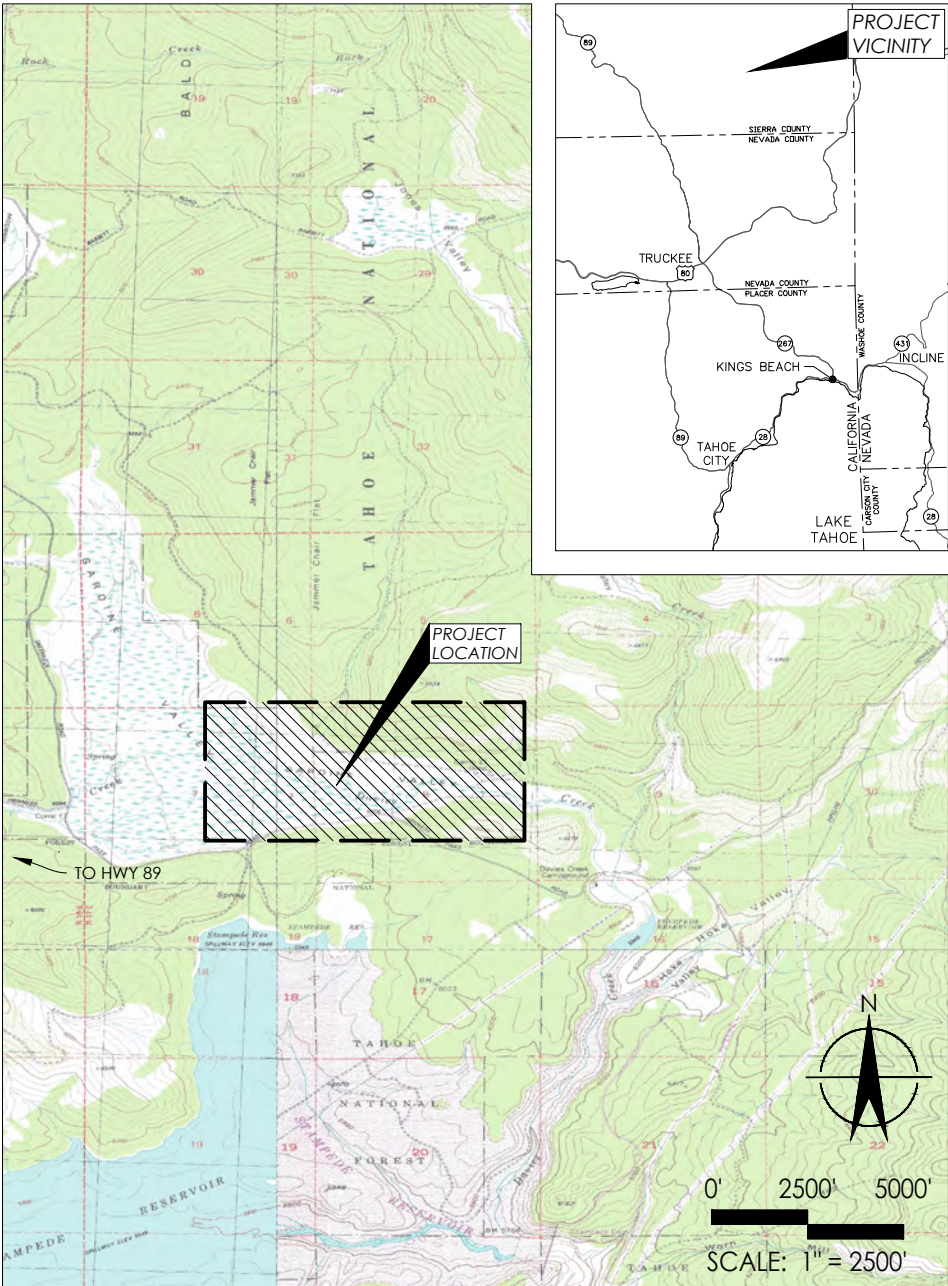


SARDINE MEADOW RESTORATION PROJECT

SIERRA COUNTY, CALIFORNIA

LOCATION MAP



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DS	20191112	PR	INTERMEDIATE 65% DESIGN
PR	20200417	PR	INTERMEDIATE 90% DESIGN
EB	20200511	PR	100% DESIGN
IN CHARGE			
PK			
DATE	05-11-20		



COVER SHEET

SARDINE MEADOW RESTORATION PROJECT

SIERRA COUNTY, CALIFORNIA

TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
SHEET
1.0
1 OF 23

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GENERAL NOTES:

1.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROJECT SITE TO VERIFY SITE CONDITIONS AND FOR COMPLETELY UNDERSTANDING THE REQUIRED SCOPE OF WORK SHOWN ON THESE DRAWINGS AND CONTAINED IN THE PROJECT SPECIFICATIONS.
2.

ALL PARTS OF THIS PROJECT - INCLUDING SOIL PREPARATION, EARTHWORK, AND PLANTING - ARE SUBJECT TO FIELD DESIGN BY THE ENGINEER'S REPRESENTATIVE. AT ANY TIME, THE CONTRACTOR'S OPERATIONS AND CONSTRUCTION MAY BE SUBJECT TO OBSERVATION BY THE ENGINEER'S REPRESENTATIVE. WHEN REQUESTING THE PRESENCE OF THE ENGINEER'S REPRESENTATIVE AT THE PROJECT SITE FOR DESIGN CLARIFICATION, STAGE ACCEPTANCE, OR OTHER APPROVALS, THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCE NOTICE DIRECTLY TO THE ENGINEER'S REPRESENTATIVE.
3.

THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL LABOR AND MATERIALS TO COMPLETE THE WORK DEPICTED HEREIN.
4.

NO UTILITIES ARE KNOWN TO EXIST WITHIN THE PROJECT SITE, HOWEVER, THE CONTRACTOR SHALL CONFIRM THE ABSENCE OF UNDERGROUND UTILITIES BEFORE THE START OF ANY CONSTRUCTION OPERATIONS, INCLUDING AND NOT LIMITED TO EXCAVATION OR TRENCHING. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA) AT 811/1-800-227-2600. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS ADVANCE NOTICE FOR LOCATING UTILITIES.
5.

THE GRADING LIMITS AND TARGET ELEVATIONS FOR FILL SHALL BE MARKED BY THE ENGINEER'S REPRESENTATIVE. NO GROUND DISTURBANCE IS ALLOWED BEFORE GRADING LIMITS ARE MARKED.
6.

THE CONTRACTOR SHALL CONTACT THE ENGINEER'S REPRESENTATIVE IMMEDIATELY UPON FINDING ANY FIELD CONDITIONS THAT WOULD CONFLICT WITH THE INFORMATION INDICATED ON THESE DRAWINGS OR THE PROJECT SPECIFICATIONS. ALL FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER'S REPRESENTATIVE BEFORE CONSTRUCTION OF SAID ADJUSTMENTS; FAILURE TO DO SO SHALL RESULT IN THE CONTRACTOR ASSUMING FULL RESPONSIBILITY FOR ANY REQUIRED REVISIONS OR FIELD MODIFICATIONS, AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE, AT NO ADDITIONAL COST.
7.

CONFORM TO EXISTING GRADES AND CONDITIONS WHENEVER POSSIBLE. ANY ADJACENT OR OFFSET AREAS DISTURBED BY THE CONTRACTOR'S OPERATION MUST BE RESTORED BY THE CONTRACTOR TO THE PRE-DISTURBANCE CONDITIONS TO THE SATISFACTION OF THE ENGINEER'S REPRESENTATIVE.
8.

ALL LUBRICATION, REFUELING, OR MAINTENANCE OF CONSTRUCTION VEHICLES SHALL BE CONDUCTED WITHIN APPROVED CONSTRUCTION STAGING AREAS.
9.

STAGING AREAS MUST BE CONTAINED BY MEANS DESCRIBED IN THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO CONFINE THE AREA AND PREVENT CONTAMINANTS FROM ENTERING NEARBY CHANNELS AND WATER BODIES.
10.

ELEVATIONS ARE RELATIVE TO THE NAVD 88 DATUM, AND ARE BASED ON A PHOTOGRAMMETRIC SURVEY BY BALANCE HYDROLOGICS IN 2019.
11.

SUPPLEMENTAL SURVEY DATA MAY BE REQUIRED DURING CONSTRUCTION TO CONFIRM GRADING, AND MAY RESULT IN ADJUSTMENTS TO THE DESIGN.
12.

PRESERVE TREES AND VEGETATION OUTSIDE OF THE LIMITS OF WORK. ANY TREES OR VEGETATION DISTURBED OUTSIDE OF THE LIMITS OF WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY TREES GREATER THAN 6" DBH THAT ARE OUTSIDE OF THE GRADING LIMITS AND INTERFERE WITH THE WORK MAY ONLY BE REMOVED WITH PRIOR APPROVAL FROM THE ENGINEER'S REPRESENTATIVE.
13.

THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR JOB SITE CONDITIONS DURING CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT APPLIES CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE OWNER, THE ENGINEER AND THE ENGINEER'S OFFICERS, DIRECTORS, PARTNERS, EMPLOYEES, AND CONSULTANTS FROM AND AGAINST COSTS, LOSSES, AND DAMAGES (INCLUDING BUT NOT LIMITED TO REASONABLE FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS, AND REASONABLE COURT OR ARBITRATION OR OTHER DISPUTE RESOLUTION COSTS) CAUSED BY THE NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR OR CONTRACTOR'S OFFICERS, DIRECTORS, PARTNERS, EMPLOYEES, CONSULTANTS AND SUBCONTRACTORS.
14.

SCALE SIZES INDICATED HEREIN ARE INTENDED FOR PLOTTING ON ANSI SIZE D SHEETS (22" BY 34")
15.

THE REVEGETATION PLANS BY C.S. ECOLOGICAL SURVEYS AND ASSESSMENTS ARE HEREBY INCORPORATED INTO THESE PLANS BY REFERENCE.

EARTHWORK NOTES:

1.

EARTHWORK OPERATIONS SHALL BE EXECUTED ACCORDING TO THESE PLANS AND THE RELEVANT PROJECT PERMITS.
2.

THE FOLLOWING PERMITS AND REQUIREMENTS CONTAINED IN THE PERMITS ARE HEREBY INCORPORATED INTO THE PLANS BY REFERENCE:

2.1.

LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD, 401 WATER QUALITY CERTIFICATION, WQID NO. 6A461912001;

2.2.

CEQA MITIGATED NEGATIVE DECLARATION FOR THE SARDINE MEADOW RESTORATION PROEJCT AND CEQA AMENDMENT, SCH 2017112062;

- 2.3.

U.S. ARMY CORPS OF ENGINEERS SECTION 404 NATIONWIDE PERMIT, NO. 202000135;
- 2.4.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, STREAMBED ALTERATION AGREEMENT, NOTIFICATION NO. 1600-2020-0062-R2;
- 2.5.

STATE WATER RESOURCES CONTROL BOARD, CONSTRUCTION GENERAL PERMIT, 2009-0009-DWQ; AND
- 2.6.

SIERRA COUNTY GRADING PERMIT.
- COPIES OF THESE PERMITS SHALL BE KEPT ON-SITE FOR THE DURATION OF CONSTRUCTION.
3.

SPECIFIC CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPS) AND LOCATIONS OF BMPS ARE DETAILED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT. A COPY OF THE SWPPP SHALL BE KEPT ON-SITE FOR THE DURATION OF CONSTRUCTION. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS FOR THE EROSION CONTROL MEASURES DESCRIBED IN THE PROJECT SWPPP.
4.

THE CONTRACTOR SHALL CONSTRUCT FINISHED SURFACES TO ±0.1' OF THE ELEVATIONS INDICATED IN THE FIELD AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE. ALL ELEVATIONS WILL BE ADJUSTED IN THE FIELD BASED ON EXISTING GRADE
5.

EXCAVATING, FILLING, AND GRADING WORK SHALL NOT BE PERFORMED DURING WEATHER CONDITIONS WHICH MIGHT DAMAGE OR BE DETRIMENTAL TO THE CONDITION OF EXISTING GROUND, IN-PROGRESS WORK, OR COMPLETED WORK. WHEN THE WORK IS INTERRUPTED BY RAIN; EXCAVATING, FILLING, AND GRADING WORK SHALL NOT RESUME UNTIL THE SITE AND SOIL CONDITION (MOISTURE CONTENT) ARE SUITABLE FOR COMPACTION.
6.

SOIL MATERIAL THAT IS TOO WET OR SIGNIFICANTLY ABOVE OPTIMUM MOISTURE CONTENT MAY REQUIRE DRYING UNTIL MOISTURE CONTENT IS UNIFORM AND NEAR OPTIMUM MOISTURE CONTENT TO FACILITATE PLACEMENT AND COMPACTION.
7.

MATERIAL USED FOR FILL SHALL BE AN INERT SOIL, FREE FROM DELETERIOUS SUBSTANCES, AND OF SUCH QUALITY THAT IT WILL COMPACT THOROUGHLY WITHOUT THE PRESENCE OF VOIDS WHEN ROLLED.
8.

