

Mar 15, 2023 - 4:27pm M:\Projects\2019\RDG-19-068 Deep Creek - Givans Diversion\CAD\RDG-19-068 Deep Creek - Givans Diversion - Production.dwg

DEEP CREEK - GIVANS DIVERSION PHASE II

DIVERSION AND FISH PASSAGE IMPROVEMENTS

ADEL, OREGON

PROJECT PARTNERS



PROJECT DESCRIPTION

THE GIVANS DIVERSION AND FISH PASSAGE IMPROVEMENTS PROJECT WILL IMPROVE PASSAGE CONDITIONS FOR WARNER SUCKER, WARNER LAKES REDBAND TROUT, AND OTHER NATIVE FISH SPECIES BY REMOVING THE EXISTING WEIR. IRRIGATION WATER WILL BE DELIVERED VIA A SURFACE WATER PUMP STATION, AND SCREENED WITH A FISH SCREEN. COMBINED WITH ADJACENT FISH PASSAGE PROJECTS, THE PROJECT WILL RESTORE STREAM AND MIGRATION CORRIDOR CONNECTIVITY ON DEEP CREEK BETWEEN CRUMP LAKE AND DEEP CREEK FALLS.

SPATIAL REFERENCE

SURVEY CONTROL USED FOR THE PROJECT IS PROVIDED ON DRAWING 2.0 AND COORDINATES CORRESPOND TO THE TOP CENTER OF CONTROL MARKERS.

SfM, GPS RTK, AND TOTAL STATION:

HORIZONTAL PROJECTION: OREGON STATE PLANE SOUTH
HORIZ DATUM: NAD83
VERT DATUM: NAVD88

UNITS: US SURVEY FT
UNITS: US SURVEY FT

SURVEY DATE: 7/16/2019
SfM COLLECTED: 7/17/2019

STANDARD OF PRACTICE

RDG WORKS EXCLUSIVELY IN THE RIVER ENVIRONMENT AND EMPLOYS THE MOST CURRENT AND ACCEPTED PRACTICES AVAILABLE FOR PLANNING AND DESIGN OF FISH PASSAGE, RESTORATION, AND CHANNEL ENHANCEMENT PROJECTS. THE ANALYSIS FOR THE DESIGN RELIED ON CURRENT FISH PASSAGE CRITERIA FROM ODFW AND NMFS/NOAA. ALL WORK WAS PERFORMED OR DIRECTED BY A REGISTERED PROFESSIONAL CIVIL ENGINEER WITH PAST EXPERIENCE IN FISH PASSAGE DESIGN.

