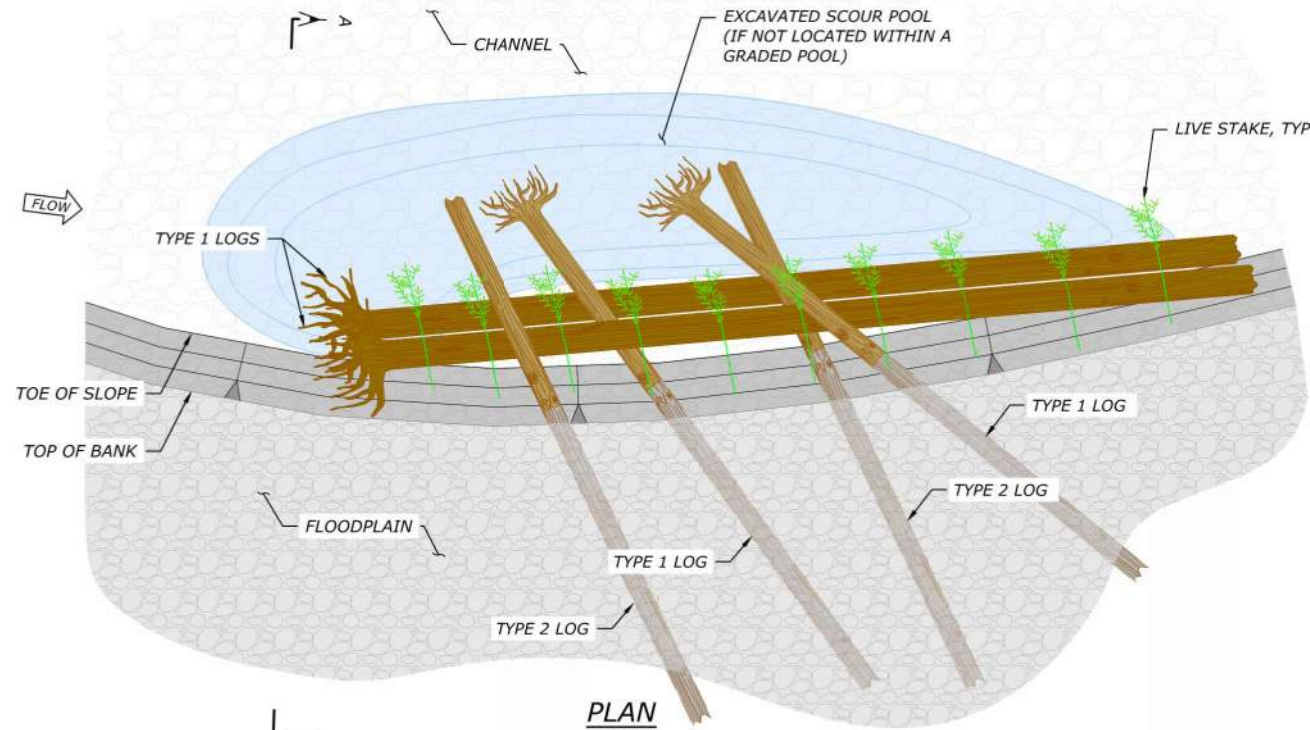
**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS.MP. JY
APPROVED: JY

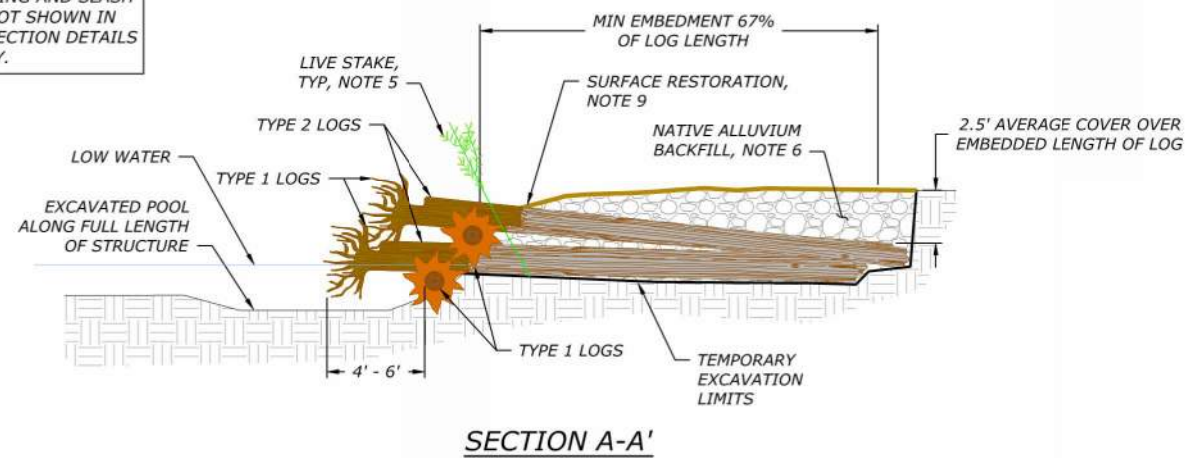
DRAWING NAME
DETAILS

HS-1

DRAWING NO.
D5
SHEET 36 OF 44



NOTE: RACKING AND SLASH MATERIAL NOT SHOWN IN PLAN AND SECTION DETAILS FOR CLARITY.



NOTES:

1. INSTALL STRUCTURES AT LOCATIONS IDENTIFIED IN THE PLANS. THE EXACT LOCATION OF EACH STRUCTURE SHALL BE APPROVED BY THE CONTRACTING OFFICER PRIOR TO INSTALLATION.
2. IF POOL EXCAVATION IS NOT SPECIFIED IN THE GRADING PLAN, THE CONTRACTING OFFICER WILL DETERMINE IF A SCOUR POOL IS DESIRED. THE SCOUR POOL SHALL BE EXCAVATED TO A DEPTH OF 2' ADJACENT TO THE STRUCTURE AND EXTEND BEYOND ROOTWADS EXTENDING INTO CHANNEL PER THE DIRECTION OF THE CONTRACTING OFFICER.
3. ROUGH GRADING OF CHANNEL SHALL BE COMPLETE PRIOR TO CONSTRUCTION OF STRUCTURE INCLUDING CONSTRUCTION OF RIFFLES OR STREAMBED MATERIALS.
4. RACKING, SLASH, AND LIVE STAKES SHALL BE INCORPORATED INTO THE STRUCTURE BY WEAVING THE MATERIAL IN BETWEEN PLACED LOGS, FILLING VOIDS, ETC. AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER. RACKING CAN BE PLACED FIRST TO LIFT THE LOG OFF CHANNEL BED AS DIRECTED BY THE CONTRACTING OFFICER. SEE STRUCTURE SEQUENCING FOR RACKING AND SLASH PLACEMENT.
5. LIVE STAKES SHALL BE INSTALLED PRIOR TO AND/OR DURING BACKFILLING TO ENSURE A MINIMUM OF 1-FT SUBMERGENCE IN GROUND WATER. LIVE STAKES SHALL HAVE CONTINUOUS CONTACT WITH SOIL ALONG THE LENGTH OF THE STAKE LEAVING NO VOIDS.
6. BACKFILL USING NATIVE EXCAVATED MATERIAL UNLESS NATIVE MATERIAL IS UNSUITABLE. UNSUITABLE IS DEFINED AS ANYTHING CLASSIFIED AS A CLAY, SILT, OR SAND. PLACE BACKFILL IN 1-FOOT MAXIMUM LIFTS. COMPACT EACH LIFT USING MECHANICAL EQUIPMENT SUCH AS AN EXCAVATOR BUCKET OR EQUIPMENT TRACKING MAKING CERTAIN TO NOT DAMAGE OR CHANGE THE ELEVATION OF THE STRUCTURE MATERIAL DURING COMPACTION.
7. ALL CUT ENDS OF LOGS THAT WILL BE EXPOSED UPON COMPLETION OF STRUCTURE SHALL BE MARRED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL USE AN EXCAVATOR, OR OTHER HEAVY EQUIPMENT TO TEAR APART WOOD FIBERS AT THE CUT END OF THE LOG TO CREATE THE APPEARANCE OF A LOG THAT HAS NATURALLY BROKEN APART.
8. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

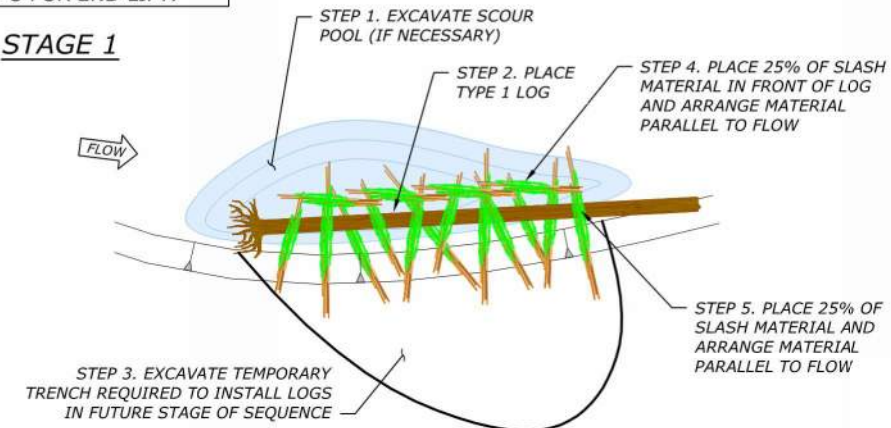
HS-1: SIX-LOG STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	4 EA
TYPE 2	13 - 22	30 - 40	NO	NA	NO	2 EA
RACKING-1	4 - 12	15 - 25	YES	2.5	YES	6 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	6 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	20 EA
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	15 EA

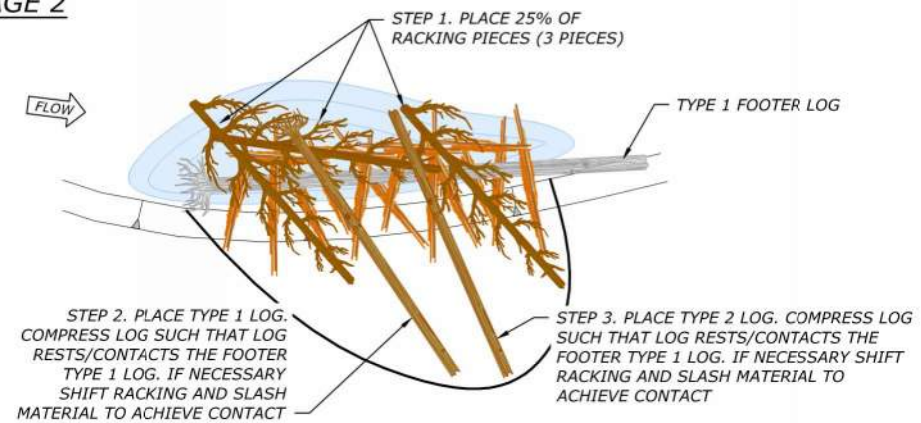
NOTE: REPEAT STAGES 1-3 FOR 2ND LIFT.