MAINTAIN SLOPES AND EMBANKMENTS UNTIL SUBSTANTIAL COMPLETION AND ACCEPTANCE OF THE WORK. PROMPTLY REPAIR SLIDES, SLOPES, WASHOUTS, SETTLEMENTS, AND SUBSIDENCES THAT OCCUR FOR ANY REASON, AND REFINISH THE SLOPE OR EMBANKMENT TO THE INDICATED LINES AND GRADES. COMPLY WITH APPLICABLE REQUIREMENTS OF CCR, TITLE 8, TRENCH CONSTRUCTION SAFETY ORDERS.
9.

THE CONTRACTOR SHALL TAKE ALL MEANS NECESSARY TO PREVENT THE INTRODUCTION AND SPREAD OF NON-NATIVE PLANTS.
10.

EXCAVATE AND SEPARATELY STOCKPILE SUITABLE MATERIAL FOR FILL. ESTABLISH STOCKPILES ON SITE ONLY IN LOCATIONS WHERE THEY DO NOT INTERFERE WITH THE PROGRESS OF WORK.
11.

FILL MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 8 INCHES EACH. COMPACT EACH LAYER OF FILL MATERIAL TO NOT LESS THAN 85 PERCENT RELATIVE COMPACTION, AS DETERMINED BY ASTM D1557. THE CONTRACTOR IS RESPONSIBLE FOR ACHIEVEMENT OF PROPER COMPACTION DURING FILL AND BACKFILL PLACEMENT, INCLUDING PROVIDING WATER TO ACHIEVE OPTIMUM MOISTURE CONTENT DURING FILL OPERATIONS.
12.

IMPORTED FILL MATERIAL SHALL BE GRANULAR MATERIAL NEARLY FREE OF ORGANIC DEBRIS WITH A LIQUID LIMIT LESS THAN 40, A PLASTICITY INDEX LESS THAN 15, 100 PERCENT PASSING THE 8-INCH SIEVE, AND LESS THAN 30 PERCENT PASSING THE NO. 200 SIEVE.
13.

ENSURE THAT THE TOP 2" OF SOIL IN PLACED FILL IS FREE OF CONCRETE, RUBBLE, DEBRIS, BRANCHES, ROOTS, STUMPS, WIRE, OR OTHER DELETERIOUS MATTER 1" IN DIAMETER AND LARGER. DISPOSE OF DEBRIS OFFSITE ACCORDING TO STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST.
14.

THE CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL MEASURES DURING EARTHWORK OPERATIONS THAT ARE IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS, ALONG WITH PERMIT CONDITIONS.
15.

THE MAXIMUM ALLOWED EMBANKMENT SLOPE SHALL BE 2:1 (H:V)
16.

THE ENGINEER'S REPRESENTATIVE SHALL APPROVE FINISH GRADE ELEVATIONS.

GRADE CONTROL RIFFLE NOTES:

1.

GENERAL

1.1.

REFER TO SHEET 3.14 AND 3.15 FOR THE LOCATION OF THE GRADE CONTROL RIFFLES AND SHEET 4.2 AND 4.3 FOR DETAIL VIEWS.

1.2.

CONSTRUCT THE GRADE CONTROL RIFFLES AT THE LOCATIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.

1.3.

IF A CONFLICT EXISTS BETWEEN THE INFORMATION ON THE PLANS AND SITE CONDITIONS, NOTIFY THE ENGINEER'S REPRESENTATIVE IMMEDIATELY.

1.4.

PURPOSE: THE GRADE CONTROL RIFFLES ARE INTENDED TO BE IMMOBILE FEATURES DESIGNED TO INCREASE WATER SURFACE ELEVATIONS THROUGHOUT THE LOWER MEADOW AND PREVENT REACH-SCALE INCISION (HEADCUTTING) OF THE CHANNEL FILL TREATMENTS.
2.

MATERIALS

2.1.

RIFFLE MIXTURE

- 2.1.1.

THE RIFFLE MIXTURE SHALL BE A WELL-GRADED MIXTURE OF BOULDERS, COBBLES, GRAVELS, AND SAND.
- 2.1.2.

THE RIFFLE MIXTURE CAN BE COMPOSED OF A VARIETY OF ROCK TYPES TYPICALLY USED IN CONSTRUCTION SUCH AS IGNEOUS ROCKS (GRANITE, DIORITE, BASALT, ANDESITE). ROCKS SHOULD HAVE NO CRACKS, BEDDING PLANES, OR OTHER WEAKNESSES. ROCKS SHOULD NOT HAVE CRACKS FILLED, OR HEALED, WITH CALCITE.
- 2.1.3.

MATERIAL FROM EXISTING STOCKPILES LOCATED NEAR STAMPEDE DAM (SEE SHEET 2.1) IS AVAILABLE AT NO COST (CONTRACTOR IS ONLY RESPONSIBLE FOR HAULING) FOR USE IN THE GRADE CONTROL RIFFLE, HOWEVER, THE MATERIAL WILL NEED TO BE SUPPLEMENTED WITH IMPORTED MATERIAL TO ACHIEVE THE SPECIFIED GRADATION.
- 2.1.4.

ALL IMPORTED RIFFLE MATERIAL SHALL COMPLY WITH THE FOLLOWING:

2.1.4.1.

MATERIAL SHALL BE CLEAN AND SUBANGULAR TO SUBROUNDED ROCK.

2.1.4.2.

MATERIAL SHALL NOT CONTAIN EXCESSIVE FINES.

2.1.4.3.

UNSATISFACTORY MATERIAL SHALL INCLUDE OR BE EQUIVALENT TO ASTM D2487 SOIL CLASSIFICATION GROUPS GM, GC, SW, SP, SM, SC, ML, CL, OL, MH, CH, OH, AND PT. OTHER UNACCEPTABLE MATERIAL WOULD INCLUDE RIP-RAP UNLESS OTHERWISE SPECIFIED HEREIN.
- 2.1.5.

THE RIFFLE MIXTURE SHALL HAVE THE FOLLOWING GRADATION:

SIEVE OPENING	% PASSING, BY WEIGHT
24"	100
12"	84
4"	50
1"	20
NO. 4	10
- 2.1.6.

THE RIFFLE MIXTURE SHALL BE WELL MIXED PRIOR TO PLACEMENT.

3. EXECUTION

- 3.1.

THE ENGINEER'S REPRESENTATIVE SHALL STAKE THE GRADE CONTROL RIFFLES AND MAY MAKE FIELD ADJUSTMENTS FROM WHAT IS SHOWN ON THE DRAWINGS, IF NECESSARY. AT MINIMUM THE FOLLOWING FEATURES WILL BE MARKED:

3.1.1.

UPSTREAM LIMIT OF RIFFLES

3.1.2.

DOWNSTREAM LIMIT OF RIFFLES

3.1.3.

CREST OF RIFFLES (LOCATION AND ELEVATION)

3.1.4.

LIMITS OF SILL (INCLUDING BOTTOM ELEVATION)
- 3.2.

EXCAVATE TRENCHES FOR THE SILLS ACCORDING TO THE LAYOUT PROVIDED BY THE ENGINEER'S REPRESENTATIVE.
- 3.3.

PLACE THE RIFFLE MIXTURE IN THE CHANNEL AND IN THE TRENCHES ACCORDING TO THE DRAWINGS AND AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE. THE MIXTURE SHALL BE PLACED IN LIFTS NO GREATER THAN 24" EACH. UPON COMPLETING EACH LIFT, COMPACT THE RIFFLE MIXTURE BY JETTING WATER AND RUNNING OVER WITH TRACK EQUIPMENT UNTIL UNYIELDING. THE EARTHWORK NOTES REGARDING COMPACTION DO NOT APPLY TO THE GRADE CONTROL RIFFLE.

ABBREVIATIONS:

- | | |
|--------|--------------------------------------|
| ' | FEET |
| " | INCH |
| APPROX | APPROXIMATE |
| CBF | CHANNEL BED FILL |
| DIA, Ø | DIAMETER |
| DND | DO NOT DISTURB |
| EG | EXISTING GRADE |
| ELEV | ELEVATION |
| EX | EXISTING |
| FG | FINISH GRADE |
| FT | FEET |
| H | HORIZONTAL |
| IN | INCH |
| LB | POUND |
| LF | LINEAR FEET |
| LT | LEFT |
| MAX | MAXIMUM |
| MIN | MINIMUM |
| NIC | NOT IN CONTRACT |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| PROP | PROPOSED |
| RR | RAILROAD |
| STA | STATION |
| SWPPP | STORMWATER POLLUTION PREVENTION PLAN |
| TYP | TYPICAL |
| V | VERTICAL |
| WSE | WATER SURFACE ELEVATION |

LEGEND:

- | | | |
|--|------|--------------------------------------|
| | 6045 | EXISTING INDEX CONTOUR (5FT) |
| | | EXISTING INTERMEDIATE CONTOUR (1 FT) |
| | | GRADING LIMIT |
| | | LIMIT OF STAGING AREA |
| | | TEMPORARY CHANNEL CROSSING |
| | | TEMPORARY CONSTRUCTION ACCESS ROUTE |
| | | GRADE CONTROL |
| | | FILL TREATMENT A (NO HATCH) |
| | | FILL TREATMENT B |
| | | FILL TREATMENT C |
| | | RELIC CHANNEL FLOW PATH |
| | | DEBRIS JAM |

PREPARED FOR:

foriver

TRUCKEE RIVER WATERSHED COUNCIL

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DESIGNED BY	DRAWN BY	CHECKED BY	IN CHARGE	DATE
DS	PR	EB	PK	05-11-20

SUBMITTALS / REVISIONS	BY	DATE
INTERMEDIATE 65% DESIGN	PR	20191112
INTERMEDIATE 90% DESIGN	PR	20200417
100% DESIGN	PR	20200511

LEGEND, SYMBOLS AND GENERAL NOTES

SARDINE MEADOW RESTORATION PROJECT

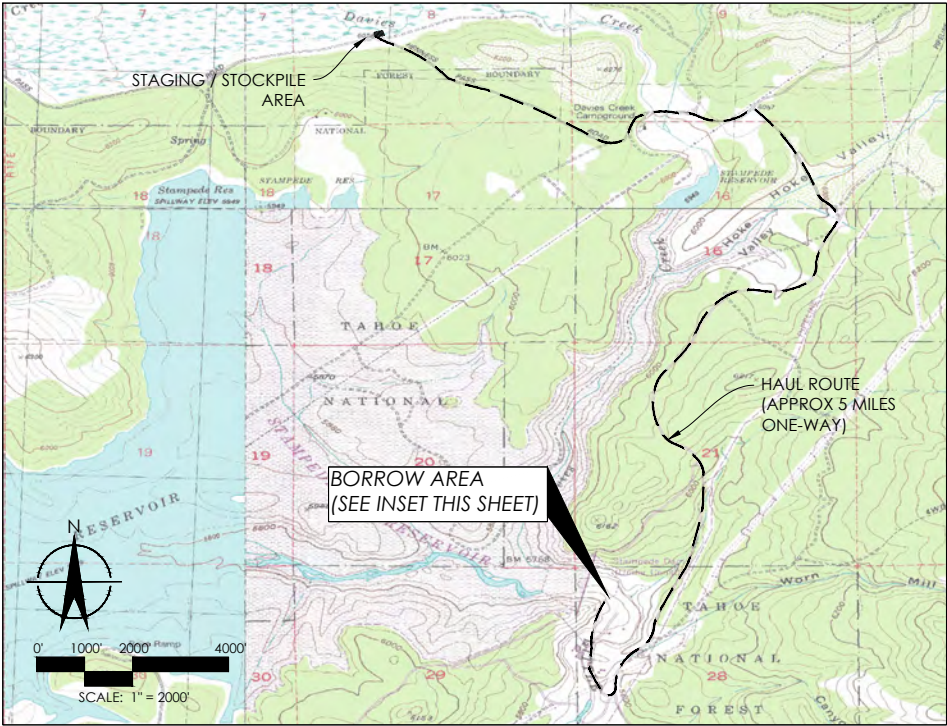
SIERRA COUNTY, CALIFORNIA

TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER	219095
SCALE	
SHEET	2.0
	2 OF 23



DEWATERING AND DIVERSION FEATURES
PLAN VIEW
1" = 400'



BORROW AREA HAUL ROUTE
PLAN VIEW
1" = 2,000'



BORROW AREA DETAIL
PLAN VIEW
NTS

BORROW AREA NOTES:
1. MATERIAL FROM THE BORROW AREA IS AVAILABLE AT NO COST TO CONSTRUCT THE GRADE CONTROL RIFFLE. REFER TO THE GRADE CONTROL RIFFLE NOTES (SHEET 2.0) FOR LIMITATIONS.