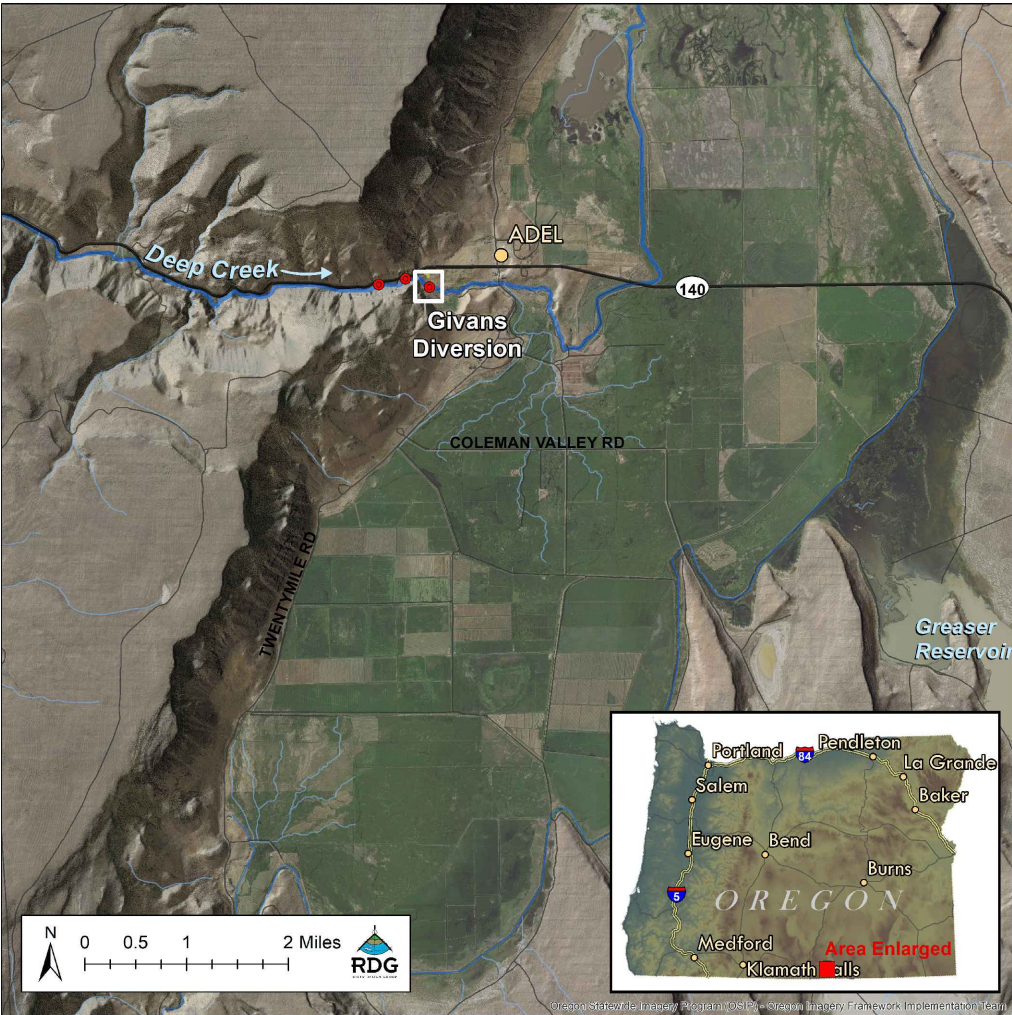
REUSE OF DRAWINGS

THESE DRAWINGS, THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF RIVER DESIGN GROUP, INC. (RDG) AND ARE NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF RDG. LIKewise, THESE DRAWINGS MAY NOT BE ALTERED OR MODIFIED WITHOUT AUTHORIZATION OF RDG. DRAWING DUPLICATION IS ALLOWED IF THE ORIGINAL CONTENT IS NOT MODIFIED.

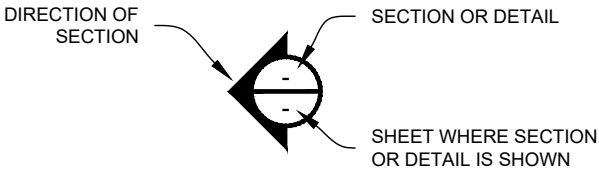
DRAWING INDEX

- | | |
|-----|----------------------------------|
| 1.0 | COVER SHEET AND NOTES |
| 2.0 | SITE ACCESS AND STAGING |
| 3.0 | EXISTING CONDITIONS OVERVIEW |
| 4.0 | WEIR REMOVAL LAYOUT AND DETAILS |
| 5.0 | PUMP AND PIPELINE - CONCEPT |
| 6.0 | BEST MANAGEMENT PRACTICES (BMPs) |

PROJECT VICINITY MAP



SW 1/4 OF THE NE 1/4 OF SECTION 20, T.39S., R.24E.,
WILLAMETTE MERIDIAN
LAKE COUNTY, OREGON
USGS QUADRANGLE: ADEL, OR



CROSS-SECTION SHEET REFERENCE



COVER SHEET AND NOTES

DEEP CREEK - GIVANS DIVERSION PHASE II

ADEL, OREGON

NO.	DATE	BY	DESCRIPTION	CHK
*	3/15/23	CS/RB	CONCEPT	CS
PROJECT NUMBER RDG-19-068				
DRAWING NUMBER 1.0				
Drawing 1 of 6				

M:\Projects\2019\RDG-19-068 Deep Creek - Givans Diversion\CAD\RDG-19-068 Deep Creek - Givans Diversion - Production-Phase 2.dwg

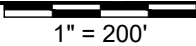


CONTROL NETWORK				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
101	185989.19	5078807.38	4665.31	set_rdg_cap
102	186218.81	5079730.82	4646.84	set_rdg_cap
NOTE: EXISTING CONDITION INFORMATION IS NOT A LAND SURVEY AND IS PRIMARILY A TOPOGRAPHIC ANALYSIS FOR RESTORATION DESIGN PURPOSES. COORDINATE SYSTEM: OREGON STATE PLANE SOUTH HORIZ DATUM: NAD83 VERT DATUM: NAVD88 UNITS: US SURVEY FEET				

ACCESS NOTES

SITE ACCESS OFF TWENTYMILE ROAD IN ADEL, FIRST ACCESS POINT SOUTH OF GRIENER BRIDGE.