STRUCTURE SEQUENCING

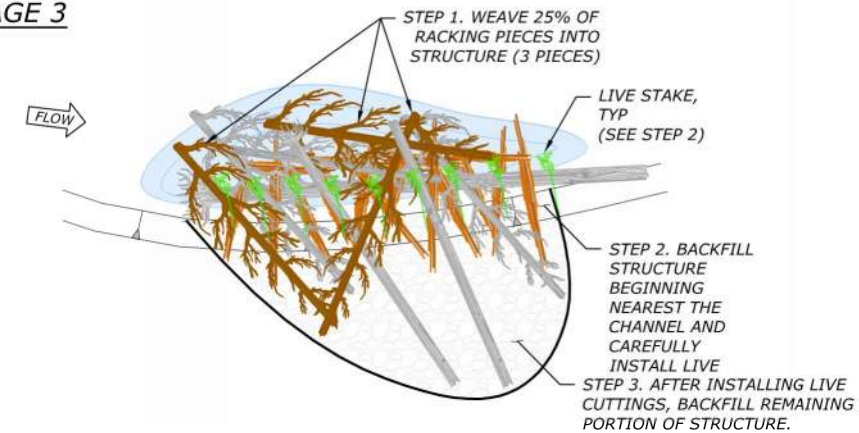
STAGE 1



STAGE 2



STAGE 3



**WORKING DRAFT
NOT FOR
CONSTRUCTION**

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
DETAILS

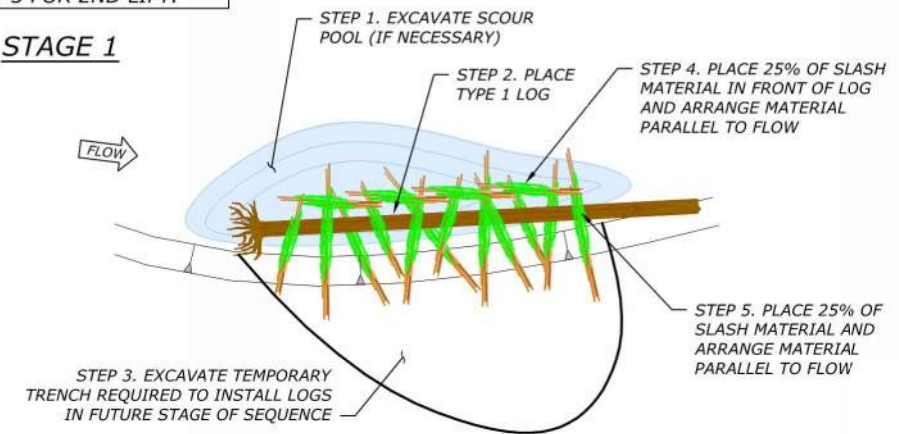
HS-2

DRAWING NO.
D6
SHEET 37 OF 44

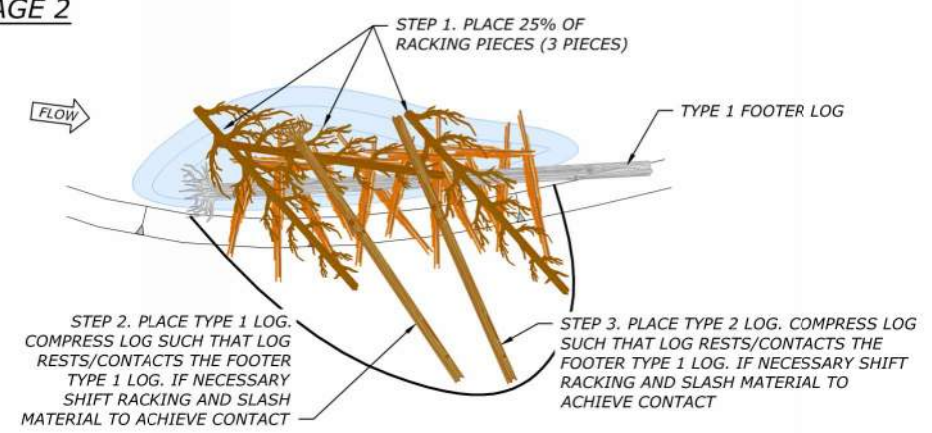
NOTE: REPEAT STAGES 1-3 FOR 2ND LIFT.

STRUCTURE SEQUENCING

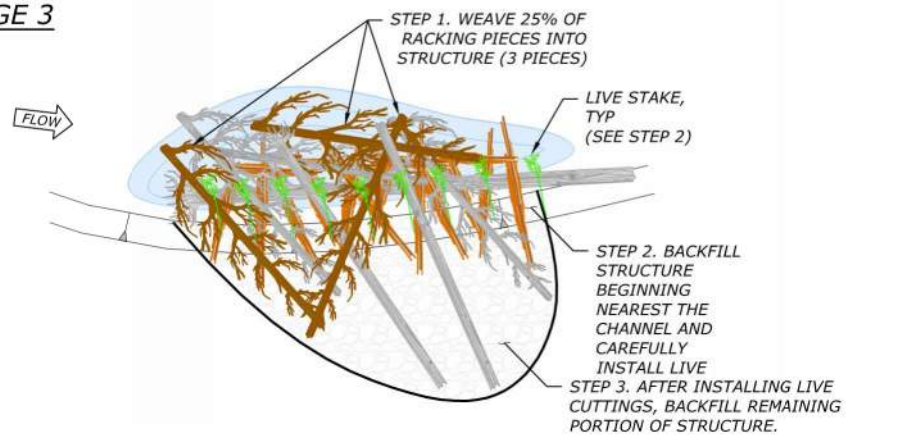
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STAGE 2

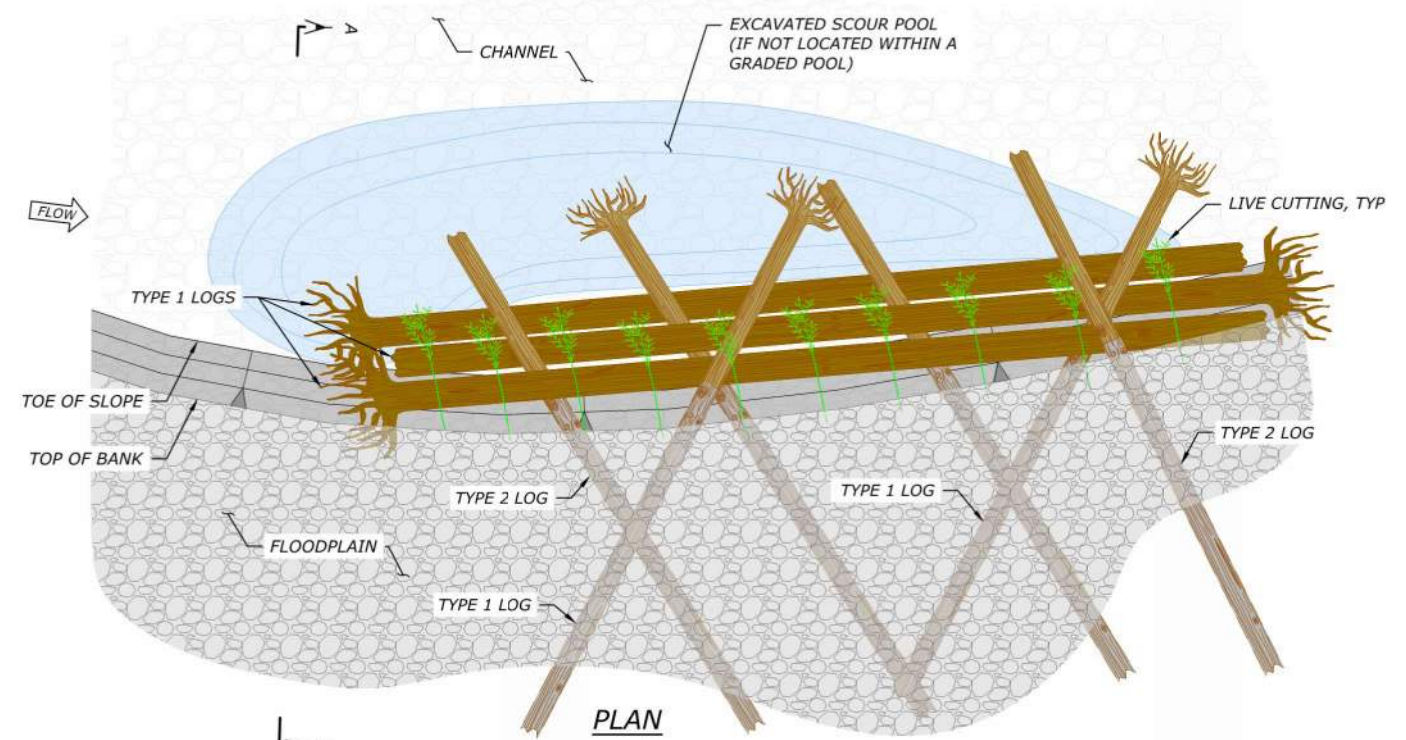


STAGE 3

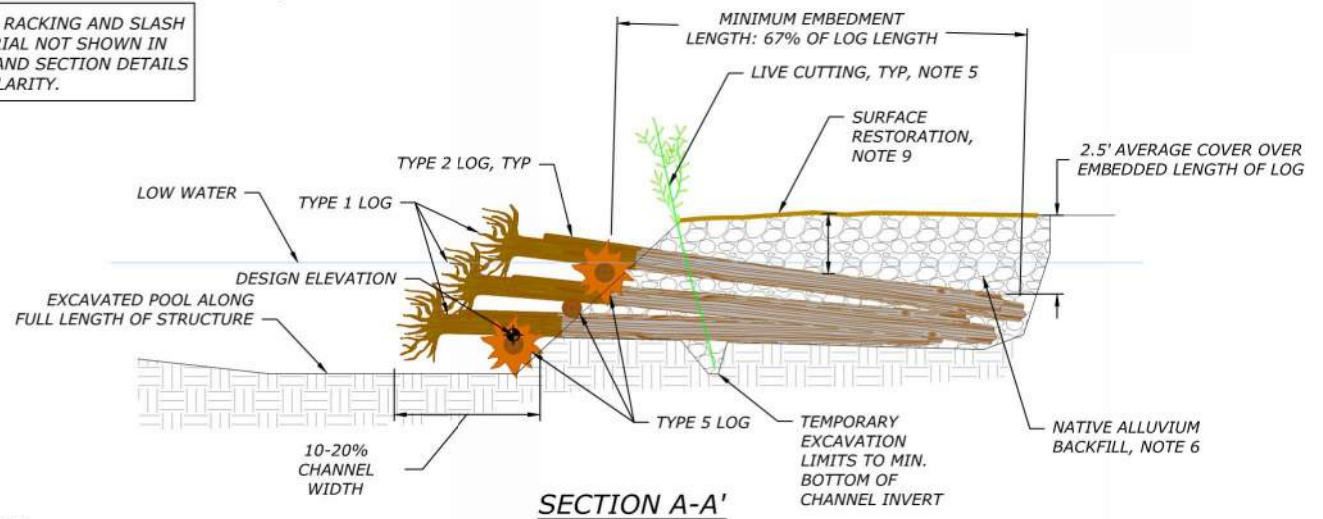


HS-2: NINE-LOG STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	3 EA
TYPE 2	13 - 22	30 - 40	NO	NA	NO	3 EA
TYPE 5	13 - 22	40 - 50	YES	4.5	NO	3 EA
RACKING-1	4 - 12	15 - 25	YES	2.5	YES	9 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	15 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	45 CY
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	20 EA



NOTE: RACKING AND SLASH MATERIAL NOT SHOWN IN PLAN AND SECTION DETAILS FOR CLARITY.