- DEWATERING AND DIVERSION NOTES:**
1. THE CONTRACTOR SHALL SUBMIT A DEWATERING AND DIVERSION PLAN FOR APPROVAL BY THE ENGINEER'S REPRESENTATIVE NO LATER THAN 10 DAYS BEFORE MOBILIZATION. THE PURPOSE OF THE DEWATERING AND DIVERSION PLAN IS TO OUTLINE THE CONTRACTOR'S PROPOSED STRATEGY AND METHODS FOR MANAGING ALL SURFACE WATER AND GROUNDWATER ENCOUNTERED THROUGHOUT THE CONSTRUCTION PERIOD WITHIN THE WORK AREA. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR TO EXECUTE THE DEWATERING AND DIVERSION PLAN.
 2. THESE DEWATERING AND DIVERSION NOTES HAVE BEEN PREPARED TO HELP THE CONTRACTOR UNDERSTAND THE SCOPE OF THE ANTICIPATED DEWATERING AND DIVERSION WORK. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNDERSTAND THE SITE CONDITIONS AND DEVELOP AND EXECUTE A DEWATERING AND DIVERSION PLAN THAT REASONABLY PREPARES THE SITE TO COMPLETE THE WORK CONSISTENT WITH: THESE DRAWINGS AND ALL NOTES HEREIN; THE CONTRACT DOCUMENTS; PROVISIONS OF THE PROJECT PERMITS; AND ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
 3. FEATURES REQUIRING DEWATERING AND DIVERSION (SEE OVERVIEW, THIS SHEET), ALONG WITH THE ANTICIPATED SURFACE WATER CONDITIONS DURING CONSTRUCTION, ARE SUMMARIZED AS FOLLOWS:
 - 3.1. UPPER DAVIES CREEK AND TRIBUTARIES: SPRING-FED HYDROLOGY WITH ANTICIPATED FLOW RATES OF 2 CFS OR LESS.
 - 3.2. RELICT CHANNEL: ANTICIPATED TO BE MOSTLY DRY DURING CONSTRUCTION WITH INTERMITTENT POOLS AT DEPTHS UP TO 2 FEET.
 - 3.3. HISTORICAL DITCH: ANTICIPATED TO BE DRY DURING CONSTRUCTION.
 - 3.4. LOWER DAVIES CREEK: ANTICIPATED TO HAVE VERY LOW FLOW DURING THE CONSTRUCTION PERIOD, BUT WATER IS LIKELY TO BE PONDED IN INTERMITTENT POOLS AT DEPTHS UP TO 5 FEET.
 4. IN ADDITION TO THE ABOVE SURFACE WATER FEATURES, THE CONTRACTOR SHALL PUMP INCIDENTAL GROUNDWATER ENCOUNTERED DURING EXCAVATION. PUMPED WATER MAY BE SPRAYED OR OTHERWISE DISPERSED ONTO OVERBANK AREAS. THE PUMPED WATER SHALL BE MONITORED THROUGHOUT CONSTRUCTION TO AVOID FLOW CONCENTRATION THAT COULD LEAD TO THE FORMATION OF RILLS.
 5. THE DEWATERING AND DIVERSION PLAN SHALL, AT MINIMUM, INCLUDE THE FOLLOWING:
 - 5.1. DESCRIPTION OF THE DEWATERING AND DIVERSION METHODS, INCLUDING THE STRATEGY FOR MOVING WATER AROUND WORK AREAS.
 - 5.2. PRODUCT SPECIFICATIONS FOR TEMPORARY COFFERDAMS, TEMPORARY DIVERSION DAMS, DIVERSION CHANNEL LININGS, PUMPS, AND DIVERSION PIPES. DIVERSION PRODUCTS SHALL BE SELECTED TO PREVENT EROSION OF TEMPORARY CHANNELS AND TURBIDITY INCREASES TO DAVIES CREEK.
 - 5.3. FOR THE OUTLETS OF DIVERSION PIPES, AN ENERGY DISSIPATION FEATURE IS REQUIRED TO PREVENT EROSION; SUBMIT A DRAWING AND/OR DESCRIPTION OF THE PROPOSED ENERGY DISSIPATION FEATURE.
 - 5.4. MONITORING PLAN AND REPAIR/CONTINGENCY PLAN IF SIGNIFICANT LEAKAGE OR FAILURES ARE OBSERVED.
 6. TEMPORARY DIVERSIONS SHALL BE COMPLETELY REMOVED UPON COMPLETION OF THE PROJECT. UPON DEMOBILIZATION ANY AREAS DISTURBED BY ITS INSTALLATION, OPERATION, OR REMOVAL RESTORED TO PRE-PROJECT CONDITIONS.
 7. THE CONTRACTOR SHALL TAKE CARE TO NOT HARM NATIVE FISH DURING DEWATERING AND DIVERSION OPERATIONS, INCLUDING BUT NOT LIMITED TO INSTALLING SCREENS ON PUMP INTAKES AND RELOCATING STRANDED FISH OUTSIDE OF THE PROJECT AREA.

PREPARED FOR:

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TRUCKEE RIVER WATERSHED COUNCIL

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REGISTERED PROFESSIONAL ENGINEER
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DEWATERING AND DIVERSION
PLAN AND BORROW AREA

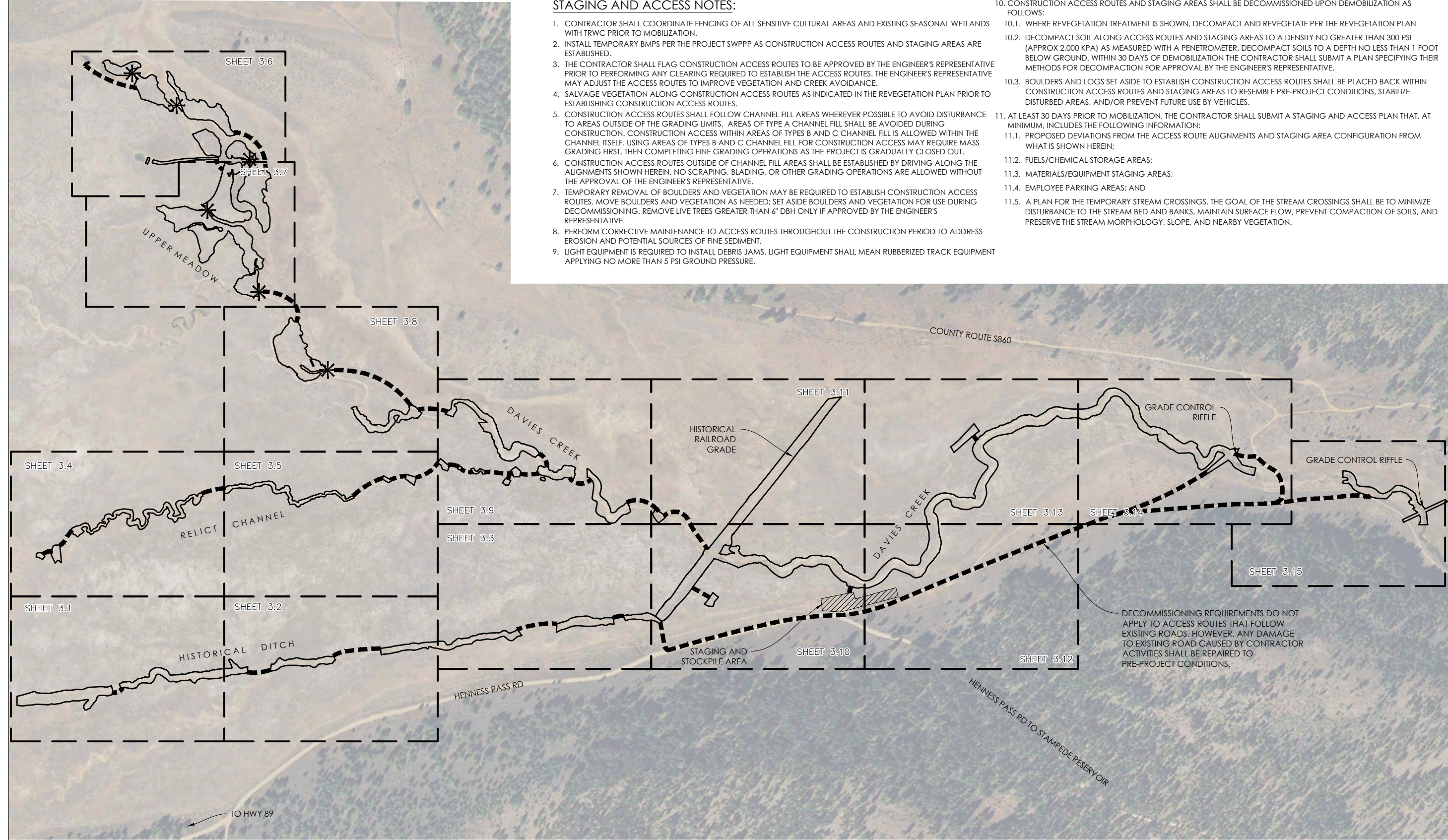
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
AS NOTED

SHEET
2.1
3 OF 23

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100% DESIGN

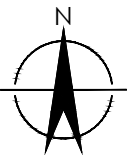
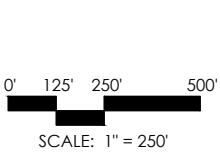
STAGING AND ACCESS NOTES:

1. CONTRACTOR SHALL COORDINATE FENCING OF ALL SENSITIVE CULTURAL AREAS AND EXISTING SEASONAL WETLANDS WITH TRWC PRIOR TO MOBILIZATION.
2. INSTALL TEMPORARY BMPS PER THE PROJECT SWPPP AS CONSTRUCTION ACCESS ROUTES AND STAGING AREAS ARE ESTABLISHED.
3. THE CONTRACTOR SHALL FLAG CONSTRUCTION ACCESS ROUTES TO BE APPROVED BY THE ENGINEER'S REPRESENTATIVE PRIOR TO PERFORMING ANY CLEARING REQUIRED TO ESTABLISH THE ACCESS ROUTES. THE ENGINEER'S REPRESENTATIVE MAY ADJUST THE ACCESS ROUTES TO IMPROVE VEGETATION AND CREEK AVOIDANCE.
4. SALVAGE VEGETATION ALONG CONSTRUCTION ACCESS ROUTES AS INDICATED IN THE REVEGETATION PLAN PRIOR TO ESTABLISHING CONSTRUCTION ACCESS ROUTES.
5. CONSTRUCTION ACCESS ROUTES SHALL FOLLOW CHANNEL FILL AREAS WHEREVER POSSIBLE TO AVOID DISTURBANCE TO AREAS OUTSIDE OF THE GRADING LIMITS. AREAS OF TYPE A CHANNEL FILL SHALL BE AVOIDED DURING CONSTRUCTION. CONSTRUCTION ACCESS WITHIN AREAS OF TYPES B AND C CHANNEL FILL IS ALLOWED WITHIN THE CHANNEL ITSELF. USING AREAS OF TYPES B AND C CHANNEL FILL FOR CONSTRUCTION ACCESS MAY REQUIRE MASS GRADING FIRST, THEN COMPLETING FINE GRADING OPERATIONS AS THE PROJECT IS GRADUALLY CLOSED OUT.
6. CONSTRUCTION ACCESS ROUTES OUTSIDE OF CHANNEL FILL AREAS SHALL BE ESTABLISHED BY DRIVING ALONG THE ALIGNMENTS SHOWN HEREIN. NO SCRAPING, BLADING, OR OTHER GRADING OPERATIONS ARE ALLOWED WITHOUT THE APPROVAL OF THE ENGINEER'S REPRESENTATIVE.
7. TEMPORARY REMOVAL OF BOULDERS AND VEGETATION MAY BE REQUIRED TO ESTABLISH CONSTRUCTION ACCESS ROUTES. MOVE BOULDERS AND VEGETATION AS NEEDED; SET ASIDE BOULDERS AND VEGETATION FOR USE DURING DECOMMISSIONING. REMOVE LIVE TREES GREATER THAN 6" DBH ONLY IF APPROVED BY THE ENGINEER'S REPRESENTATIVE.
8. PERFORM CORRECTIVE MAINTENANCE TO ACCESS ROUTES THROUGHOUT THE CONSTRUCTION PERIOD TO ADDRESS EROSION AND POTENTIAL SOURCES OF FINE SEDIMENT.
9. LIGHT EQUIPMENT IS REQUIRED TO INSTALL DEBRIS JAMS. LIGHT EQUIPMENT SHALL MEAN RUBBERIZED TRACK EQUIPMENT APPLYING NO MORE THAN 5 PSI GROUND PRESSURE.