1 SITE OVERVIEW, ACCESS, AND STAGING

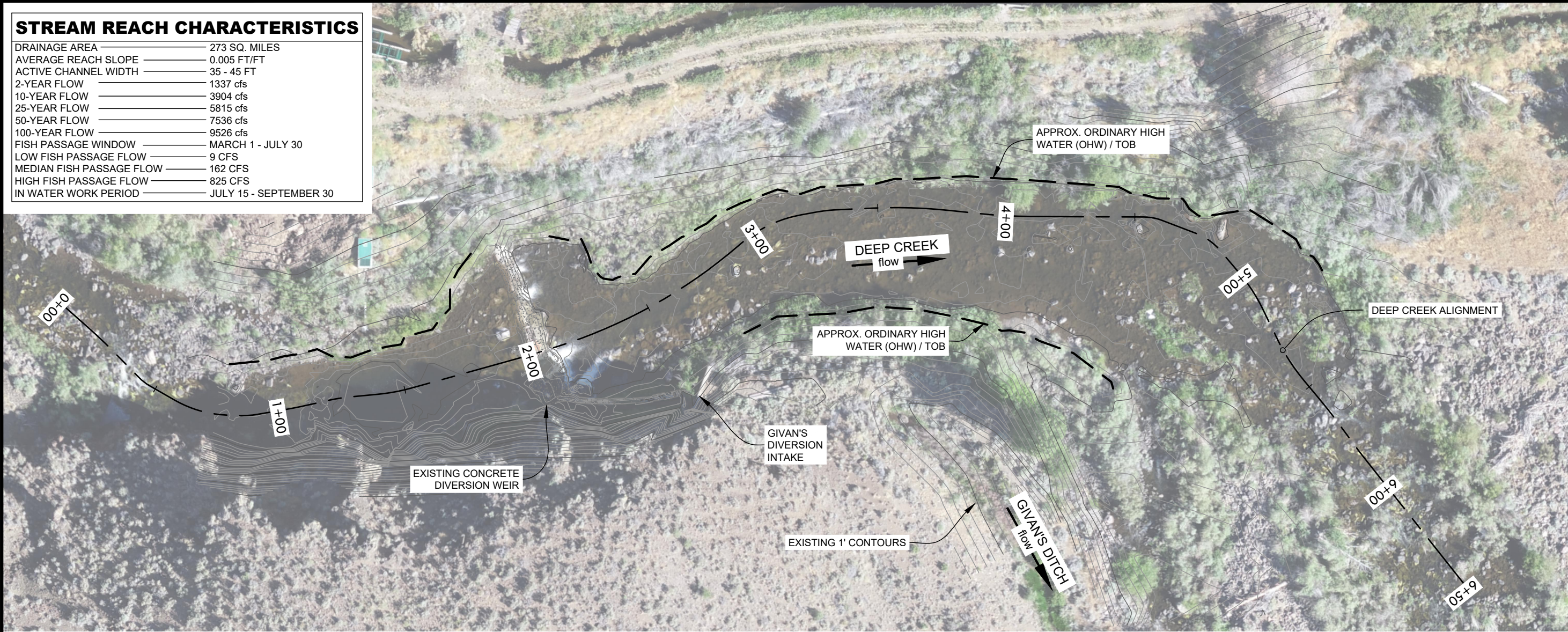


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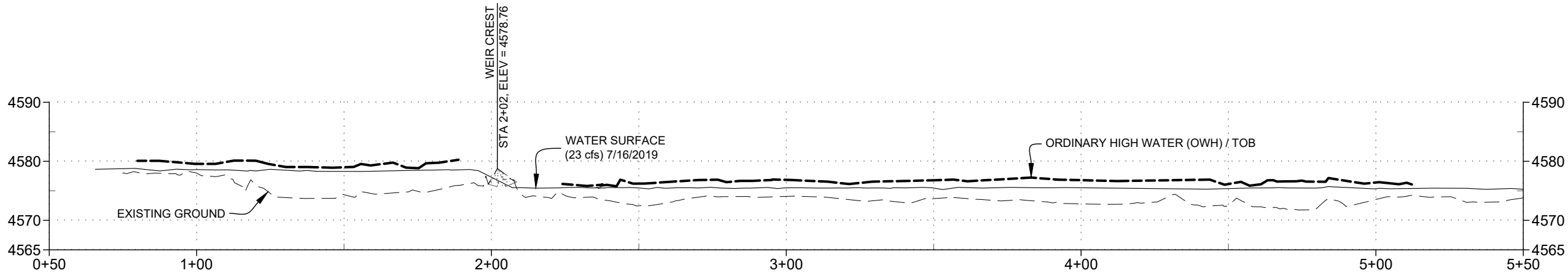
STREAM REACH CHARACTERISTICS

DRAINAGE AREA	273 SQ. MILES
AVERAGE REACH SLOPE	0.005 FT/FT
ACTIVE CHANNEL WIDTH	35 - 45 FT
2-YEAR FLOW	1337 cfs
10-YEAR FLOW	3904 cfs
25-YEAR FLOW	5815 cfs
50-YEAR FLOW	7536 cfs
100-YEAR FLOW	9526 cfs
FISH PASSAGE WINDOW	MARCH 1 - JULY 30
LOW FISH PASSAGE FLOW	9 CFS
MEDIAN FISH PASSAGE FLOW	162 CFS
HIGH FISH PASSAGE FLOW	825 CFS
IN WATER WORK PERIOD	JULY 15 - SEPTEMBER 30



1 EXISTING CONDITIONS PLAN

1" = 40'



2 EXISTING CONDITIONS PROFILE

HORIZ 1" = 40'
VERT 1" = 20'