- NOTES:**
1. INSTALL STRUCTURES AT LOCATIONS IDENTIFIED IN THE PLANS. THE EXACT LOCATION OF EACH STRUCTURE SHALL BE APPROVED BY THE CONTRACTING OFFICER PRIOR TO INSTALLATION.
 2. IF POOL EXCAVATION IS NOT SPECIFIED IN THE GRADING PLAN, THE CONTRACTING OFFICER WILL DETERMINE IF A SCOUR POOL IS DESIRED. THE SCOUR POOL SHALL BE EXCAVATED TO A DEPTH OF 2' ADJACENT TO THE STRUCTURE AND EXTEND BEYOND ROOTWADS EXTENDING INTO CHANNEL PER THE DIRECTION OF THE CONTRACTING OFFICER.
 3. ROUGH GRADING OF CHANNEL SHALL BE COMPLETE PRIOR TO CONSTRUCTION OF STRUCTURE INCLUDING CONSTRUCTION OF RIFFLES OR STREAMBED MATERIALS.
 4. RACKING, SLASH, AND LIVE STAKES SHALL BE INCORPORATED INTO THE STRUCTURE BY WEAIVING THE MATERIAL IN BETWEEN PLACED LOGS, FILLING VOIDS, ETC. AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER. RACKING CAN BE PLACED FIRST TO LIFT THE LOG OFF CHANNEL BED AS DIRECTED BY THE CONTRACTING OFFICER. SEE STRUCTURE SEQUENCING FOR RACKING AND SLASH PLACEMENT.
 5. LIVE STAKES SHALL BE INSTALLED PRIOR TO AND/OR DURING BACKFILLING TO ENSURE A MINIMUM OF 1-FT SUBMERGENCE IN GROUND WATER. LIVE STAKES SHALL HAVE CONTINUOUS CONTACT WITH SOIL ALONG THE LENGTH OF THE STAKE LEAVING NO VOIDS.
 6. BACKFILL USING NATIVE EXCAVATED MATERIAL UNLESS NATIVE MATERIAL IS UNSUITABLE. UNSUITABLE IS DEFINED AS ANYTHING CLASSIFIED AS A CLAY, SILT, OR SAND. PLACE BACKFILL IN 1-FOOT MAXIMUM LIFTS. COMPACT EACH LIFT USING MECHANICAL EQUIPMENT SUCH AS AN EXCAVATOR BUCKET OR EQUIPMENT TRACKING MAKING CERTAIN TO NOT DAMAGE OR CHANGE THE ELEVATION OF THE STRUCTURE MATERIAL DURING COMPACTION.
 7. ALL CUT ENDS OF LOGS THAT WILL BE EXPOSED UPON COMPLETION OF STRUCTURE SHALL BE MARRED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL USE AN EXCAVATOR, OR OTHER HEAVY EQUIPMENT TO TEAR APART WOOD FIBERS AT THE CUT END OF THE LOG TO CREATE THE APPEARANCE OF A LOG THAT HAS NATURALLY BROKEN APART.
 8. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

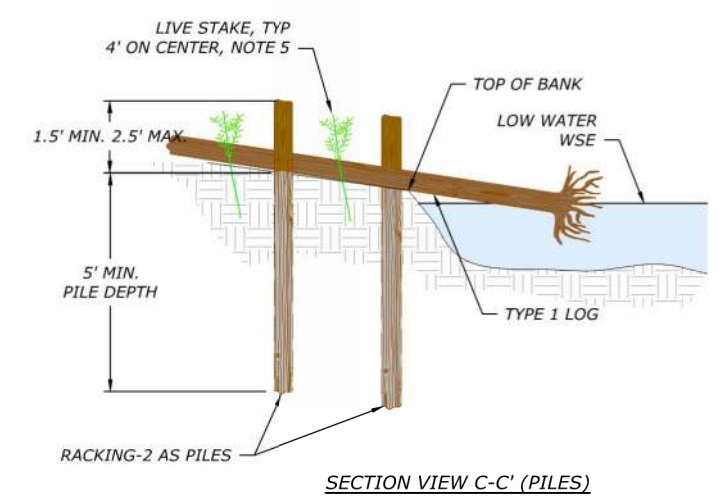
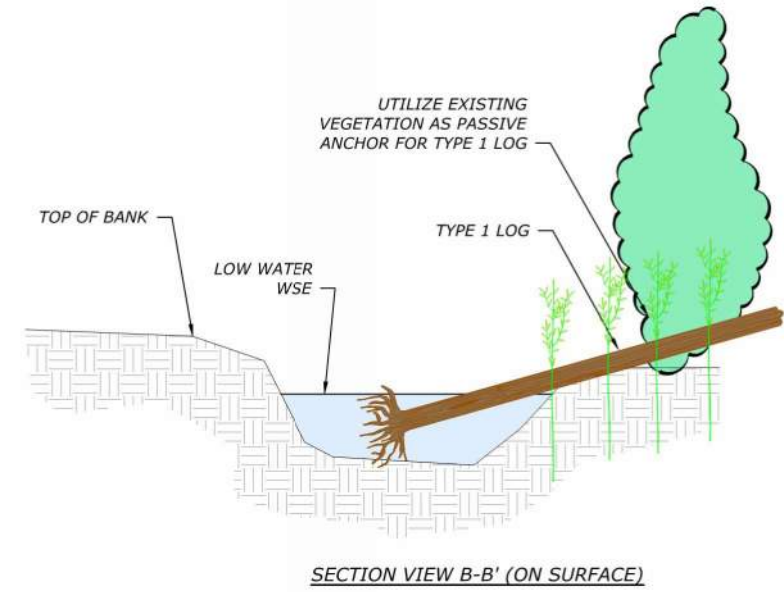
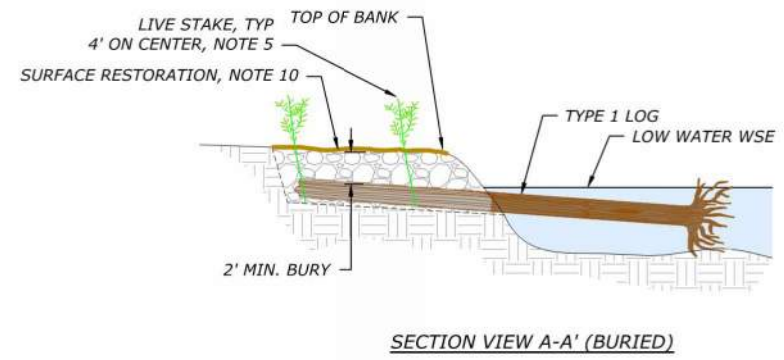
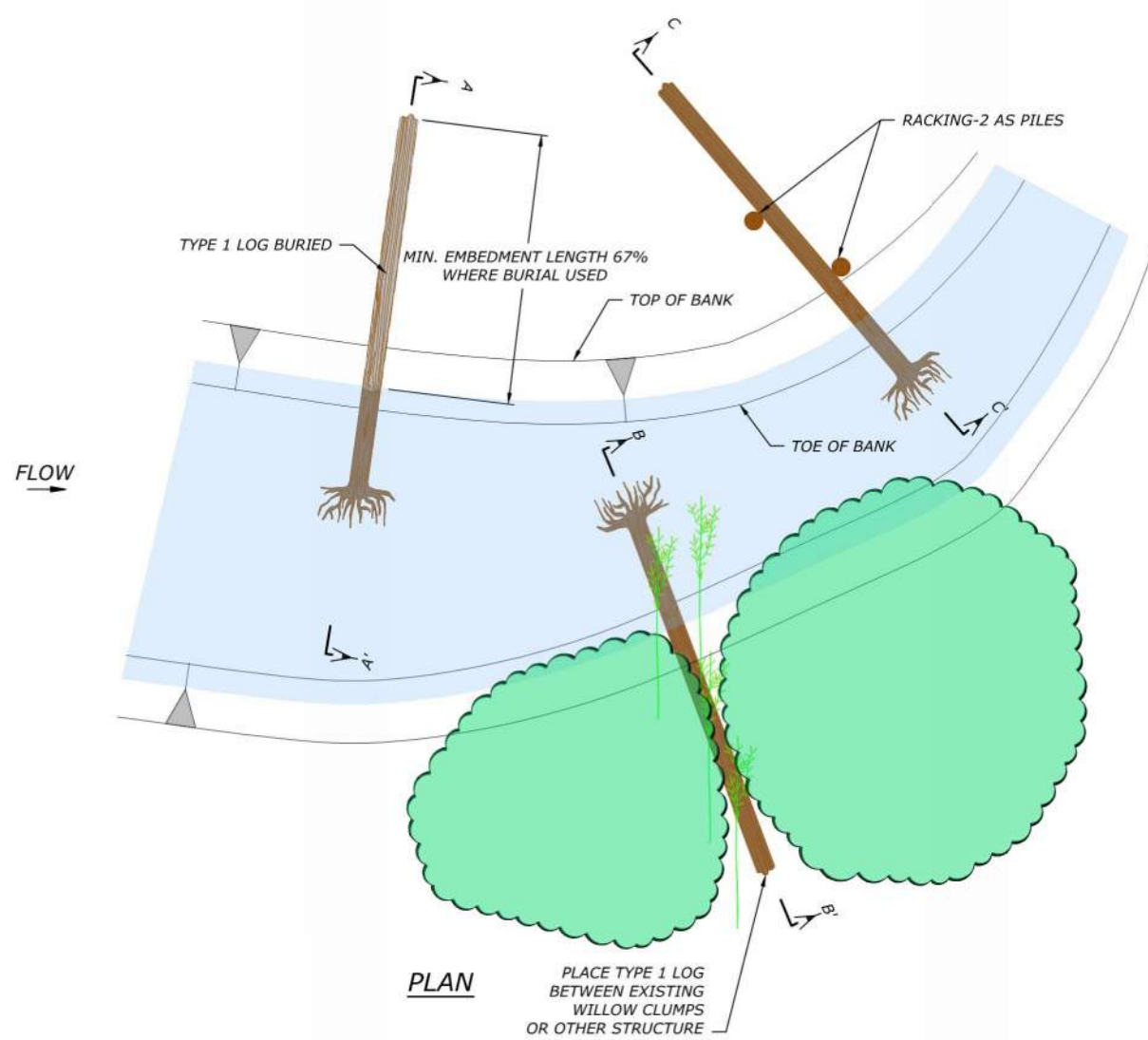
WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
DETAILS

HS-3

DRAWING NO.
D7
SHEET 38 OF 44



NOTES:

1. INSTALL STRUCTURES AT LOCATIONS IDENTIFIED ON PLAN AND PROFILE DRAWINGS.
2. THE EXACT LOCATION OF EACH STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER.
3. ROUGH GRADING OF CHANNEL SHALL BE COMPLETE PRIOR TO CONSTRUCTION OF STRUCTURE INCLUDING RIFFLE CONSTRUCTION AND PLACEMENT OF BAR MATERIAL.
4. SEE STRUCTURE SCHEDULE FOR NUMBER OF STRUCTURES, LOCATIONS, LOGS, AND ASSOCIATED MATERIAL QUANTITIES.
5. ALL CUT ENDS OF LOGS THAT WILL BE EXPOSED UPON COMPLETION OF STRUCTURE SHALL BE MARRED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL USE AN EXCAVATOR, OR OTHER HEAVY EQUIPMENT TO TEAR APART WOOD FIBERS AT THE CUT END OF THE LOG TO CREATE THE APPEARANCE OF A LOG THAT HAS NATURALLY BROKEN APART.
6. RACKING, SLASH, AND LIVE STAKES SHALL BE INCORPORATED INTO THE STRUCTURE WHILE PLACING LAYERS SUCH THAT IT IS WOVEN INTO STRUCTURE IN BETWEEN PLACED LOGS, FILLING VOIDS, ETC. AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER.
7. WHEN EXCAVATED INTO GROUND, BACKFILL USING NATIVE EXCAVATED MATERIAL UNLESS NATIVE MATERIAL IS UNSUITABLE FOR BACKFILL. PLACE BACKFILL IN 1-FOOT MAXIMUM LIFTS. COMPACT EACH LIFT USING MECHANICAL EQUIPMENT SUCH AS AN EXCAVATOR BUCKET OR EQUIPMENT TRACKING.
8. WHEN UTILIZING EXISTING VEGETATION AS PASSIVE ANCHORS THERE SHALL BE AT A MINIMUM A WILLOW CLUMP ON THE DOWNSTREAM SIDE, BUT PREFERABLY ON THE UPSTREAM SIDE AS WELL. THE CONTRACTING OFFICER SHALL AGREE TO PLACEMENT AREAS OF STRUCTURES THAT ARE NOT BURIED.
9. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

HS-3: SINGLE-LOG STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	1 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	3 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	3 CY
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	6 EA