10. CONSTRUCTION ACCESS ROUTES AND STAGING AREAS SHALL BE DECOMMISSIONED UPON DEMOBILIZATION AS FOLLOWS:
 - 10.1. WHERE REVEGETATION TREATMENT IS SHOWN, DECOMPACT AND REVEGETATE PER THE REVEGETATION PLAN
 - 10.2. DECOMPACT SOIL ALONG ACCESS ROUTES AND STAGING AREAS TO A DENSITY NO GREATER THAN 300 PSI (APPROX 2,000 KPA) AS MEASURED WITH A PENETROMETER. DECOMPACT SOILS TO A DEPTH NO LESS THAN 1 FOOT BELOW GROUND. WITHIN 30 DAYS OF DEMOBILIZATION THE CONTRACTOR SHALL SUBMIT A PLAN SPECIFYING THEIR METHODS FOR DECOMPACTION FOR APPROVAL BY THE ENGINEER'S REPRESENTATIVE.
 - 10.3. BOULDERS AND LOGS SET ASIDE TO ESTABLISH CONSTRUCTION ACCESS ROUTES SHALL BE PLACED BACK WITHIN CONSTRUCTION ACCESS ROUTES AND STAGING AREAS TO RESEMBLE PRE-PROJECT CONDITIONS, STABILIZE DISTURBED AREAS, AND/OR PREVENT FUTURE USE BY VEHICLES.
11. AT LEAST 30 DAYS PRIOR TO MOBILIZATION, THE CONTRACTOR SHALL SUBMIT A STAGING AND ACCESS PLAN THAT, AT MINIMUM, INCLUDES THE FOLLOWING INFORMATION:
 - 11.1. PROPOSED DEVIATIONS FROM THE ACCESS ROUTE ALIGNMENTS AND STAGING AREA CONFIGURATION FROM WHAT IS SHOWN HEREIN;
 - 11.2. FUELS/CHEMICAL STORAGE AREAS;
 - 11.3. MATERIALS/EQUIPMENT STAGING AREAS;
 - 11.4. EMPLOYEE PARKING AREAS; AND
 - 11.5. A PLAN FOR THE TEMPORARY STREAM CROSSINGS. THE GOAL OF THE STREAM CROSSINGS SHALL BE TO MINIMIZE DISTURBANCE TO THE STREAM BED AND BANKS, MAINTAIN SURFACE FLOW, PREVENT COMPACTION OF SOILS, AND PRESERVE THE STREAM MORPHOLOGY, SLOPE, AND NEARBY VEGETATION.

LEGEND:

- DISTURBANCE AREA
- CONSTRUCTION ACCESS ROUTE
- TEMPORARY STREAM CROSSING



OVERVIEW MAP AND ACCESS
AND STAGING PLAN
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

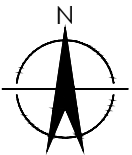
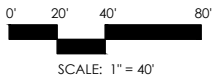
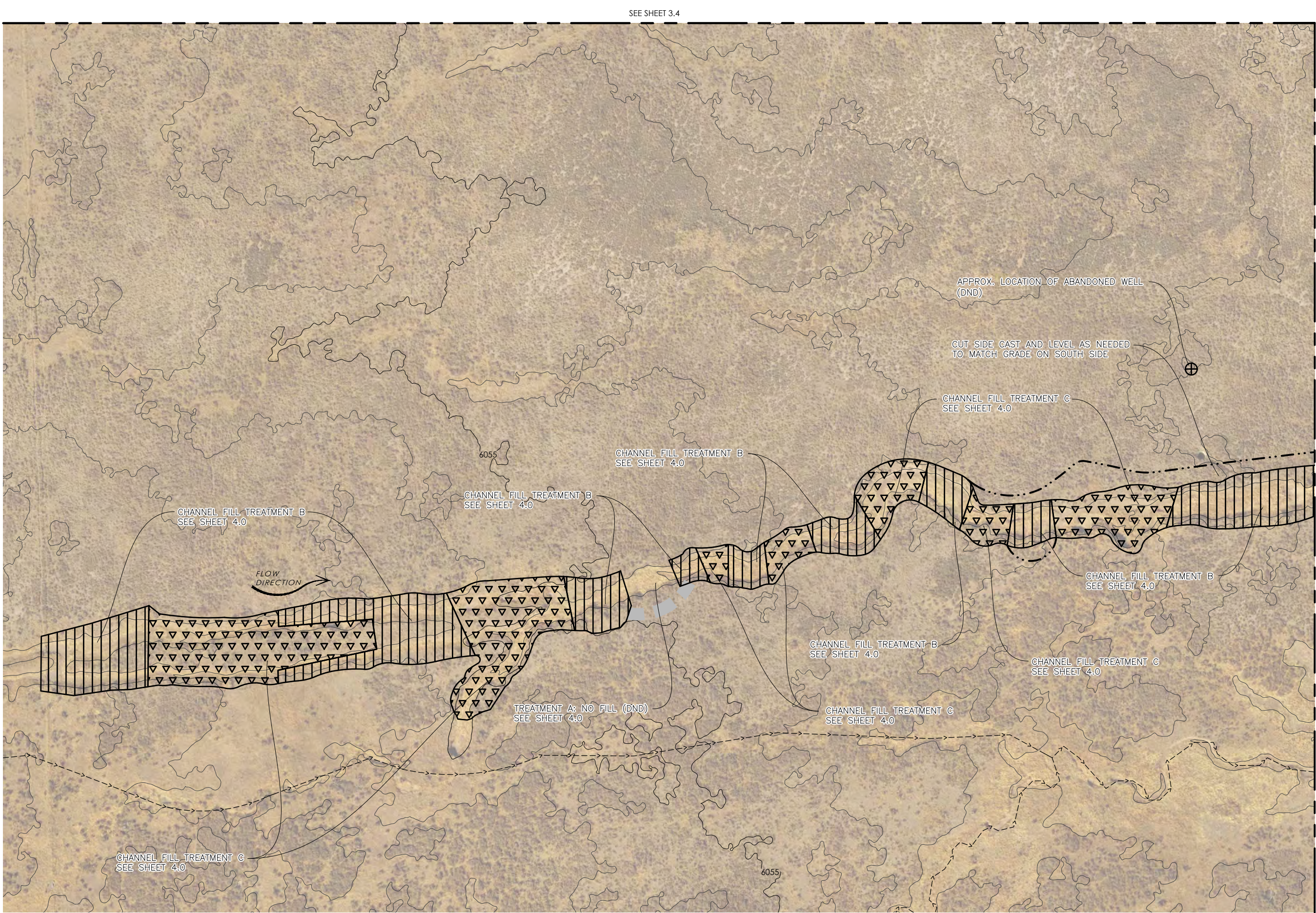
PROJECT NUMBER
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SCALE
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SHEET
3.0
4 OF 23



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HISTORICAL DITCH 1
RESTORATION PLAN

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
1" = 40'

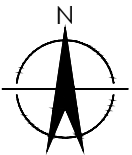
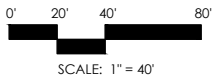
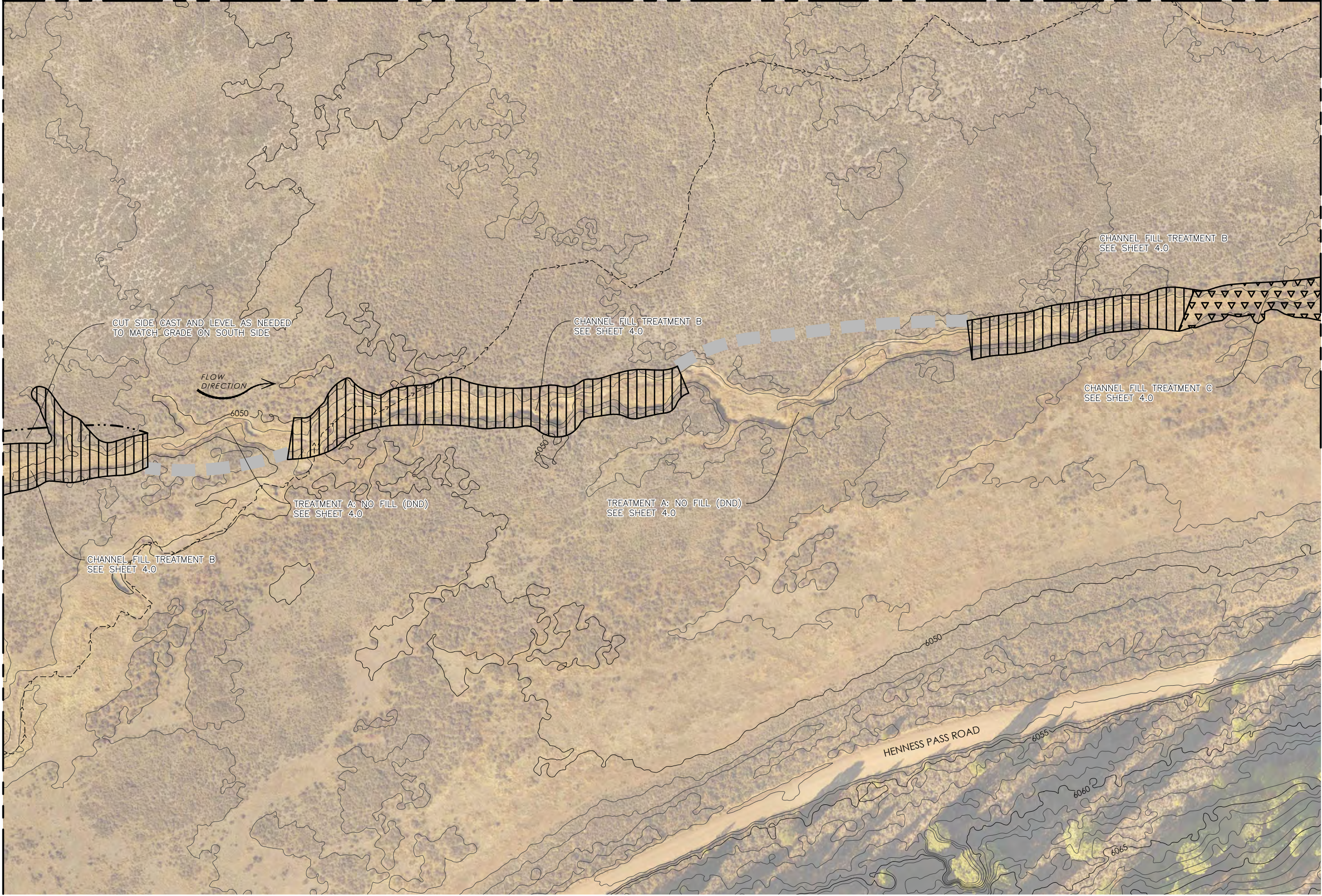
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**HISTORICAL DITCH 2
RESTORATION PLAN**

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
1" = 40'

SHEET
3.2
6 OF 23



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DATE	05-11-20		

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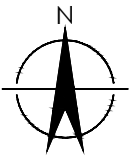
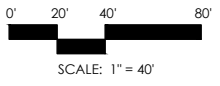
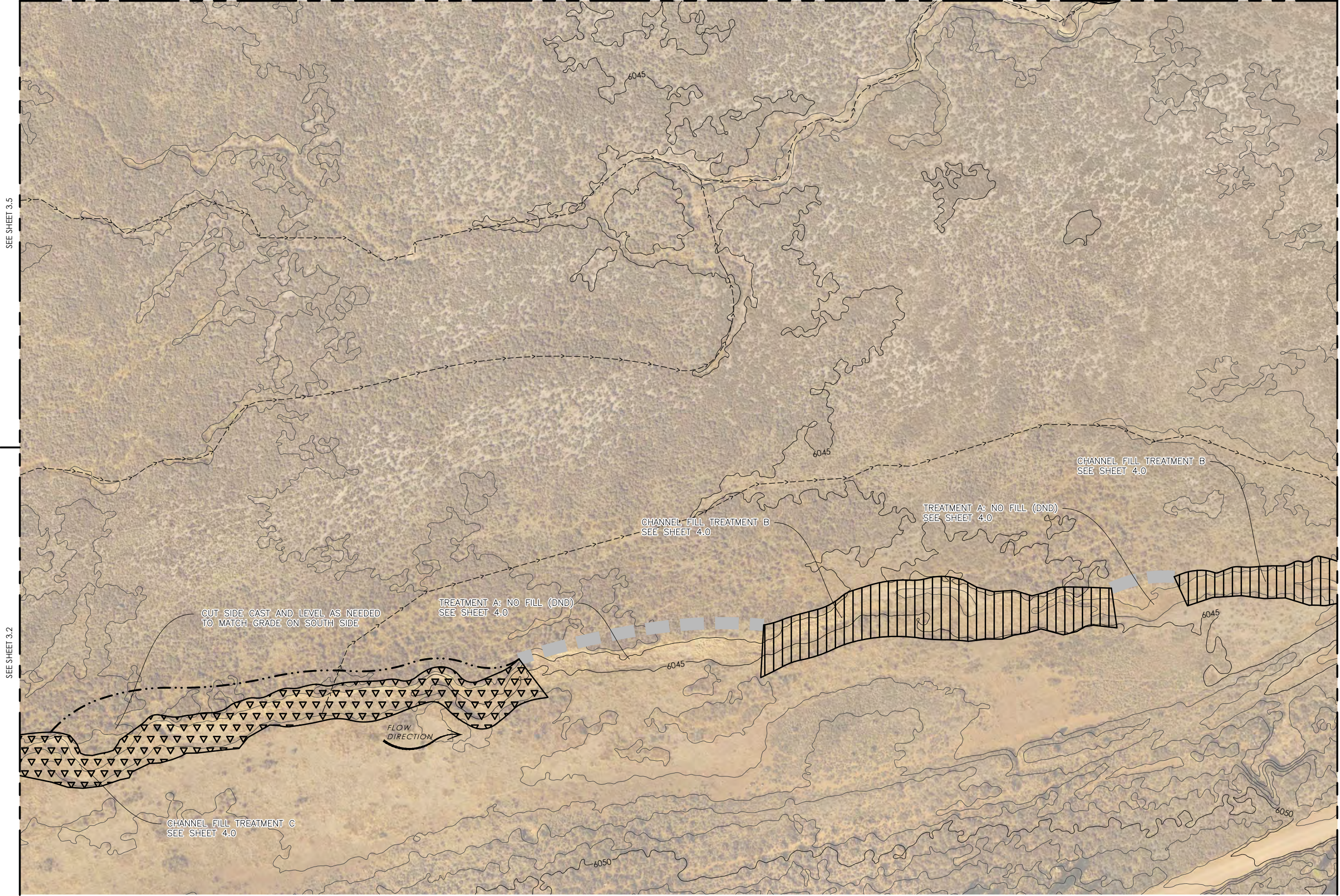
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**HISTORICAL DITCH 3
RESTORATION PLAN**