311 SW Jefferson Avenue
Whitefish, MT 59937
406.862.4927

EXISTING CONDITIONS OVERVIEW

DEEP CREEK - GIVANS DIVERSION PHASE II
ADEL, OREGON

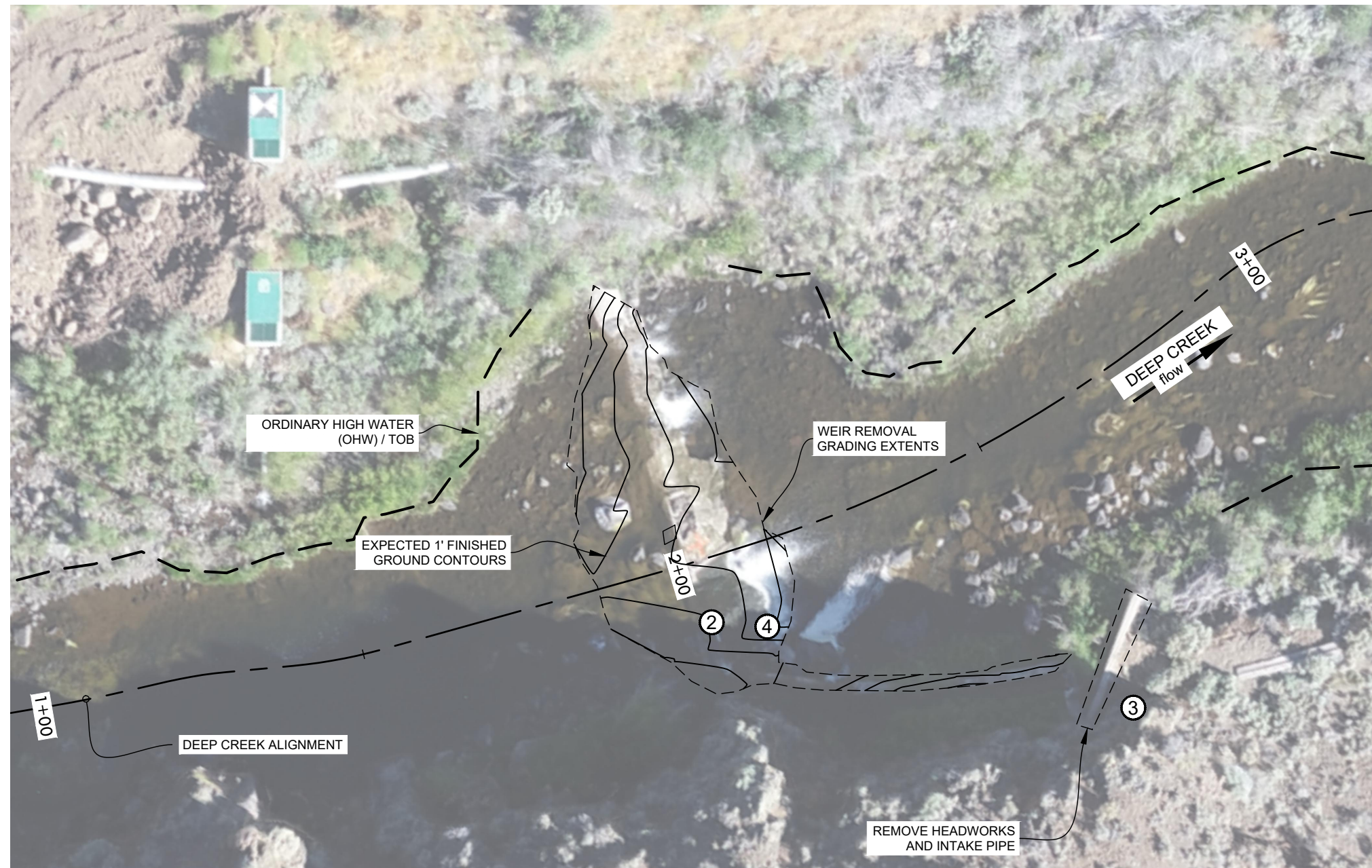
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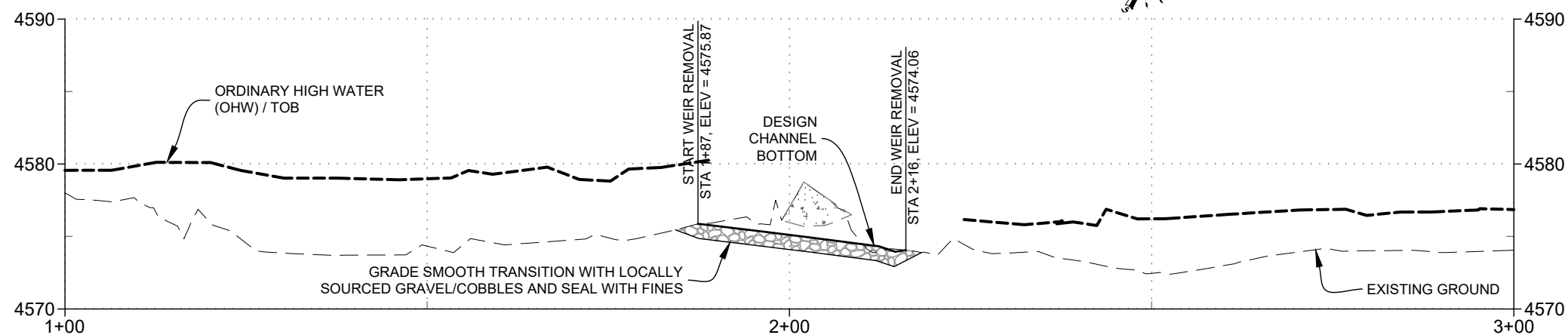
DRAWING NUMBER

3.0

Drawing 3 of 6



1 WEIR REMOVAL PLAN VIEW



2 WEIR REMOVAL PROFILE

HORIZ 1" = 20'
VERT 1" = 10'

GENERAL NOTES

ALL WEIR REMOVAL ACTIVITIES TO FOLLOW BEST MANAGEMENT PRACTICES PER NOTES AND DETAILS DRAWING 6.0. ALL BMPs TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.