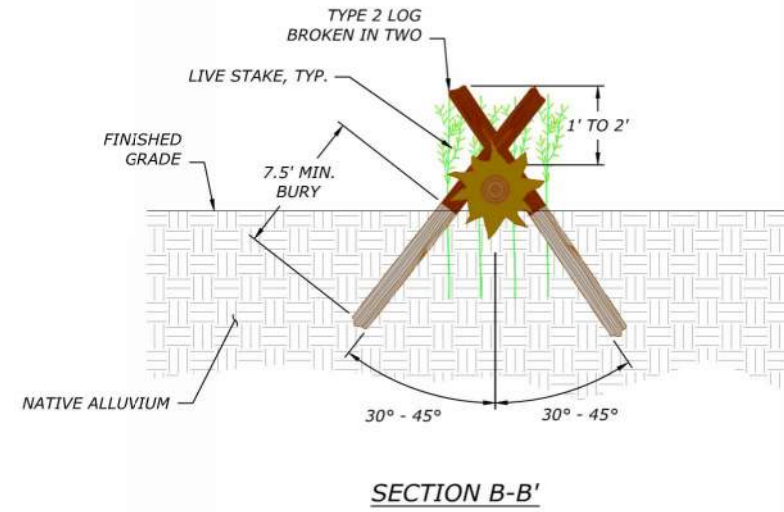
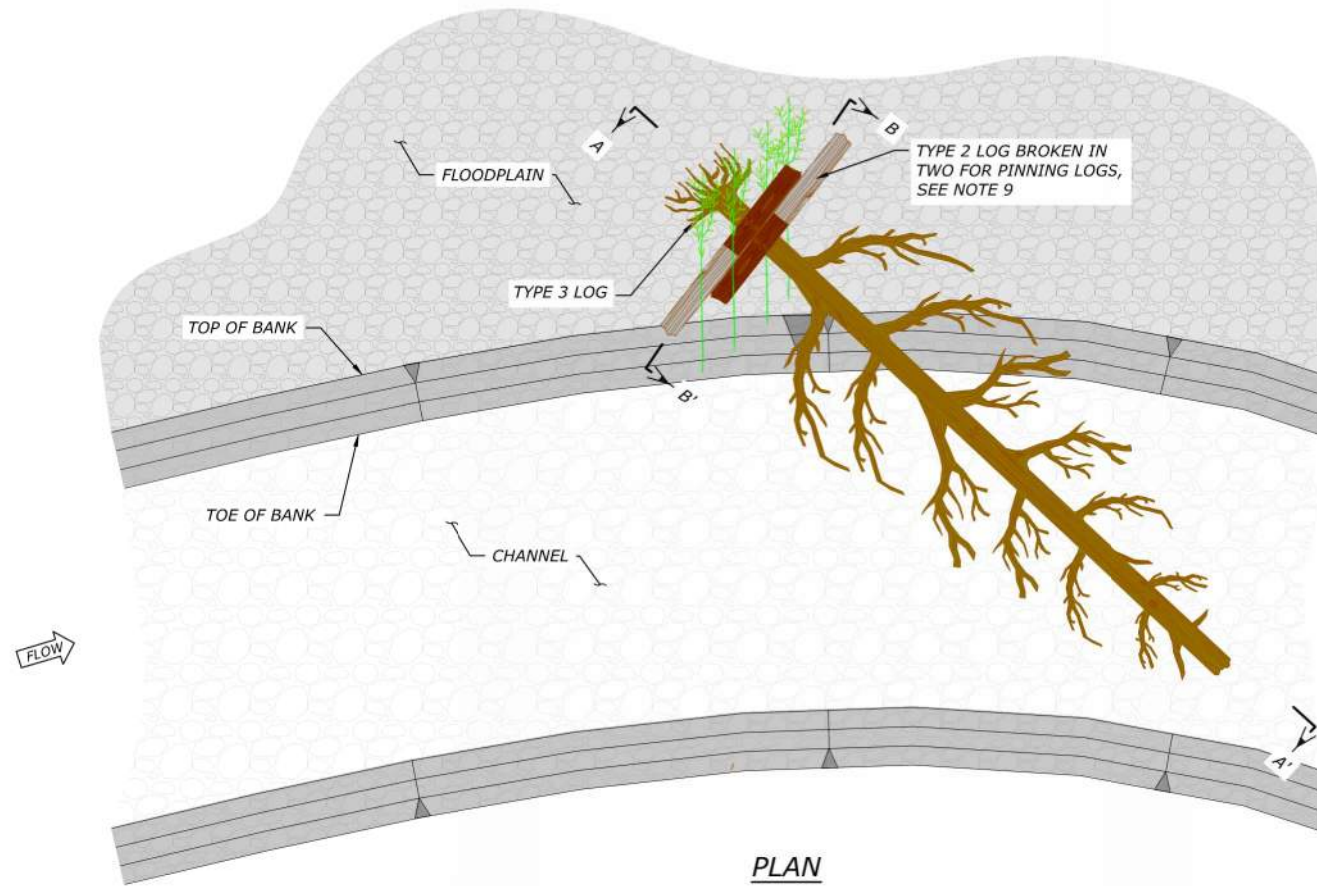
WORKING DRAFT
NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS.MP, JY
APPROVED: JY

DRAWING NAME
DETAILS

HS-4

DRAWING NO.
D8
SHEET 39 OF 44

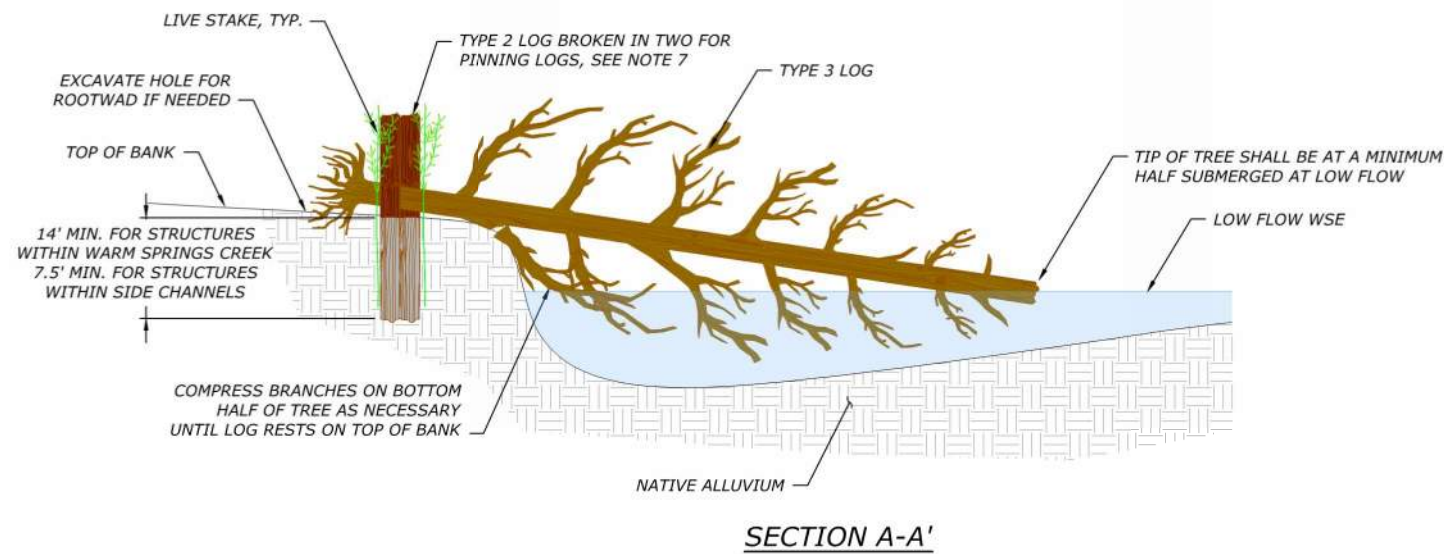


NOTES:

1. ALL CUT ENDS OF LOGS THAT WILL BE EXPOSED UPON COMPLETION OF STRUCTURE SHALL BE MARRED. THE CONTRACTOR SHALL USE AN EXCAVATOR, OR OTHER HEAVY EQUIPMENT TO TEAR APART WOOD FIBERS AT THE CUT END OF THE LOG TO CREATE THE APPEARANCE OF A LOG THAT HAS NATURALLY BROKEN APART.

NOTES:

1. INSTALL STRUCTURES AT LOCATIONS IDENTIFIED IN THE PLANS. THE EXACT LOCATION OF EACH STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER.
2. ROUGH GRADING OF CHANNEL SHALL BE COMPLETE PRIOR TO CONSTRUCTION OF STRUCTURE INCLUDING RIFFLE CONSTRUCTION AND PLACEMENT OF BAR MATERIAL.
3. ALL CUT ENDS OF LOGS THAT WILL BE EXPOSED UPON COMPLETION OF STRUCTURE SHALL BE MARRED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL USE AN EXCAVATOR, OR OTHER HEAVY EQUIPMENT TO TEAR APART WOOD FIBERS AT THE CUT END OF THE LOG TO CREATE THE APPEARANCE OF A LOG THAT HAS NATURALLY BROKEN APART.
4. TYPE 3 LOG SHALL BE HANDLED A MINIMUM NUMBER OF TIMES TO REDUCE LOSS OF LIMBS, FOLIAGE, ETC.. IF MORE THAN 15% OF TREE BRANCHES ARE REMOVED OR DAMAGED DURING HANDLING THE CONTRACTOR SHALL REPLACE AT NO COST TO THE SPONSOR.
5. SLASH MATERIAL SHALL BE INCORPORATED INTO THE STRUCTURE BY PLACING IT UPSTREAM OR UNDER TYPE 3 LOG, AS DIRECTED BY THE CONTRACTING OFFICER.
6. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.
7. PINNING LOGS TO BE DRIVEN.



HS-4: WHOLE TREE STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 2	13 - 22	30 - 40	NO	NA	NO	1 EA
TYPE 3	13 - 22	40 - 60	YES	4	YES	1 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	2 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	5 CY
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	6 EA

14

HABITAT STRUCTURE - 4 (HS-4) WHOLE TREE STRUCTURE

NTS

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CONSTRUCTION**

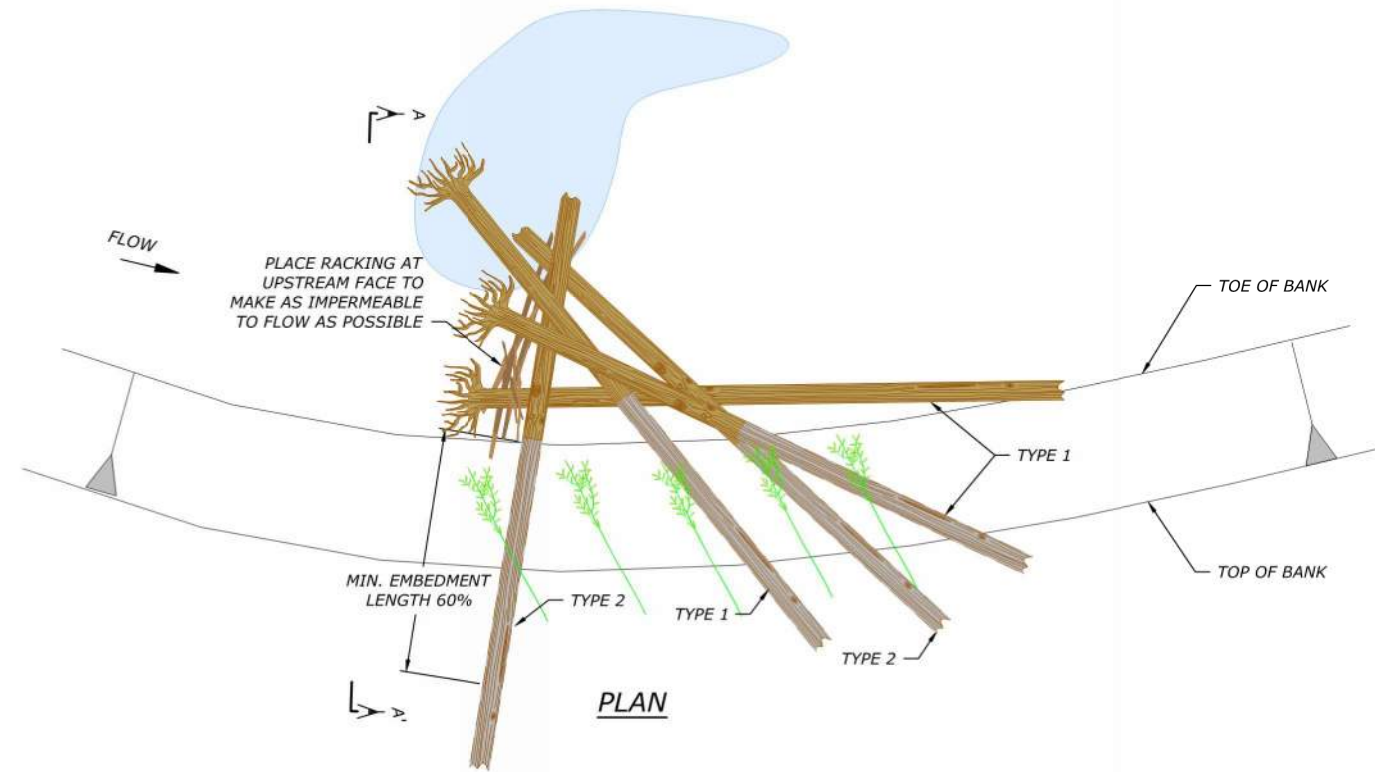
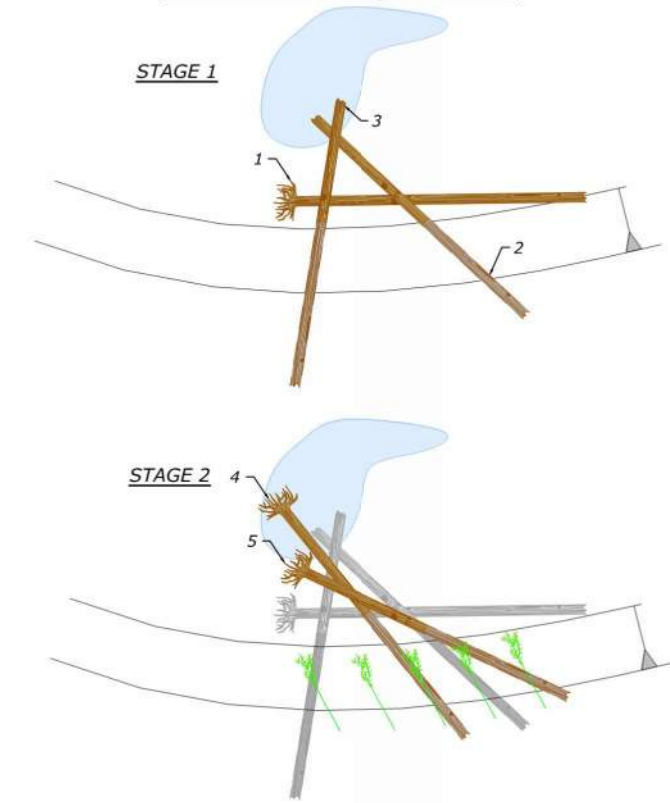
DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