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
1" = 40'

SHEET
3.3
7 OF 23



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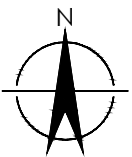
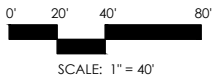
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SEE SHEET 3.5

SEE SHEET 3.1



RELICT CHANNEL 1
RESTORATION PLAN

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
1" = 40'
SHEET
3.4
8 OF 23

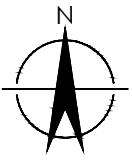
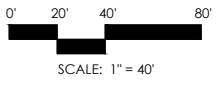


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RELICT CHANNEL 2
RESTORATION PLAN

SARDINE MEADOW RESTORATION PROJECT
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TRUCKEE RIVER WATERSHED COUNCIL

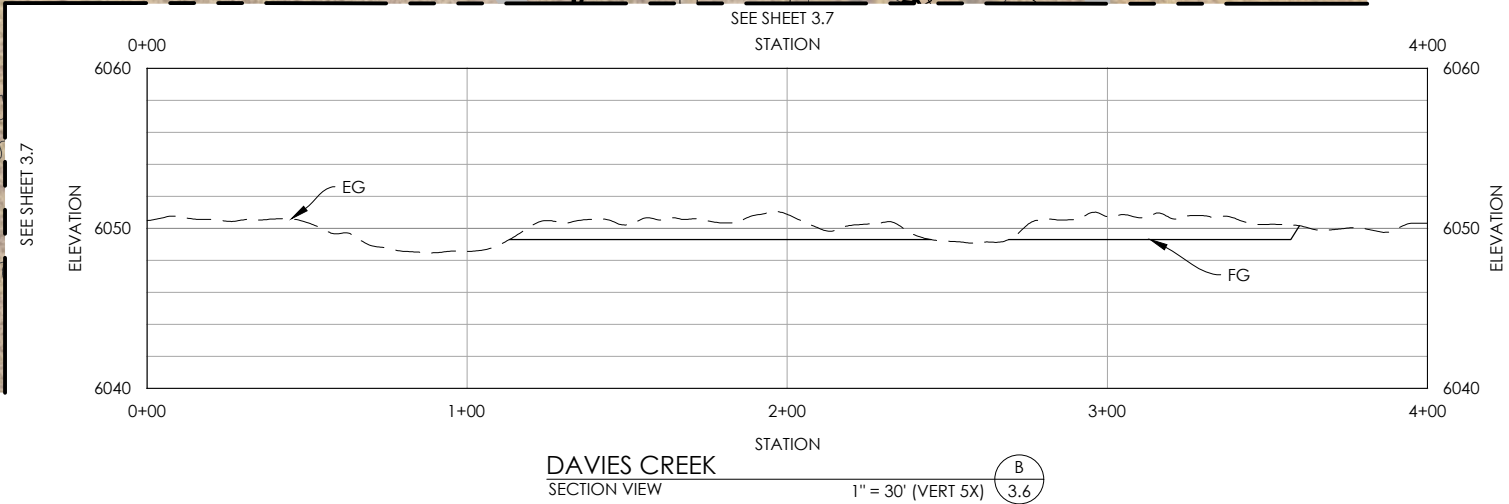
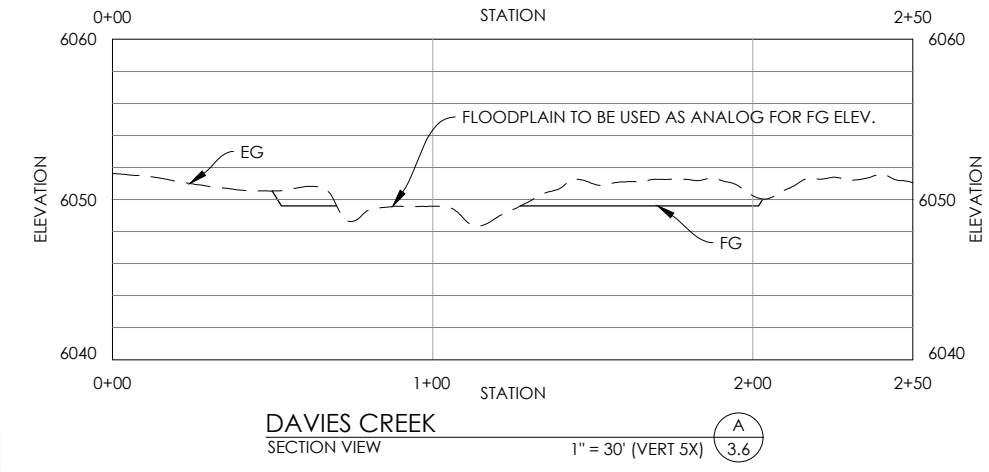
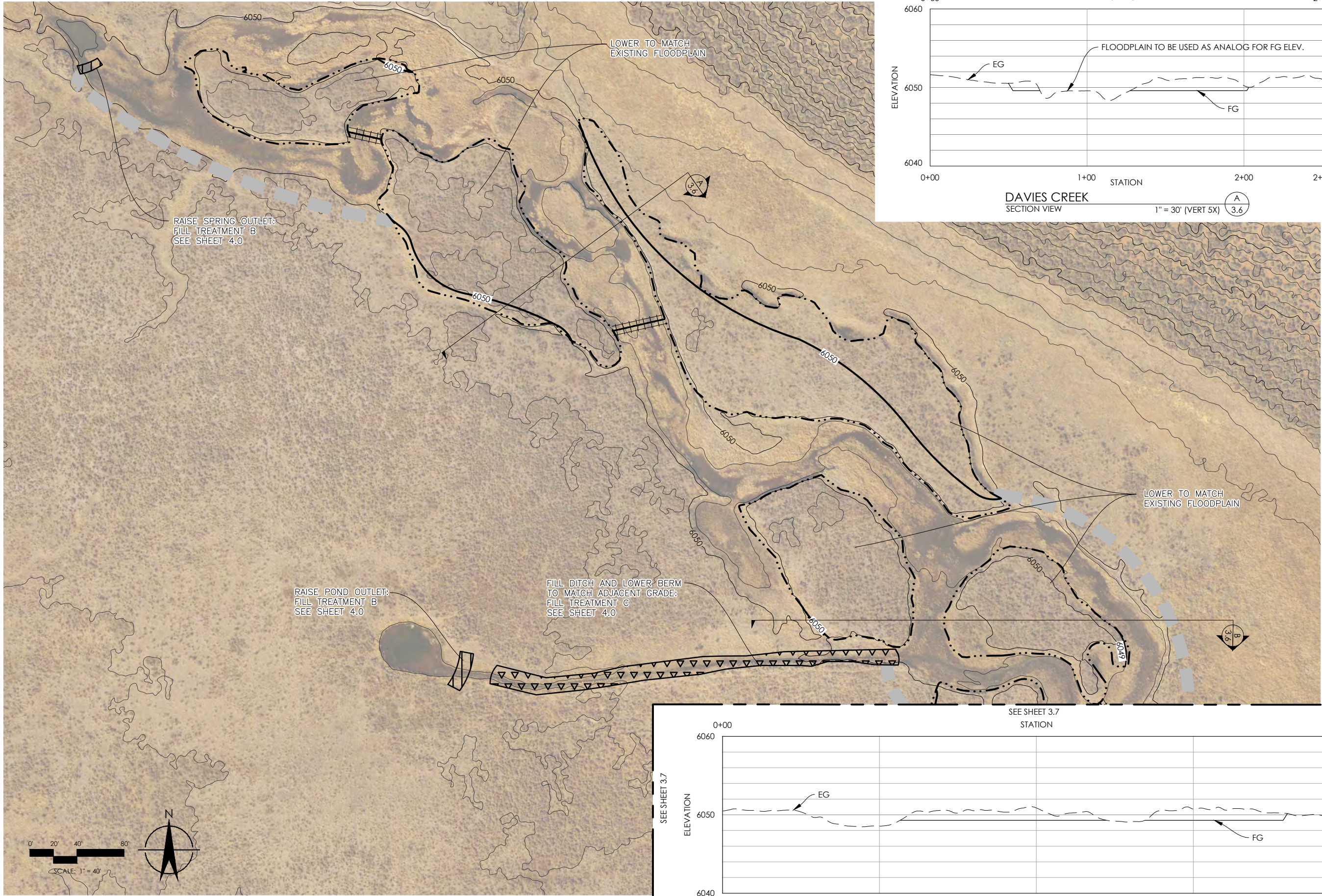
PROJECT NUMBER
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SCALE
1" = 40'

SHEET
3.5
9 OF 23



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DAVIES CREEK 1
RESTORATION PLAN

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
1" = 40'

SHEET

3.6

10 OF 23

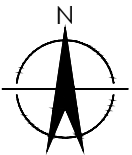
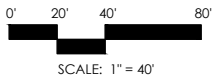


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**DAVIES CREEK 3
RESTORATION PLAN**

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
1" = 40'

SHEET
3.8
12 OF 23



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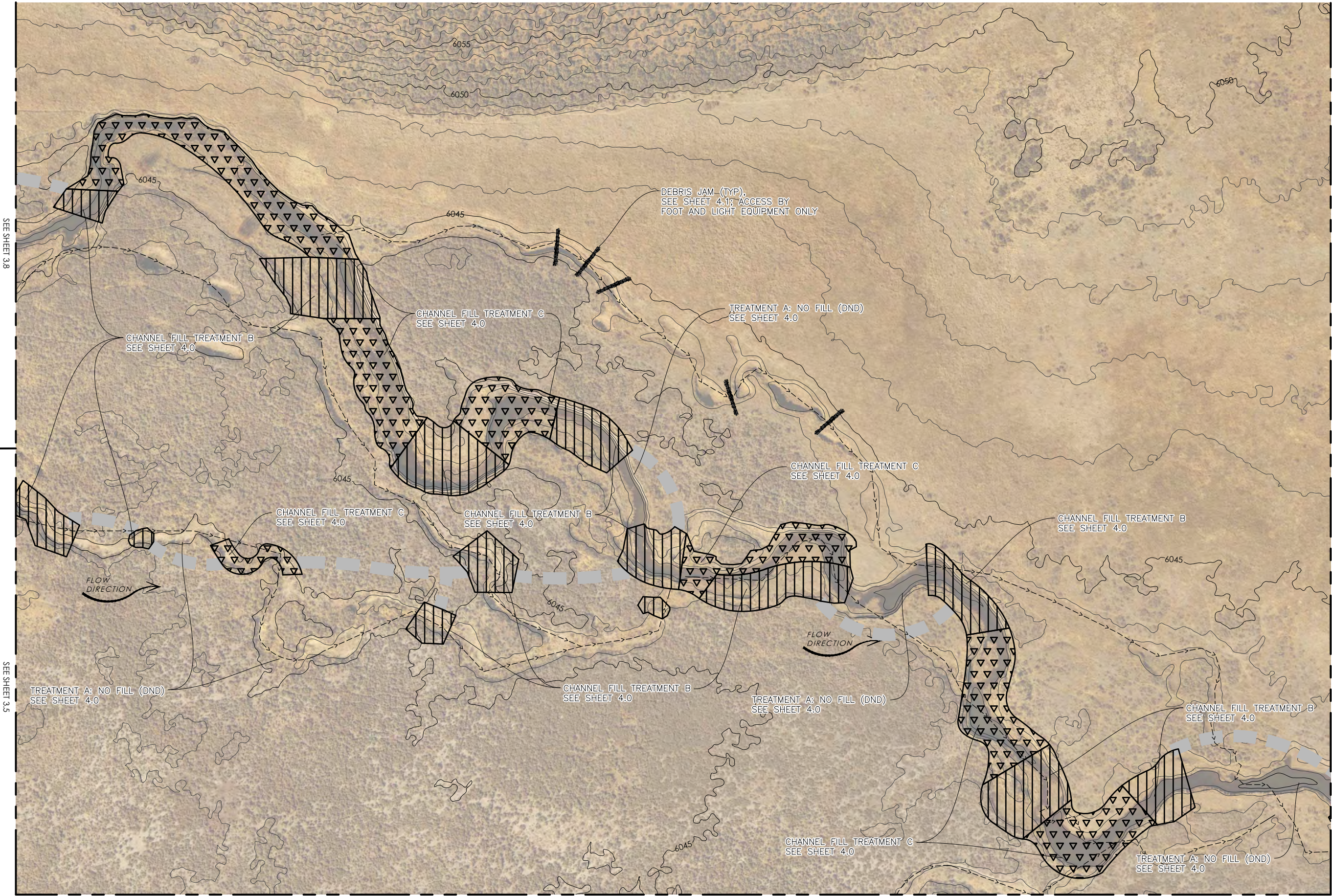
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DAVIES CREEK 4
RESTORATION PLAN
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TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
1" = 40'
SHEET
3.9
13 OF 23