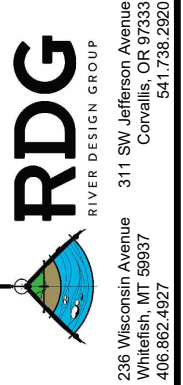
CONSTRUCTION NOTES

- ① SEE DRAWING ### FOR WORK AREA ISOLATION AND BEST MANAGEMENT PRACTICES.
- ② REMOVE CONCRETE WEIR. EXCAVATE DOWN TO BEDROCK OR GRADE ON PROFILE THIS SHEET. ALL CONCRETE AND CONSTRUCTION DEBRIS TO BE REMOVED AND DISPOSED OF OFF-SITE. CONTRACTOR TO SUBMIT DISPOSAL PLAN FOR OFFSITE DISPOSAL OF CONCRETE RUBBLE AND PIPE MATERIALS. PLAN MUST DESCRIBE MEANS AND METHODS OF MATERIAL HANDLING, DISPOSAL LOCATION, AND OWNER'S PERMISSION AT FINAL DISPOSAL LOCATION.
- ③ REMOVE HEADWORKS AND INTAKE PIPE.
- ④ GRADE CHANNEL MARGINS THROUGH WEIR LOCATION FOR SMOOTH TRANSITION ADJACENT GRADE.

VOLUME ESTIMATES

MATERIAL	VOLUME (CY)
CHANNEL CUT	20
CONCRETE REMOVAL	40

****NEATLINE VOLUMES****



WEIR REMOVAL LAYOUT AND DETAILS

DEEP CREEK - GIVANS DIVERSION PHASE II ADEL, OREGON

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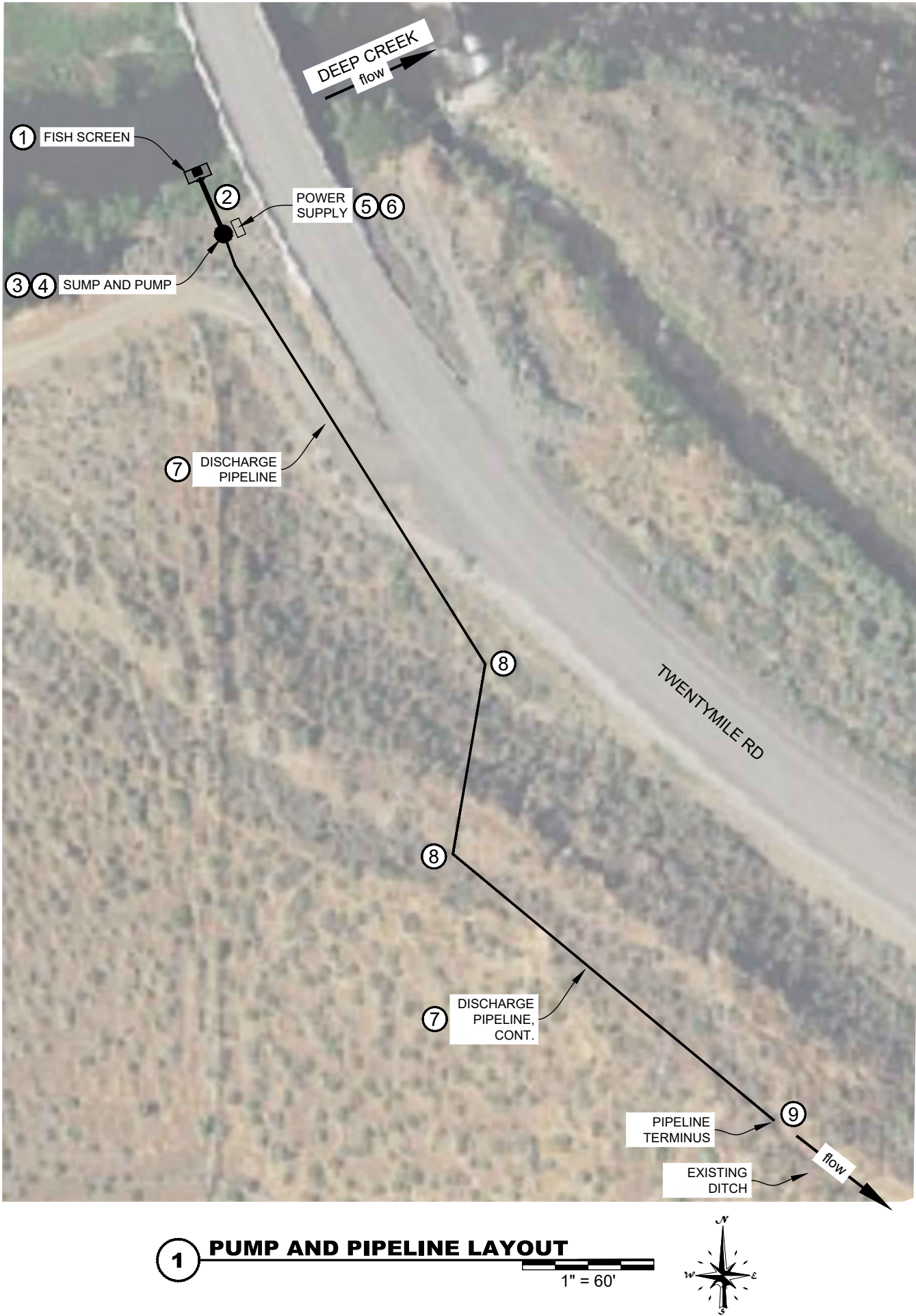
PROJECT NUMBER
RDG-19-068