DRAWING NAME
DETAILS

HS-5

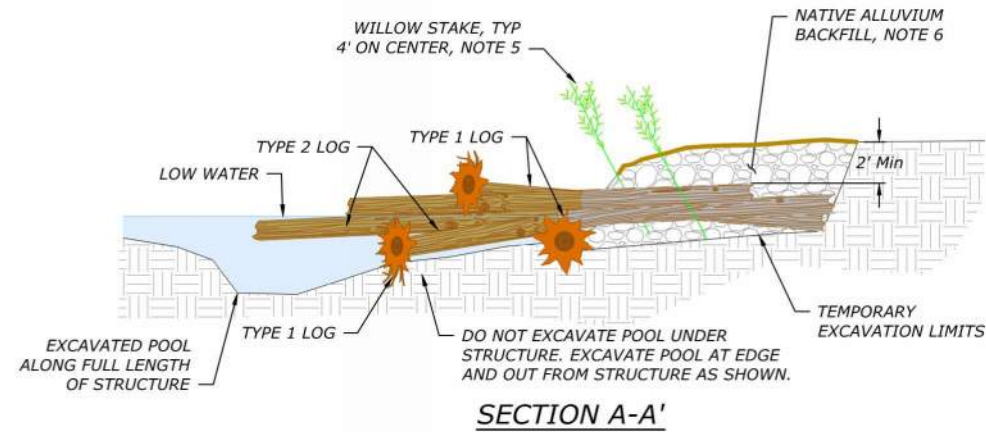
DRAWING NO.
D9
SHEET 40 OF 44

STRUCTURE SEQUENCING



HS-5: CONSTRUCTION JAM STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	3 EA
TYPE 2	13 - 22	30 - 40	NO	NA	NO	2 EA
RACKING-1	4 - 12	15 - 25	YES	2.5	YES	2 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	8 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	10 CY
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	8 EA

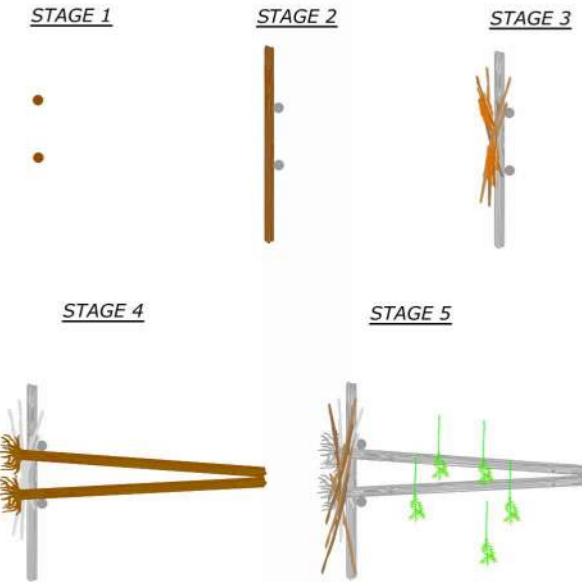


SECTION A-A'

NOTES:

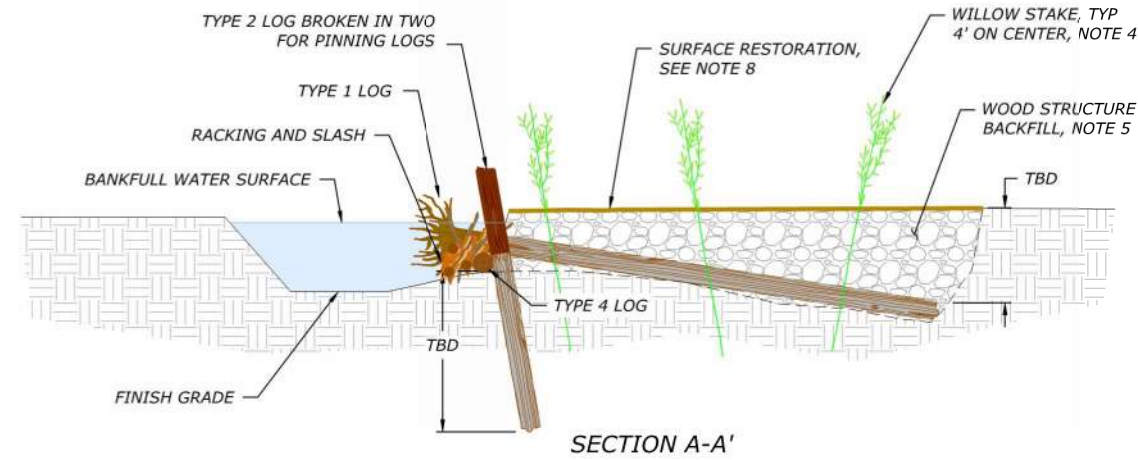
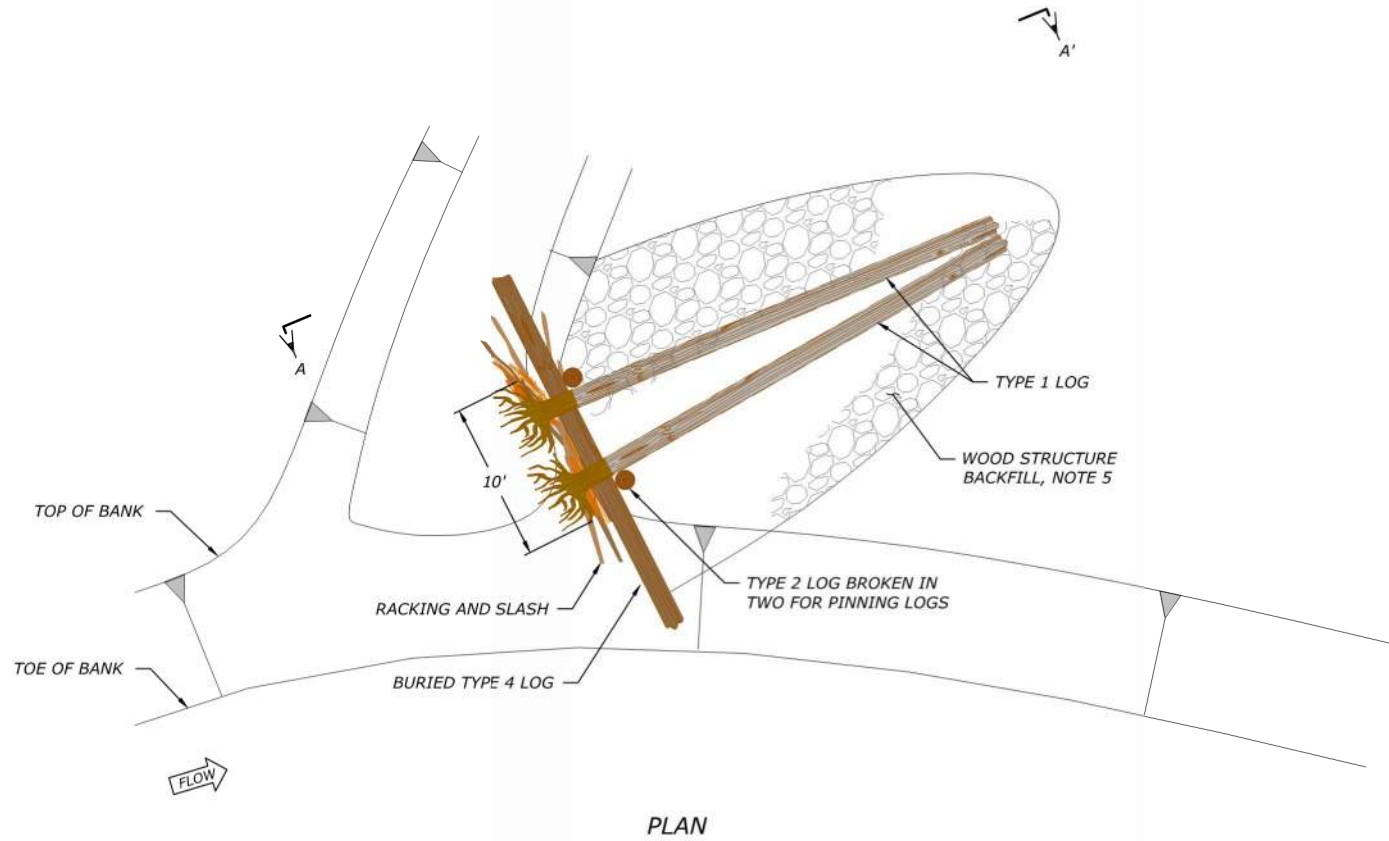
- INSTALL STRUCTURES AT LOCATIONS IDENTIFIED IN THE PLANS. THE EXACT LOCATION OF EACH STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER.
- WHERE POOL EXCAVATION IS NOT SPECIFIED IN THE GRADING PLAN, THE C.O. MAY DIRECT EXCAVATION OF A SCOUR POOL. IF A SCOUR POOL IS REQUIRED EXCAVATE A 2' DEEP POOL ADJACENT TO THE STRUCTURE AND EXTEND POOL OUT PAST ROOTWAD EXTENDING INTO CHANNEL.
- ROUGH GRADING OF CHANNEL SHALL BE COMPLETE PRIOR TO CONSTRUCTION OF STRUCTURE INCLUDING RIFFLE CONSTRUCTION AND PLACEMENT OF BAR MATERIAL.
- RACKING, SLASH, AND LIVE STAKES SHALL BE INCORPORATED INTO THE STRUCTURE WHILE PLACING LAYERS SUCH THAT IT IS WOVEN INTO STRUCTURE IN BETWEEN PLACED LOGS, FILLING VOIDS, ETC. AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER.
- LIVE STAKES SHALL BE INSTALLED PRIOR TO AND/OR DURING BACKFILLING TO ENSURE A MINIMUM OF 1-FT SUBMERGENCE IN GROUND WATER. LIVE STAKES SHALL HAVE CONTINUOUS CONTACT WITH SOIL ALONG THE LENGTH OF THE STAKE LEAVING NO VOIDS.
- BACKFILL USING NATIVE EXCAVATED MATERIAL UNLESS NATIVE MATERIAL IS UNSUITABLE. UNSUITABLE MATERIAL CLASSIFIES AS A CLAY, SILT OR SAND. PLACE BACKFILL AS THE STRUCTURE IS CONSTRUCTED IN 1-FOOT MAXIMUM LIFTS. COMPACT EACH LIFT USING MECHANICAL EQUIPMENT SUCH AS AN EXCAVATOR BUCKET OR EQUIPMENT TRACKING MAKING CERTAIN TO NOT DAMAGE OR CHANGE THE ELEVATION OF THE STRUCTURE MATERIAL DURING COMPACTION.
- ALL EXPOSED ENDS OF LOGS SHALL BE BROKEN/MARRED AND NOT SAW CUT TO APPEAR NATURAL.
- LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