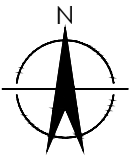
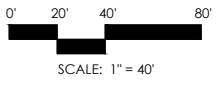
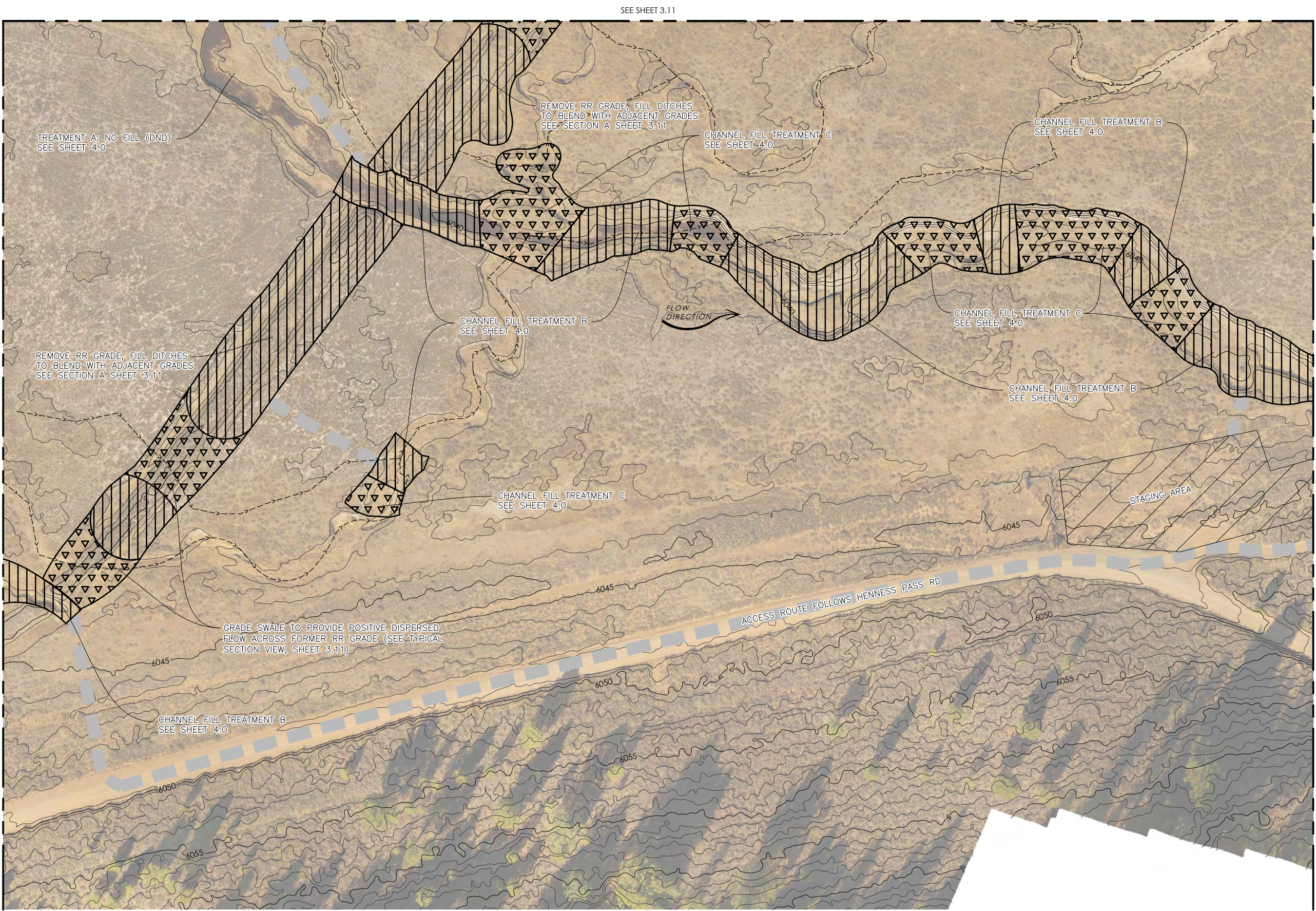


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SOUTHERN RAILROAD GRADE
RESTORATION PLAN
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
1" = 40'
SHEET

3.10
14 OF 23



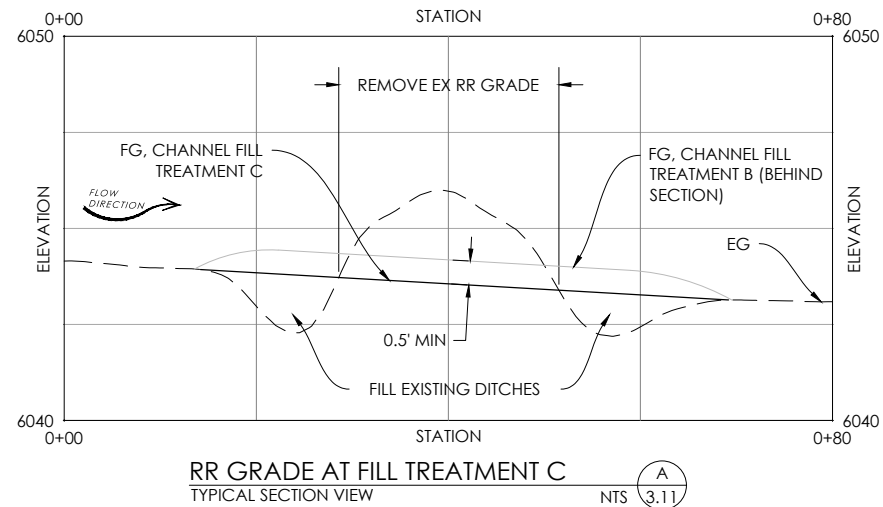
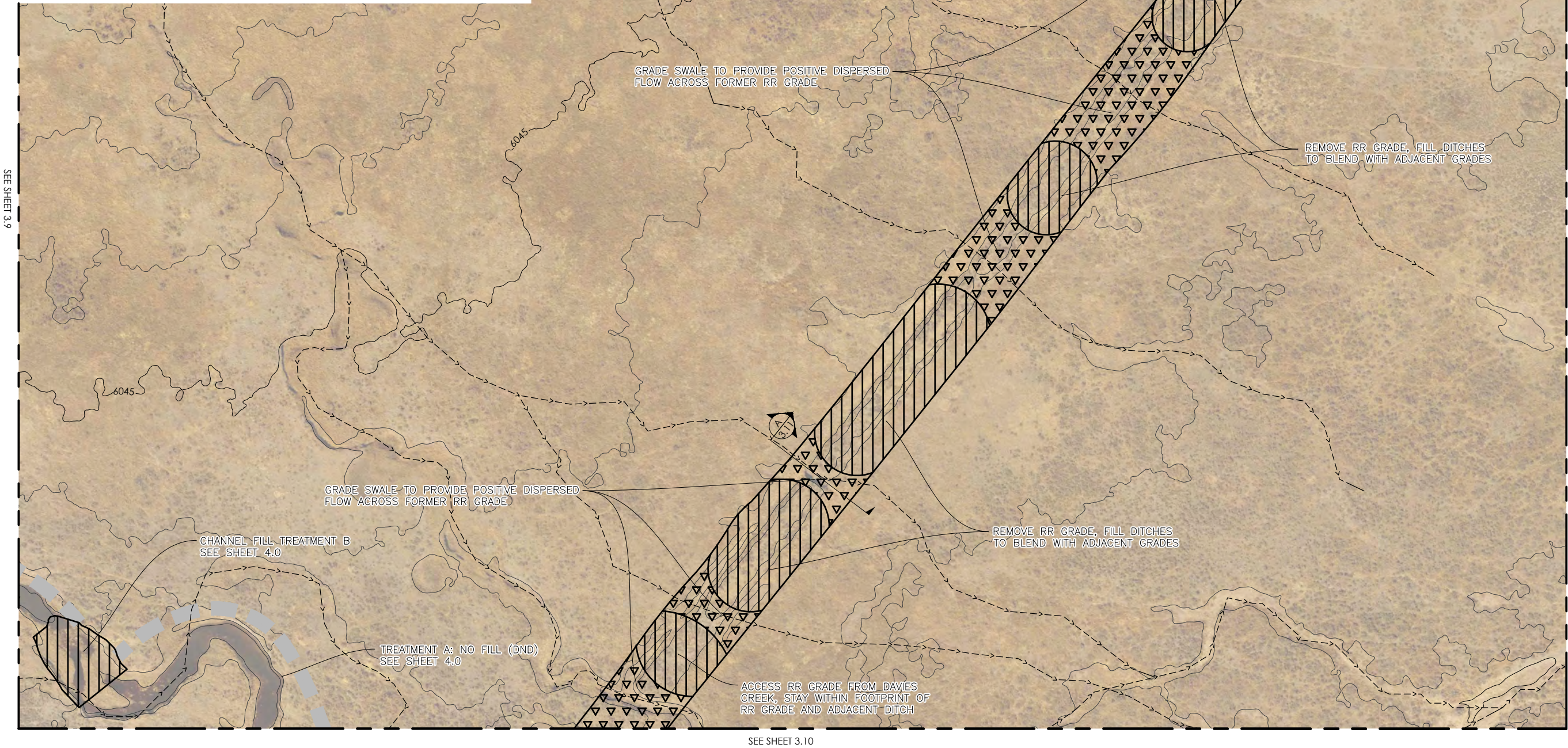
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NORTHERN RAILROAD GRADE
RESTORATION PLAN

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PROJECT NUMBER
219095

SCALE
1" = 40'

SHEET
3.11

15 OF 23

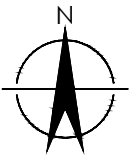
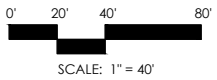
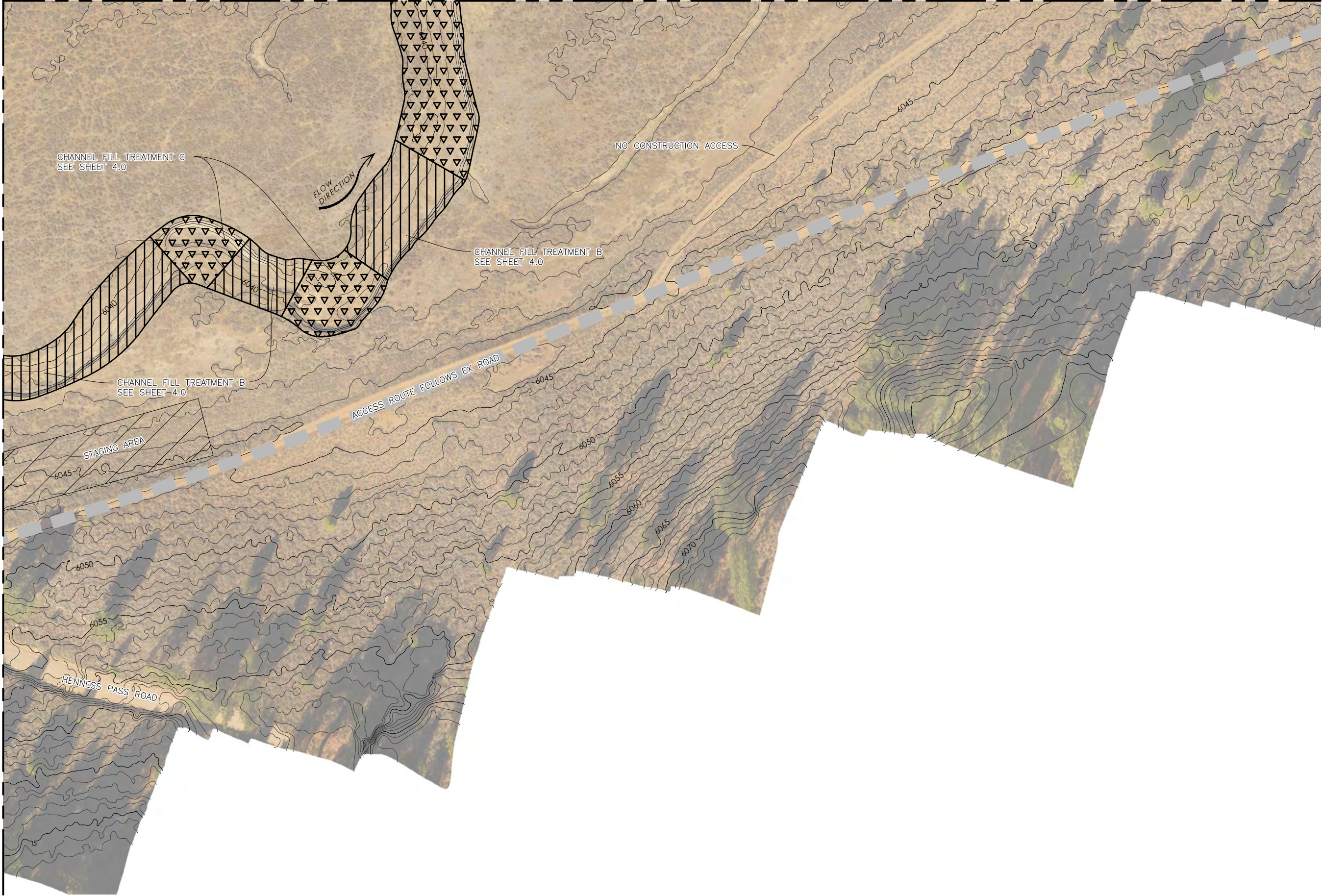