DRAWING NUMBER

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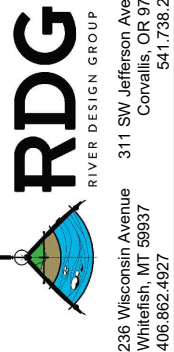
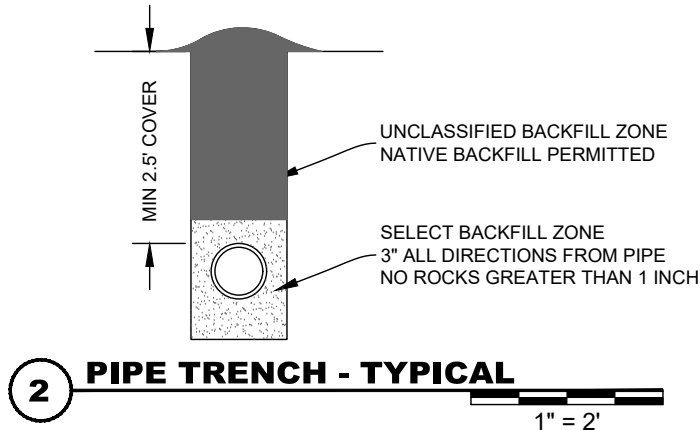
Drawing 5 of 6

M:\Projects\2019\RDG-19-068 Deep Creek - Givans Diversion\CAD\RDG-19-068 Deep Creek - Givans Diversion - Production-Phase 2.dwg



CONSTRUCTION NOTES

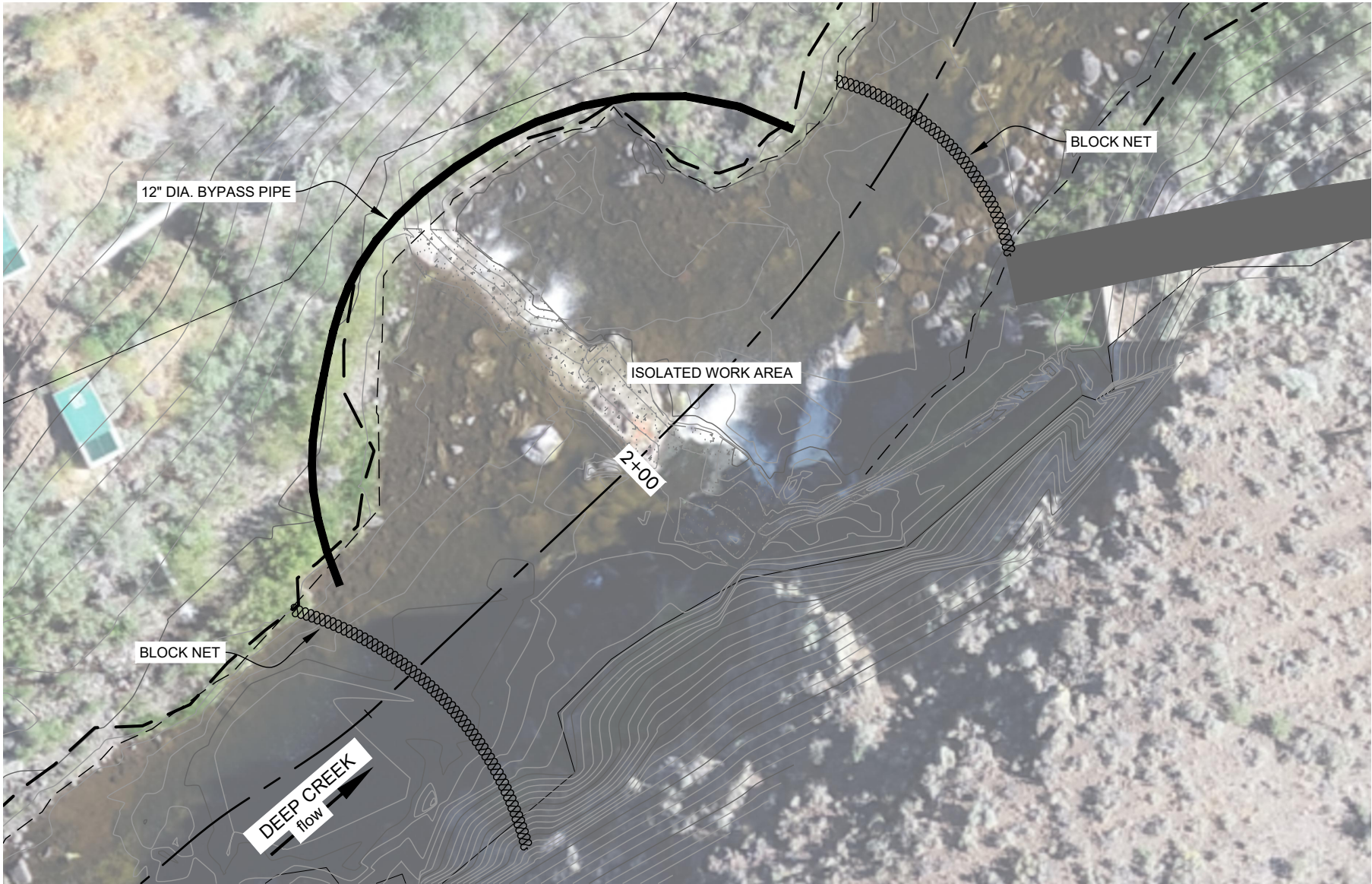
- 1 FISH SCREEN SHALL BE PASSIVE TYPE SCREEN, VERTICAL PLATE SCREEN IN PRECAST CONCRETE VAULT. SCREEN CRITERIA SIZED FOR 3 CFS, DIVERSION DISCHARGE 2.65 CFS.
- 2 VAULT TO SUMP RISER PLUMBING, 20 LF 24" DIAMETER HDPE
- 3 SUMP RISER 36" DIAMTER PRECAST UTILITY ACCESS, 3' SEGMENTED, QTY 4 TOTAL.
- 4 FURNISH PUMP, MOTOR, PUMP PAD PER THESE DRAWINGS AND DETAIL 1 ON DWG 5.1, 40 HP CLOSE COUPLED TURBINE PUMP, 1200 GPM, 90' TDH, 12' RISER.
- 5 ELECTRIC SUPPLY TO CONFORM WITH REQUIREMENTS THESE DRAWINGS, CONTRACTOR TO COORDINATE WITH SURPRISE VALLEY ELECTRIC TO EXTEND POWER SUPPLY FROM LINE TO PANEL.
- 6 CONTRACTOR TO PROVIDE POWER SUPPLY PANEL AND PUMP CONNECTION TO PANEL.
- 7 CONSTRUCT DISCHARGE SIDE PIPELINE PER THESE DRAWINGS AND MANUFACTURER'S SPECIFICATIONS, 10" DIA IPS DR32.5 HDPE, WELD ON SITE, QTY 450 LF.
- 8 PROVIDE THRUST BLOCKING AT ALL DIRECTIONAL CHANGES AND AT PIPELINE TERMINUS. ENCASE PIPE IN SIX 80-LB SACKS OF BAG-MIX CONCRETE, ENVELOPING PIPE AND CAST DIRECTLY AGAINST TRENCH WALL.
- 9 PIPELINE TERMINUS - PIPE ENDS AT EXISTING IRRIGATION DITCH. PLACE 10" DIA WATERMAN HC-30-CIPN LINE GATE AT PIPELINE END. PROVIDE PLUNGE POOL FOR PIPE DISCHARGE, EXCAVATE BELOW EXISTING DITCH BOTTOM, PLACE 15 CY CLASS 200 RIPRAP AT PLUNGE POOL. CONTOUR POOL TO ROUTE FLOW TO DITCH.