STRUCTURE SEQUENCING



HS-6: SMALL APEX JAM STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	2 EA
TYPE 2	13 - 22	30 - 40	NO	NA	NO	1 EA
TYPE 4	12 - 14	20 - 35	NO	NA	NO	1 EA
RACKING-1	4 - 12	15 - 25	YES	2.5	YES	2 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	8 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	10 CY
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	8 EA



NOTES:

- INSTALL STRUCTURES AT LOCATIONS IDENTIFIED IN THE PLANS. THE EXACT LOCATION OF EACH STRUCTURE SHALL BE STAKED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER.
- ROUGH GRADING OF PILOT CHANNEL SHALL BE COMPLETE PRIOR TO INSTALLATION OF LOGS.
- RACKING, SLASH, AND LIVE STAKES SHALL BE INCORPORATED INTO THE STRUCTURE BY WEAVING IT IN BETWEEN PLACED LOGS, FILLING VOIDS, ETC. AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER.
- LIVE STAKES SHALL BE INSTALLED PRIOR TO AND/OR DURING BACKFILLING TO ENSURE A MINIMUM OF 1-FT SUBMERGENCE IN GROUND WATER. LIVE STAKES SHALL HAVE CONTINUOUS CONTACT WITH SOIL ALONG THE LENGTH OF THE STAKE LEAVING NO VOIDS.
- BACKFILL USING SPECIFIED WOOD STRUCTURE BACKFILL MATERIAL. NATIVE EXCAVATED MATERIAL MAY BE USED AS WOOD STRUCTURE BACKFILL MATERIAL IF IT MEETS THE REQUIRED GRADATION. PLACE BACKFILL IN 1-FOOT MAXIMUM LIFTS. COMPACT EACH LIFT USING MECHANICAL EQUIPMENT SUCH AS AN EXCAVATOR BUCKET OR EQUIPMENT TRACKING MAKING CERTAIN TO NOT DAMAGE OR CHANGE THE ELEVATION OF THE STRUCTURE.
- ALL EXPOSED ENDS OF LOGS SHALL BE BROKEN AND NOT SAW CUT TO APPEAR NATURAL.
- LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.
- REPLACE ORGANIC LAYER AND/OR PREPARE SURFACE FOR SEEDING IN ACCORDANCE WITH THE PLANTING AND SEEDING PLAN AND/OR SPECIFICATIONS.

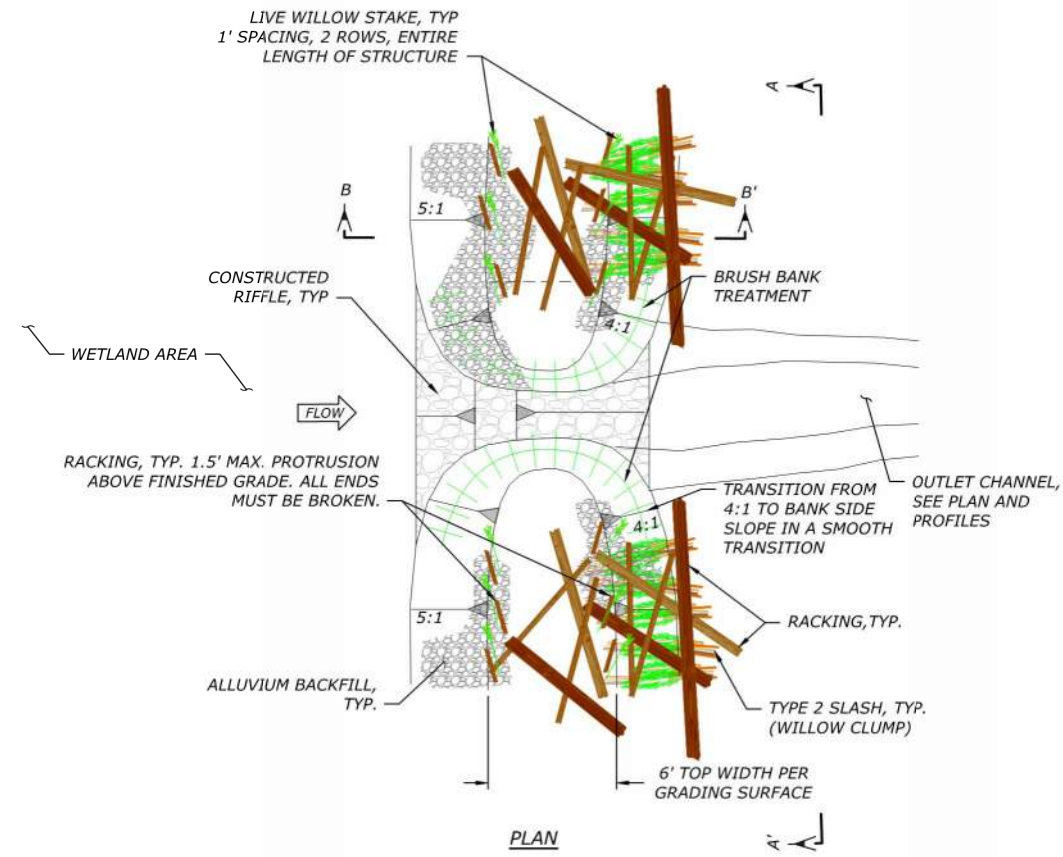
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NOT FOR
CONSTRUCTION

DATE: 11/6/2024
DESIGNED: ZS, MP, JY
APPROVED: JY

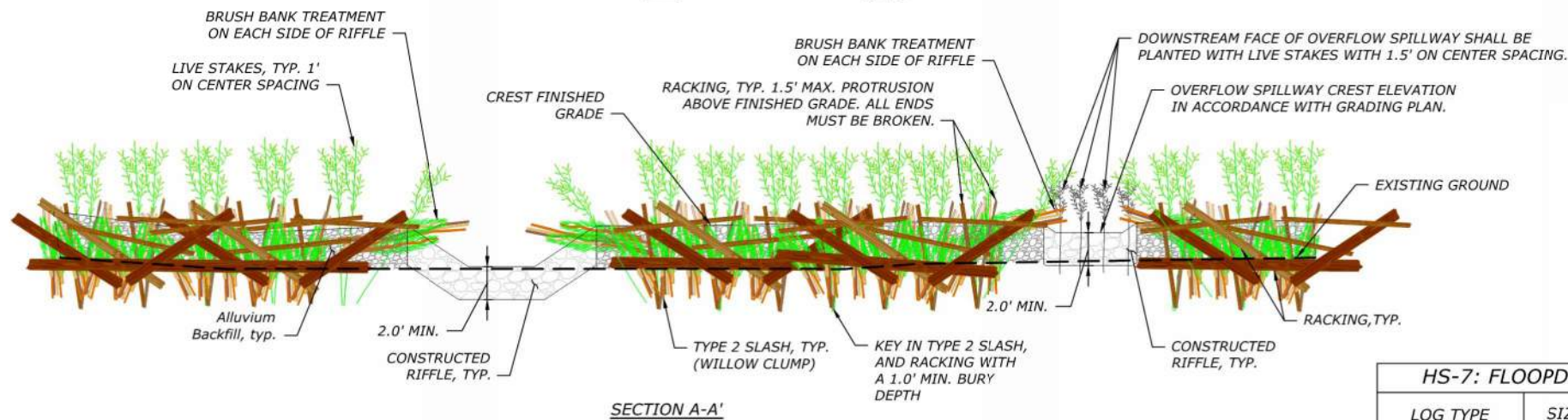
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HS-6

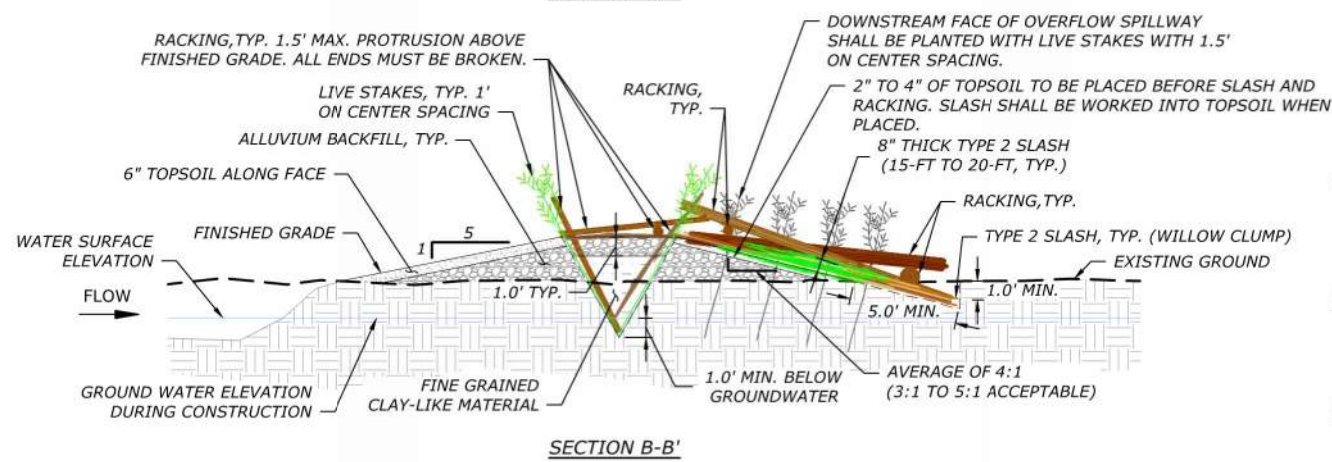
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EXAMPLE PHOTO



SECTION A-A'



SECTION B-B'

HS-7: FLOODPLAIN INUNDATION STRUCTURE (PER LINEAR FOOT) MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	1 EA
SLASH-2	1 - 4	5 - 15	NA	NA	YES	1 EA
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	2 EA

INSTALLATION:

1. THE ENGINEER SHALL SUPERVISE THE INSTALLATION OF THE FIRST FLOODPLAIN INUNDATION STRUCTURE TO INSURE PROPER INSTALLATION. THE CONTRACTOR MAY PROCEED WITH UNSUPERVISED INSTALLATION OF THE REST OF THE STRUCTURES, ONCE THE ENGINEER HAS SIGNED OFF THAT THEY ARE PROPERLY TRAINED.

2. ALL STRUCTURES SHALL BE PLACED AS SHOWN ON THE DRAWINGS.

SLASH AND RACKING:

1. PLACE SLASH AND RACKING SUCH THAT PIECES ARE INTERLACED WITH PARTIALLY BURIED MEMBERS. NO RACKING AND SLASH SHALL BE PLACED LOOSELY ON THE GROUND SUCH THAT IT WOULD FLOAT AWAY IN THE EVENT OF HIGH WATER.

2. RACKING PIECES SHALL NOT EXTEND BEYOND 1.5' ABOVE FINISHED GRADE.

BACKFILL MATERIAL:

1. CORE BACKFILL MATERIAL SHALL CONSIST OF FINE GRAINED CLAY-LIKE MATERIAL LARGELY FREE OF GRAVELS AND COBBLES TO REDUCE PERMEABILITY AND TO ALLOW INFILLING OF VOID SPACE BETWEEN RACKING AND SLASH MATERIAL.