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DAVIES CREEK 5
RESTORATION PLAN

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

SCALE
1" = 40'

SHEET
3.12
16 OF 23



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DATE	05-11-20		

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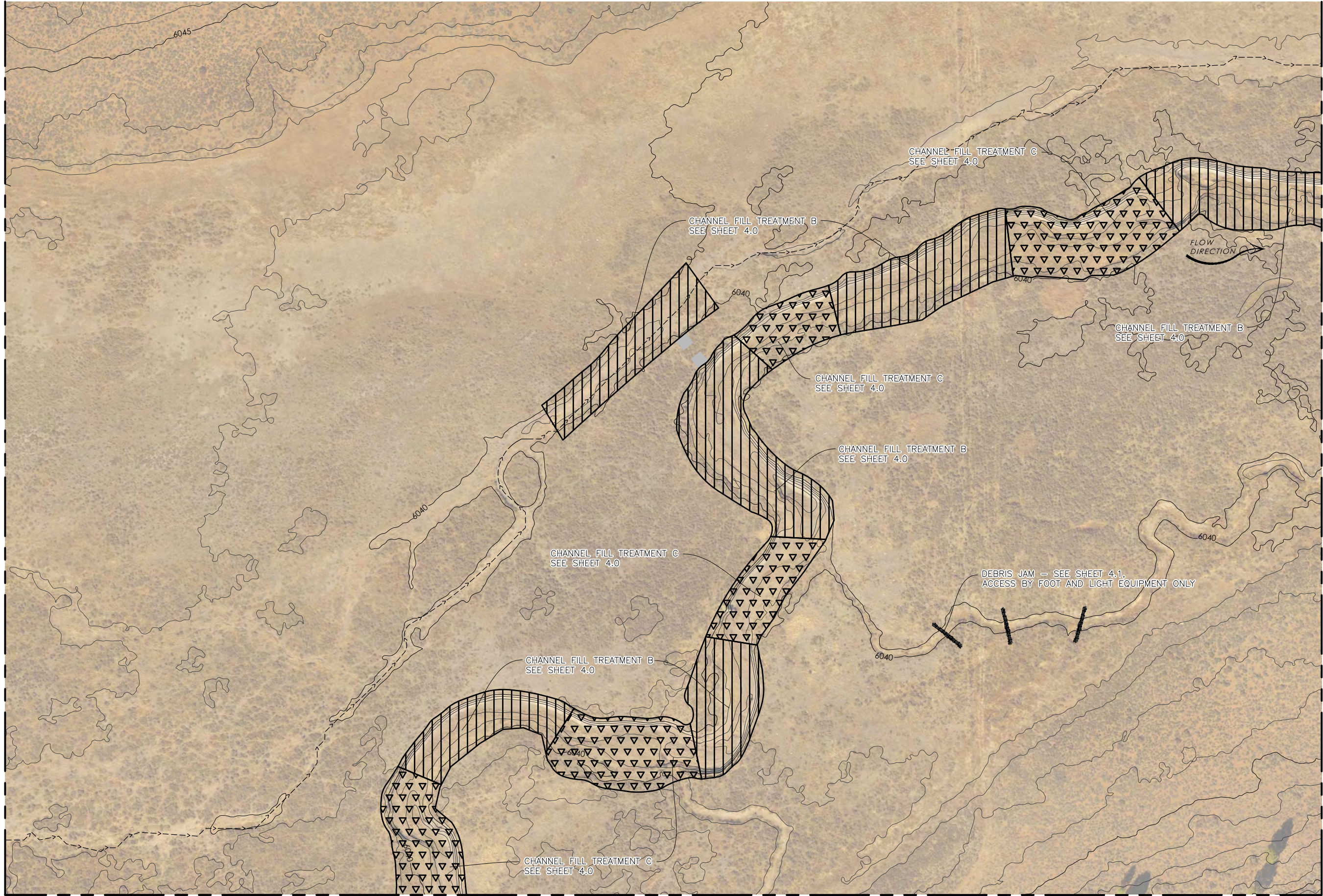
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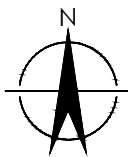
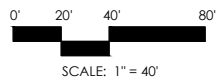
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DAVIES CREEK 6
RESTORATION PLAN

SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
1" = 40'
SHEET
3.13
17 OF 23



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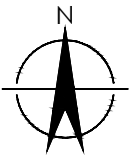
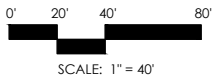
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SEE SHEET 3.15

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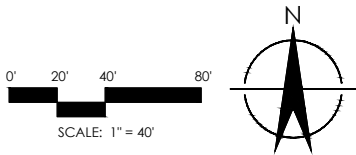
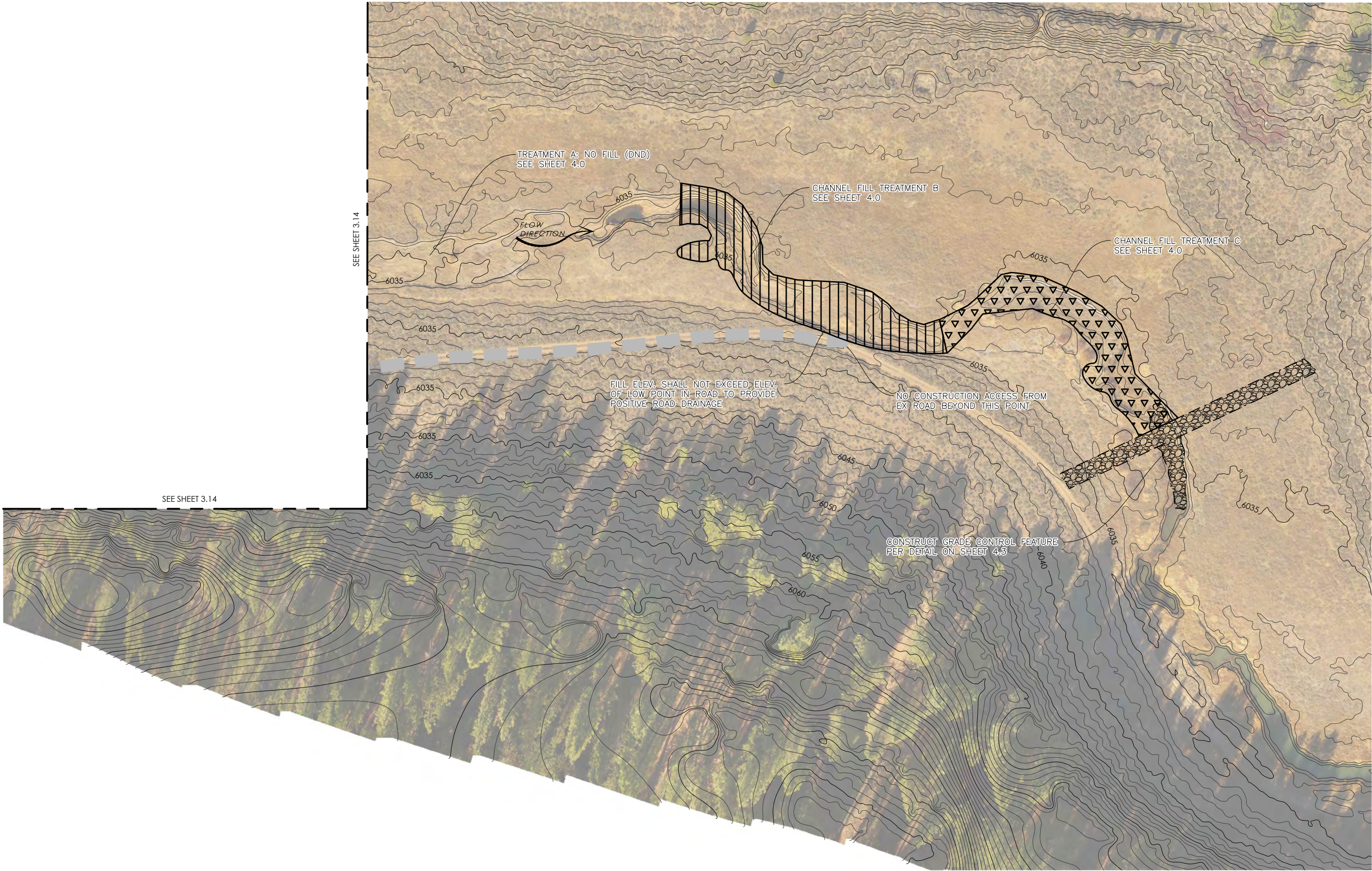
**DAVIES CREEK 7 AND
UPPER GRADE CONTROL RIFFLE**
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL



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DAVIES CREEK 8 AND
LOWER GRADE CONTROL RIFFLE
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
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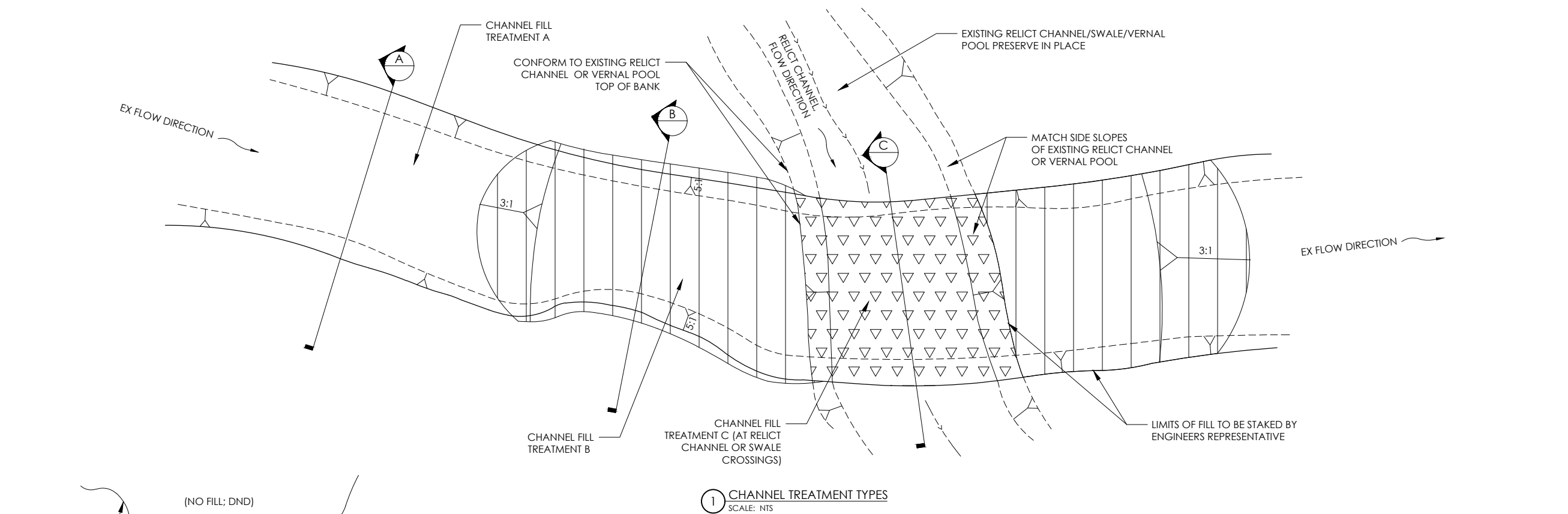
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SCALE
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SHEET
3.15
19 OF 23