GIVANS PHASE II PUMP AND PIPELINE CONCEPT DEEP CREEK - GIVANS DIVERSION PHASE II ADEL, OREGON

NO.	DATE	BY	DESCRIPTION	CHK
*	3/15/23	CS	CONCEPT	CS
PROJECT NUMBER RDG-19-068				
DRAWING NUMBER 5.0				
Drawing 1 of 1				

M:\Projects\2019\RDG-19-068 Deep Creek - Givans Diversion\CAD\RDG-19-068 Deep Creek - Givans Diversion - Production-Phase 2.dwg



1 WORK AREA ISOLATION PLAN VIEW

1" = 20'



WORK AREA ISOLATION ACTIONS

- 1 REDUCE DEEP CREEK FLOW BY DIVERTING MAXIMUM CAPACITY OF O'KEEFE DIVERSION.
- 2 PLACE BULK BAGS OR APPROVED ALTERNATIVE COFFER DAM AS SHOWN. APPROXIMATELY 40' TOTAL L.F.
- 3 INSTALL BLOCK NETS UPSTREAM AND DOWNSTREAM OF PROJECT WORK AREA.
- 4 DIVERT DEEP CREEK FLOW THROUGH 12" DIA BYPASS PIPE ALONG RIVER RIGHT
- 5 PERFORM FISH SALVAGE WITHIN ISOLATED WORK AREA. DEWATER AS NECESSARY AFTER SALVAGE.
- 6 REMOVE WEIR AND GRADE CHANNEL FOLLOWING DRAWING ###.
- 7 REMOVE TEMPORARY COFFER DAM, RECLAIM SITE, AND REMOVE BLOCK NETS.