2. GENERAL BACKFILL MATERIAL SHALL BE A MIX OF COBBLES, GRAVELS, AND FINES TO REDUCE PERMEABILITY. MATERIAL SHALL BE GENERATED FROM STOCKPILES OF EXCAVATED MATERIAL FROM PROJECT EXCAVATIONS.

3. BACKFILL MATERIALS SHALL BE APPROVED BY THE CONTRACTING OFFICER OR ENGINEER PRIOR TO

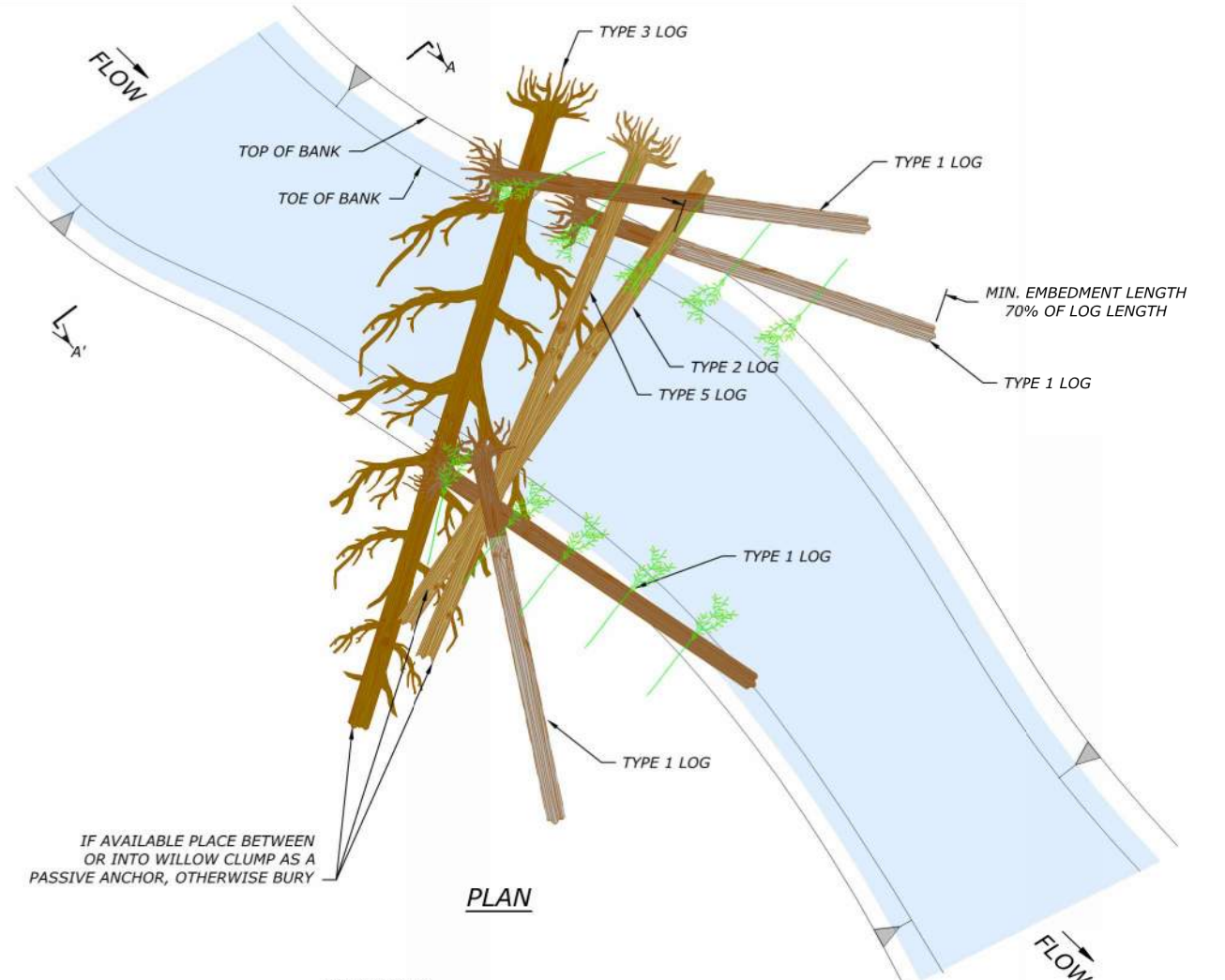
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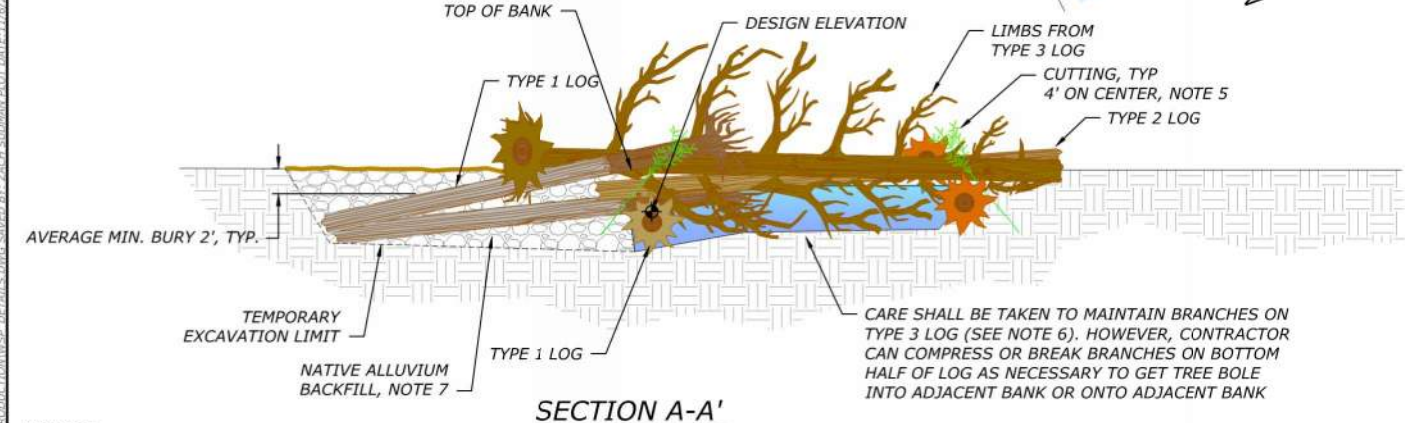
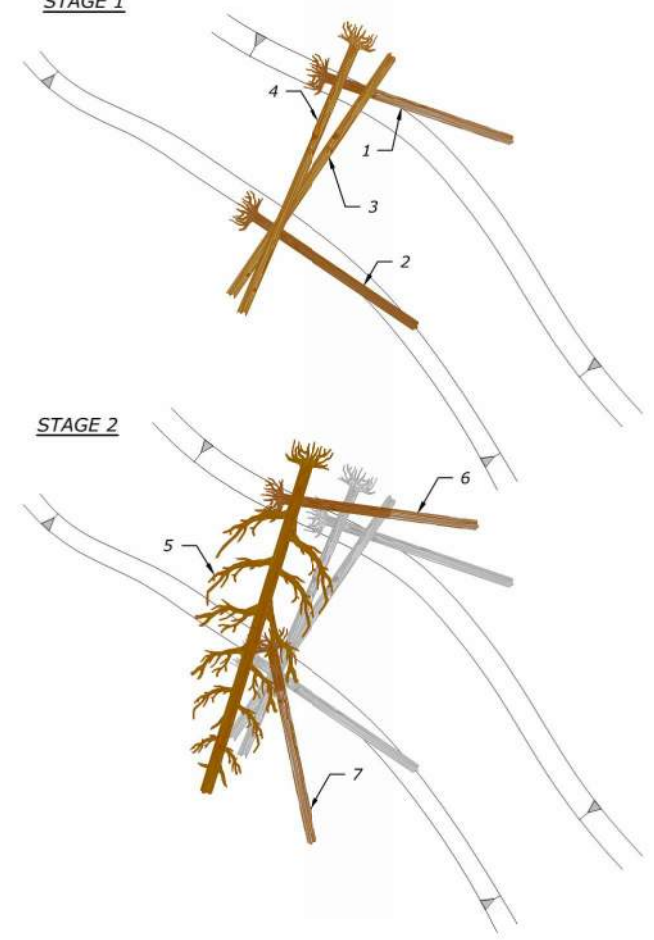
DRAWING NAME
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HS-7

DRAWING NO.
D11
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STRUCTURE SEQUENCING



HS-8: BLEEDER JAM STRUCTURE MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	LENGTH (FT)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	13 - 22	30 - 40	YES	4.5	NO	4 EA
TYPE 2	13 - 22	30 - 40	NO	NA	NO	1 EA
TYPE 3	13 - 22	40 - 60	YES	4	YES	1 EA
TYPE 5	13 - 22	40 - 50	YES	4.5	NO	1 EA
RACKING-1	4 - 12	15 - 25	YES	2.5	YES	2 EA
RACKING-2	4 - 12	15 - 25	OPTIONAL	NA	YES	7 EA
SLASH-1	1 - 4	5 - 15	NA	NA	YES	5 EA
LIVE STAKES	> 3/4	6 - 8	NA	NA	NA	12 EA

- NOTES:**
- INSTALL STRUCTURE AT LOCATION IDENTIFIED ON PLAN AND PROFILE DRAWINGS.
 - THE EXACT LOCATION OF STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER.
 - ROUGH GRADING OF CHANNEL SHALL BE COMPLETE PRIOR TO CONSTRUCTION OF STRUCTURE INCLUDING RIFFLE CONSTRUCTION AND PLACEMENT OF BAR MATERIAL.
 - SEE STRUCTURE SCHEDULE FOR NUMBER OF STRUCTURES, LOCATIONS, LOGS, AND ASSOCIATED MATERIAL QUANTITIES.
 - ALL CUT ENDS OF LOGS THAT WILL BE EXPOSED UPON COMPLETION OF STRUCTURE SHALL BE MARRED PRIOR TO OR UPON COMPLETION OF INSTALLATION. THE CONTRACTOR SHALL USE AN EXCAVATOR, OR OTHER HEAVY EQUIPMENT TO TEAR APART WOOD FIBERS AT THE CUT END OF THE LOG TO CREATE THE APPEARANCE OF A LOG THAT HAS NATURALLY BROKEN APART.
 - TYPE 3 LOG SHALL BE HANDLE DIRECTLY TO REDUCE LOSS OF LIMBS, FOLIAGE, ETC.. IF MORE THAN 15% OF TREE BRANCHES ARE REMOVED OR DAMAGED DURING HANDLING THE CONTRACTOR SHALL REPLACE AT NOT COST TO THE CONTRACTING AGENCY.
 - RACKING AND SLASH MATERIAL SHALL BE INCORPORATED INTO THE STRUCTURE WHILE PLACING LAYERS SUCH THAT IT IS WOVEN INTO STRUCTURE IN BETWEEN PLACED LOGS, FILLING VOIDS, ETC. AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER.
 - BACKFILL USING NATIVE EXCAVATED MATERIAL UNLESS NATIVE MATERIAL IS UNSUITABLE. UNSUITABLE MATERIAL CLASSIFIES AS A CLAY, SILT OR SAND. PLACE BACKFILL AS STRUCTURE IS CONSTRUCTED IN 1-FOOT MAXIMUM LIFTS. COMPACT EACH LIFT USING MECHANICAL EQUIPMENT SUCH AS AN EXCAVATOR BUCKET OR EQUIPMENT TRACKING MAKING CERTAIN TO NOT DAMAGE OR CHANGE THE ELEVATION OF THE STRUCTURE MATERIAL DURING COMPACTION.
 - WHEN UTILIZING EXISTING VEGETATION AS PASSIVE ANCHORS THERE SHALL BE AT A MINIMUM A WILLOW CLUMP ON THE DOWNSTREAM SIDE, BUT PREFERABLY ON THE UPSTREAM SIDE AS WELL.
 - LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

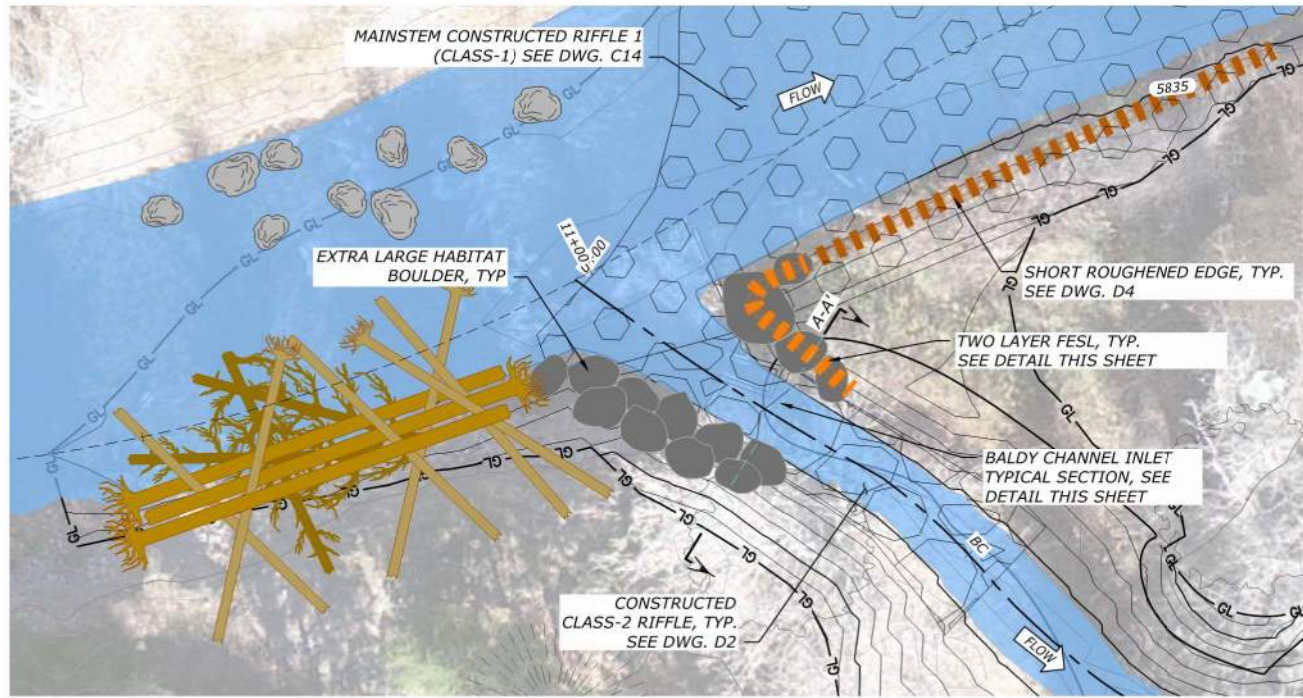
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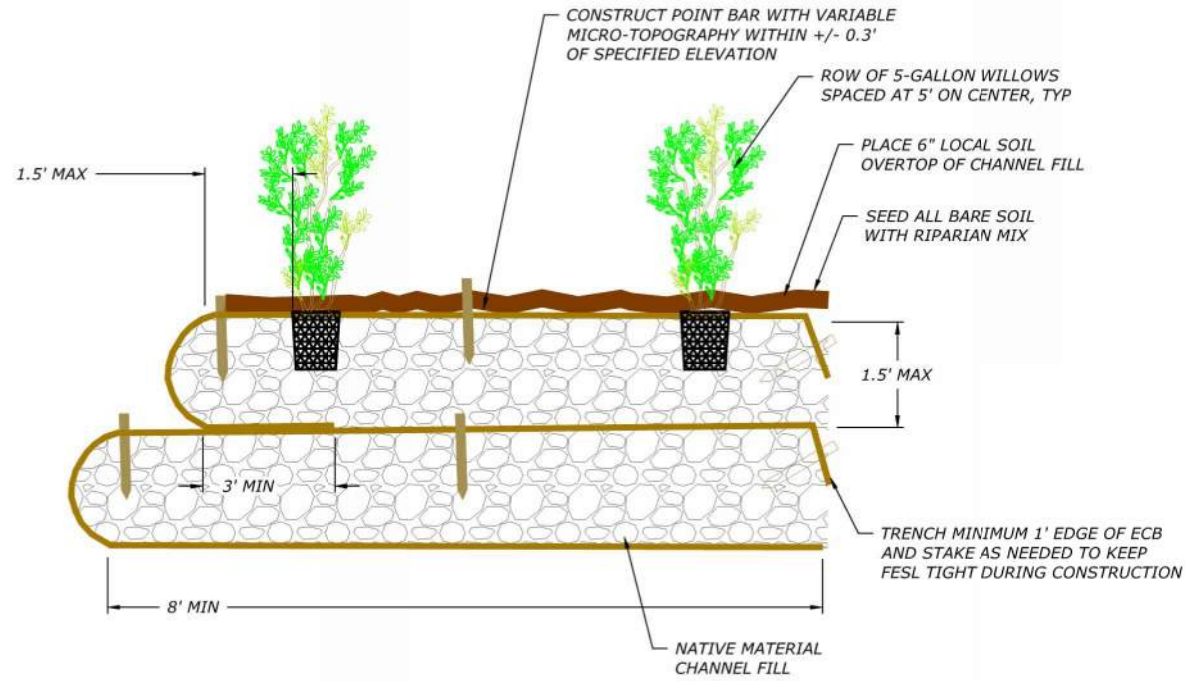
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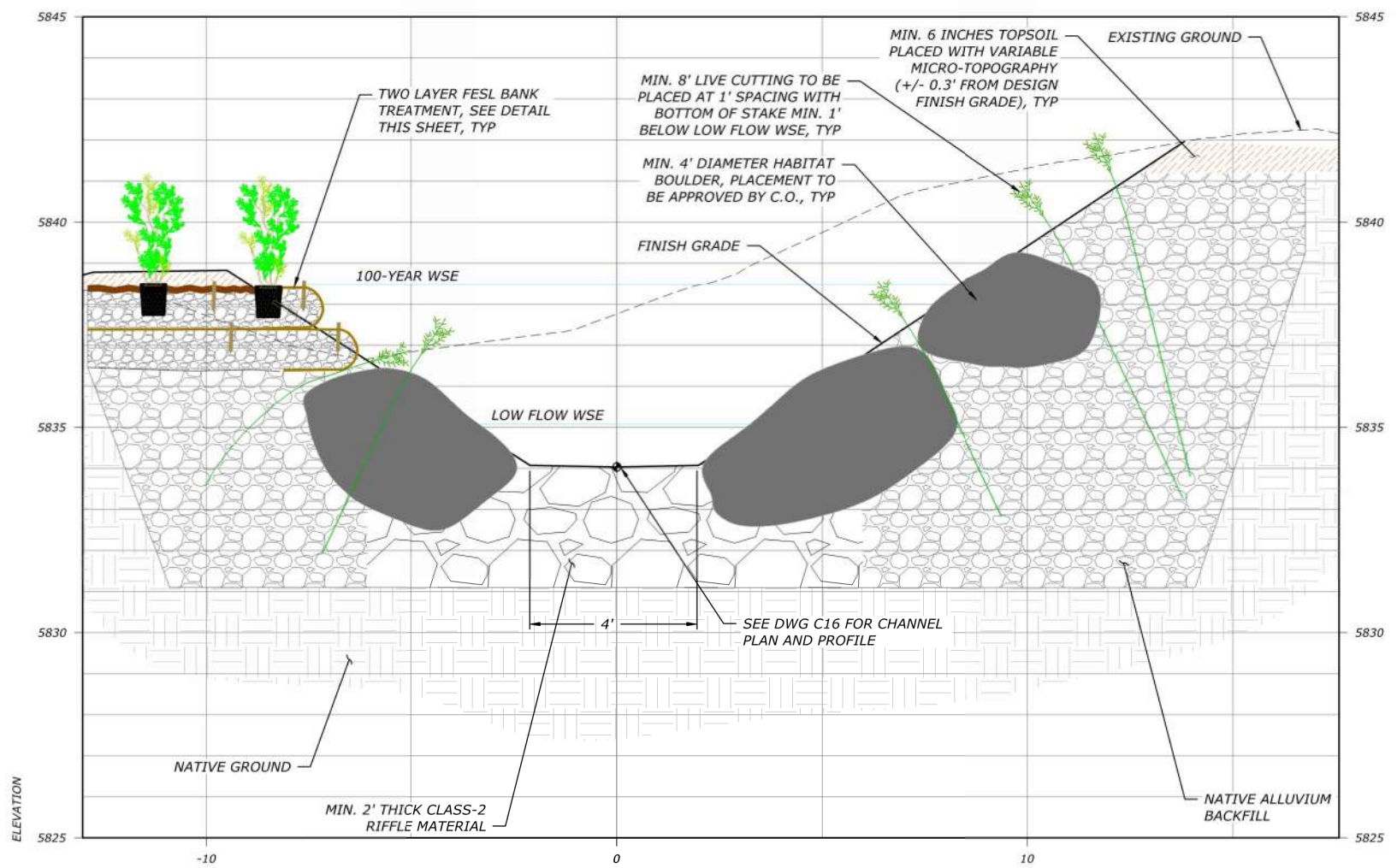
19 BALDY CHANNEL INLET - PLAN
 SCALE 1"=10'



- BANK TREATMENT - TWO LAYER FESL NOTES:**
- PLACE 2 LAYERS OF BIODEGRADABLE EROSION CONTROL BLANKET (ECB):
 - FINE EROSION CONTROL BLANKET SHALL BE C125BN (INSIDE LAYER)
 - COARSE EROSION CONTROL BLANKET SHALL BE GEOCOIR 700 (OUTSIDE LAYER)
 - PLACE BACKFILL MATERIAL ON TOP OF 2 LAYERS OF EROSION CONTROL BLANKET SO THAT A MINIMUM OF 3' IS BURIED. SOIL LIFTS SHALL NOT BE GREATER THAN 1.5' THICK.
 - SEED THE TOP OF THE BACKFILL MATERIAL AT THE LOCATION SHOWN IN THE DETAIL (TOP FRONT OF THE BANK TREATMENT).
 - FILL SHALL NOT BE PLACED DURING FIRST LIFT AT LOCATIONS WHERE BOLES OF LOGS SHALL BE PLACED. FABRIC SHALL BE FOLDED UNDER THE LOG.
 - PULL EXPOSED EROSION CONTROL BLANKET OVER BACKFILL MATERIAL AND PULL TIGHT. REMOVE WRINKLES/FOLDS (SEED WILL NOW BE UNDERNEATH EROSION CONTROL BLANKET).
 - KEY IN FABRIC A MINIMUM OF 1 FT. STAKE EDGE OF ECB TO KEEP EROSION CONTROL BLANKET TIGHT. STAKE SPACING SHALL BE A MAXIMUM OF 5'.
 - STAKE FESL WITH 1" X 2" X 18" WOODEN STAKES; 1 ROW, PLACED 3' APART, AT FRONT EDGE OF FESL AND 1 ROW PLACED 3' APART, 4' BEHIND FRONT EDGE OF FESL.
 - REPEAT STEPS 1 THROUGH 7 FOR SECOND (TOP) LIFT
 - BACK FILL TRENCH AND COMPLETE FINISH GRADING OF THE FILL AREA. TOP OF FILL AREA SHALL INCLUDE A 6" TOP LAYER OF ORGANIC SOIL.

21 TWO LAYER FESL BANK TREATMENT
 NTS

- BALDY CHANNEL INLET NOTES:**
- THE BALDY CHANNEL INLET SHALL BE CONSTRUCTED DURING THE FALL WHEN WILLOWS ARE DORMANT.
 - BANKS SHALL BE CONSTRUCTED OF LARGE HABITAT BOULDERS WITH PLACEMENT TO BE APPROVED BY THE C.O. OR ENGINEER.
 - WELL GRADED NATIVE ALLUVIUM SHALL BE PLACED TO FILL IN VOIDS IN LARGE BOULDERS AND BENEATH TWO LAYER FESL BANK TREATMENT.
 - POTTED WILLOWS, LIVE CUTTINGS, AND SEEDED AREAS SHALL BE IRRIGATED FOR A MINIMUM OF THREE YEARS FOLLOWING CONSTRUCTION.



20 BALDY CHANNEL INLET - TYPICAL SECTION
 SCALE 1"=2'

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