BMP NOTES

- A PRESERVE AND PROTECT EXISTING VEGETATION TO THE FULLEST EXTENT POSSIBLE. ALL VEGETATION TO BE REMOVED WILL BE DESIGNATED BY PROJECT ENGINEER.
- B INSTALL SILT FENCE AROUND EQUIPMENT STAGING AND MATERIAL STOCKPILING AREA, AND ANY STOCKPILED FILL.
- C PLACE BULK BAGS OR APPROVED ALTERNATIVE COFFER DAM AT DESIGNATED LOCATIONS PER PROJECT PHASING PLAN DRAWING 5.0.
- D PLACE BLOCK NETS AT DESIGNATED LOCATIONS PER PROJECT PHASING DRAWING 5.0.
- E LOCALLY SOURCED WILLOW CUTTINGS (4 FT X 0.5 IN MINIMUM) PLANTED 5 PER HOLE WITH EACH HOLE LOCATED 3 LINEAL FT AT EQUIPMENT ACCESS, 2 ROWS OF CUTTINGS. APPROX 50 CUTTINGS.
- F NATIVE WETLAND SEED MIX INCLUDING MEADOW BARLEY, BENTGRASS, FOXTAIL, HAIRGRASS, JUNEGRASS, OATGRASS (BLM 2003) DISTRIBUTED AT APPROXIMATELY 10 LBS/AC.
- G UPLAND MIX INCLUDING CRESTED WHEATGRASS DISTRIBUTED AT APPROXIMATELY 10 LBS/AC.
- H SEED ALL EXPOSED CONSTRUCTION SURFACES WITH PRESCRIBED SEED MIX AND SPREAD STERILE STRAW OVER ENTIRETY OF DISTURBED WORK AREA.

GENERAL NOTES

ALL EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE CONSTRUCTION AREA FOOTPRINT SHOULD BE LIMITED TO THE MINIMUM SPACE NECESSARY TO SAFELY , EFFICIENTLY, AND EFFECTIVELY EXECUTE THE PROJECT.

CARE AND DIVERSION OF WATER

FLOW CONDITIONS DURING IN-WATER WORK

THE PROJECT WILL BE IMPLEMENTED DURING THE IN-STREAM WORK WINDOW (JULY 15TH - SEPT 30TH). FLOW WILL LIKELY BE LESS THAN 10 CFS.

METHOD OF WORK AREA ISOLATION

THE PROJECT SITE WILL BE ISOLATED FROM ACTIVE FLOW WITH A TEMPORARY COFFER DAM. DEEP CREEK FLOW WILL BE DIVERTED THROUGH O'KEEFE DIVERSION AND A TEMPORARY BYPASS PIPE.

TURBID WATER IS TO BE DISCHARGED TO THE IRRIGATION DIVERSION OR TO AN UPLAND AREA WHEREBY NO TURBID WATER WILL RETURN TO LIVE WATER. TURBIDITY DETENTION DEVICES WILL BE REQUIRED AS NECESSARY TO ISOLATE TURBID CONSTRUCTION WATER.

GENERAL FISH SALVAGE NOTES

THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER AND/OR OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW) TO REMOVE FISH FROM ISOLATION AREAS.

REDUCING WATER VOLUME WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DONE USING PUMPS FITTED WITH APPROVED FISH SCREENS THAT PREVENT IMPINGEMENT OR ENTRAINMENT OF FISH. IF ISOLATED POCKETS OR POOLS OCCUR, THEY WILL BE DEFISHED WITH DIP NETS AND PUMPING WILL BE REDUCED ONCE MANAGEABLE WATER LEVELS ARE OBTAINED THAT CAN EASILY BE WADED AND DE-FISHED.

IF NECESSARY, A BACKPACK ELECTROSHOCKER OR SEINE NET (MADE FROM 9.5 MM STRETCHED NYLON MESH) WILL BE USED TO REMOVE FISH FROM THE ISOLATED IN-WATER WORK SITE. A QUALIFIED BIOLOGIST WILL DETERMINE THE METHODS FOR EACH AREA.

EROSION CONTROL SEEDING

ALL DISTURBED AREAS SHALL BE BROADCAST SEEDED WITH NATIVE SEED MIX AND COVERED WITH STERILE STRAW. THIS SHALL BE ACCOMPLISHED WITH A HAND/BROADCAST SEEDING METHOD AND THE SEED SHALL BE RAKED ONE QUARTER INCH INTO THE SOIL AND COMPACTED WITH A 5,000 POUND OR LESS TRACKED VEHICLE AND THEN COVERED WITH STERILE STRAW.

SITE RECLAMATION NOTES

ALL DAMAGED OR DISTURBED STREAMBANKS ARE TO BE RESTORED TO A NATURAL SLOPE PATTERN AND PROFILE SUITABLE FOR ESTABLISHMENT OF PERMANENT WOODY VEGETATION.

TEMPORARY ACCESS ROUTES AND OTHER AREAS DISTURBED DURING CONSTRUCTION WILL BE REHABILITATED TO SIMILAR OR BETTER THAN PRE-WORK CONDITIONS. AT A MINIMUM SITE RECLAMATION ACTIVITIES SHALL RESULT IN PLANT DISTRIBUTION AND DENSITY THAT MATCH PRE-PROJECT CONDITIONS.

SHORT-TERM STABILIZATION MEASURES WILL BE IMPLEMENTED UNTIL PERMANENT EROSION CONTROL MEASURES (PLANT RESTORATION) ARE EFFECTIVE..

REBUILT STREAM BANK AT EQUIPMENT ACCESS LOCATION. PLACE SALVAGED VEGETATION OR PLANT WILLOW CUTTINGS (3 CUTTINGS PER HOLE, 1 HOLD PER LINEAL FOOT OF DISTURBED BANK) IF SALVAGED VEGETATION IS UNAVAILABLE.

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NO.	DATE	BY	DESCRIPTION	CHK
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PROJECT NUMBER
RDG-19-068

DRAWING NUMBER

6.0

Drawing 6 of 6