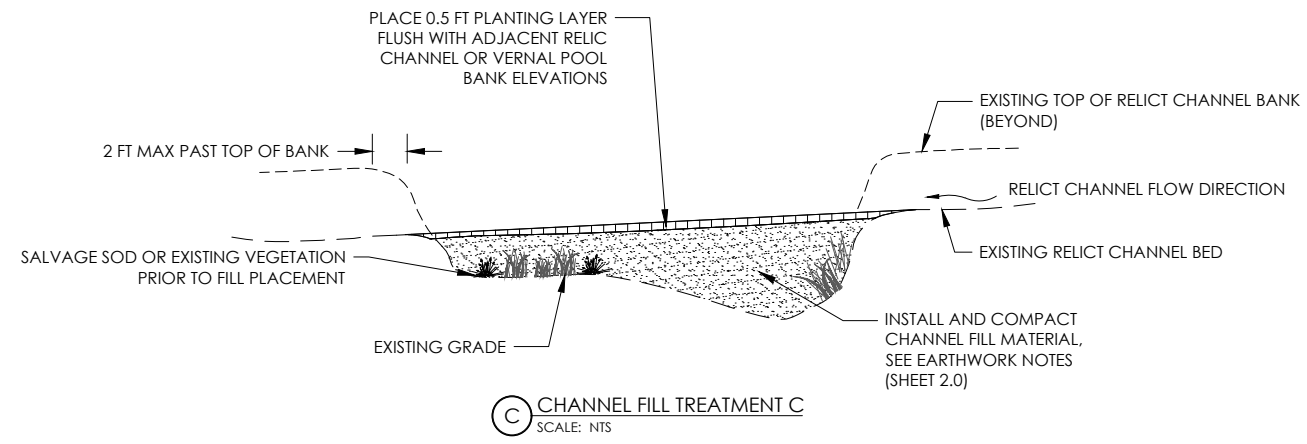
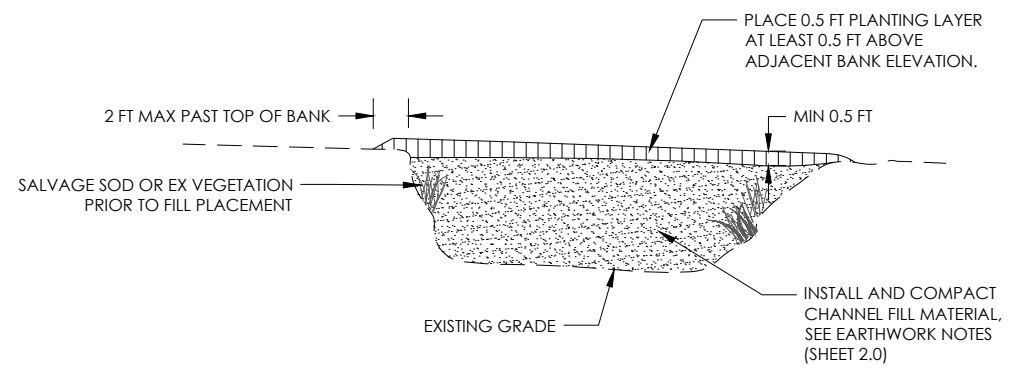
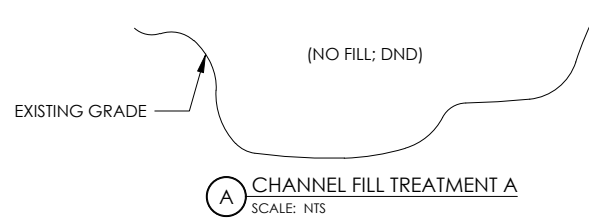
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1 CHANNEL TREATMENT TYPES
SCALE: NTS



NOTES:

1. LAYOUT OF TREATMENTS TO BE REFINED ACCORDING TO FIELD CONDITIONS AS PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE.
2. REFER TO THE REVEGETATION PLAN FOR DETAILS ON PLANTING TREATMENT AND SOD HARVEST/REUSE.



CHANNEL FILL
TREATMENT TYPICALS
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
AS NOTED
SHEET
4.0
20 OF 23

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PK			
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DEBRIS JAM NOTES:

1. GENERAL

1.1. CONSTRUCT DEBRIS JAMS AT THE LOCATIONS INDICATED ON THE DRAWINGS.

1.2. DEBRIS JAMS SHALL BE INSTALLED BY HAND WORK AND USING LIGHT EQUIPMENT ONLY. ACCESS TO THE DEBRIS JAMS SHALL BE BY FOOT AND LIGHT EQUIPMENT ONLY.

1.3. PURPOSE: THE DEBRIS JAMS ARE INTENDED TO RAISE WATER SURFACE ELEVATIONS IN ORDER TO ENCOURAGE DIFFUSE FLOW AND RAISE GROUNDWATER LEVELS.
2. MATERIALS

2.1. POSTS

2.1.1. POSTS SHALL HAVE A DIAMETER OF 3 TO 4 INCHES, AND LENGTHS OF 4 FEET. ONE END OF EACH POST SHALL BE SHARPENED TO A POINT. POSTS MAY REQUIRE TRIMMING AFTER INSTALLATION DEPENDING ON THE LOCATION.

2.1.2. ONE END OF POSTS SHALL BE A CLEAN SQUARE CUT. THE OPPOSITE END SHALL BE SHARPENED TO A POINT.

2.1.3. POSTS SHALL HAVE NO WEAKNESSES SUCH AS CRACKS AND SPLITS THROUGH MORE THAN 25 PERCENT OF THEIR DIAMETER.

2.1.4. POSTS MAY EITHER BE HARVESTED OR PRE-FABRICATED. THE CONTRACTOR SHALL COORDINATE WITH USFS TO IDENTIFY PREFERRED LOCATIONS FOR COLLECTING HARVESTED POSTS, IF USED.

2.1.4.1. HARVESTED POSTS SHALL BE CUT FROM BRANCHES OF LIVE WILLOW, ALDER, OR PINE; SHALL BE SOUND, FREE FROM ROT OR INFESTATION BY INSECTS, AND FREE OF ADHERED DIRT, LITTER, OR OTHER MATERIAL; AND SHALL BE GENERALLY STRAIGHT AND TRIMMED OF BRANCHES.

2.1.4.2. PRE-FABRICATED POSTS SHALL BE UNTREATED PINE, FIR, OR CEDAR, UNLESS OTHERWISE APPROVED BY THE ENGINEER'S REPRESENTATIVE.

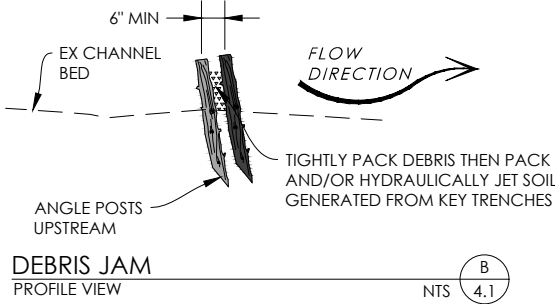
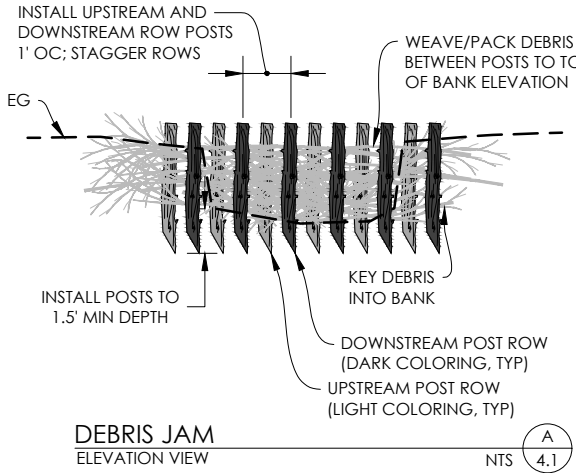
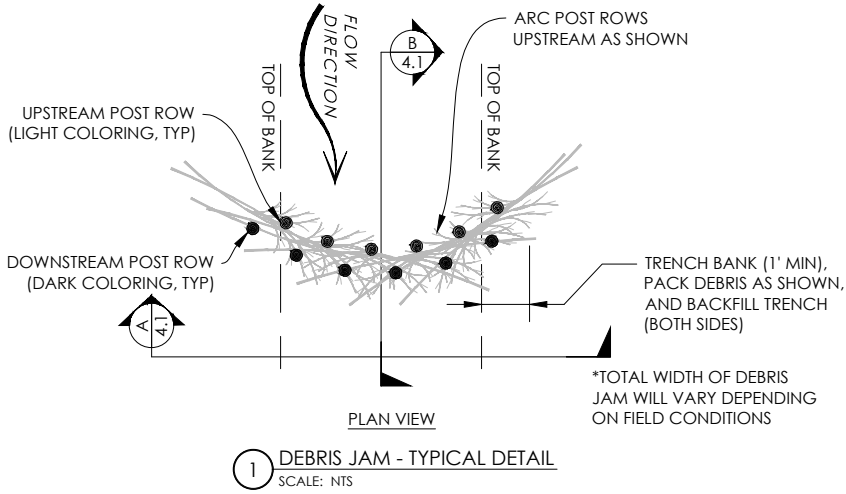
2.2. DEBRIS

2.2.1. DEBRIS SHALL CONSIST OF LIVE VEGETATION COLLECTED FROM CHANNEL FILL AREAS OR FROM POST HARVEST AREAS..

2.2.2. DEBRIS MAY CONSIST OF A VARIETY OF UPLAND OR WETLAND VEGETATION SPECIES, BUT MAY NOT CONTAIN NON-NATIVE VEGETATION.

2.2.3. MAINTAIN DEBRIS IN LARGE PIECES AFTER COLLECTION; DEBRIS MAY BE TRIMMED TO A SMALLER SIZE DURING INSTALLATION, AS SITE CONDITIONS NECESSITATE.

2.2.4. ALL LEAVES AND MINOR BRANCHES SHALL BE KEPT INTACT TO THE EXTENT PRACTICABLE.



3. EXECUTION

- 3.1. PRIOR TO INSTALLATION, THE ENGINEER'S REPRESENTATIVE SHALL FIELD IDENTIFY THE LOCATIONS OF THE ENDPOINTS FOR EACH STRUCTURE WHICH, IN TURN, WILL DICTATE THE FINAL ELEVATIONS AND LENGTH OF THE DEBRIS JAM.
- 3.2. EXCAVATE KEY TRENCHES IN BOTH BANKS TO EXTEND THE DEBRIS BEYOND THE ROWS OF DOWNSTREAM AND UPSTREAM POSTS. PRESERVE VEGETATION AND SOIL GENERATED WHILE EXCAVATING KEY TRENCHES.
- 3.3. POSTS SHALL BE DRIVEN INTO THE GROUND ANGLED IN THE UPSTREAM DIRECTION AND SHALL PENETRATE THE GROUND A MINIMUM DEPTH OF 1.5 FEET. PRE-DRILLING PILOT HOLES TO THE FULL OR PARTIAL BURIAL DEPTH OF POSTS MAY BE REQUIRED.
- 3.4. ONCE ALL POSTS HAVE BEEN INSTALLED, TIGHTLY PACK DEBRIS BETWEEN THE UPSTREAM AND DOWNSTREAM ROWS OF POSTS TO THE ELEVATIONS AND LOCATIONS SHOWN ON THE DRAWINGS. EXTEND THE DEBRIS INTO THE KEY TRENCHES TO AVOID FLANKING OF THE STRUCTURE BY WATER. THE TOP OF THE PACKED DEBRIS SHALL BE FLUSH WITH THE TOP OF BANKS.
- 3.5. PACK AND/OR HYDRAULICALLY JET MATERIAL GENERATED FROM KEY TRENCHES INTO THE PACKED DEBRIS.

DEBRIS JAM TYPICAL

SARDINE MEADOW RESTORATION PROJECT

SIERRA COUNTY, CALIFORNIA

TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095

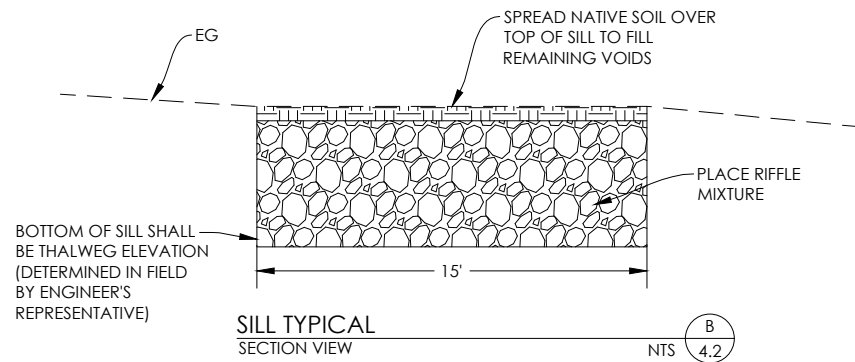
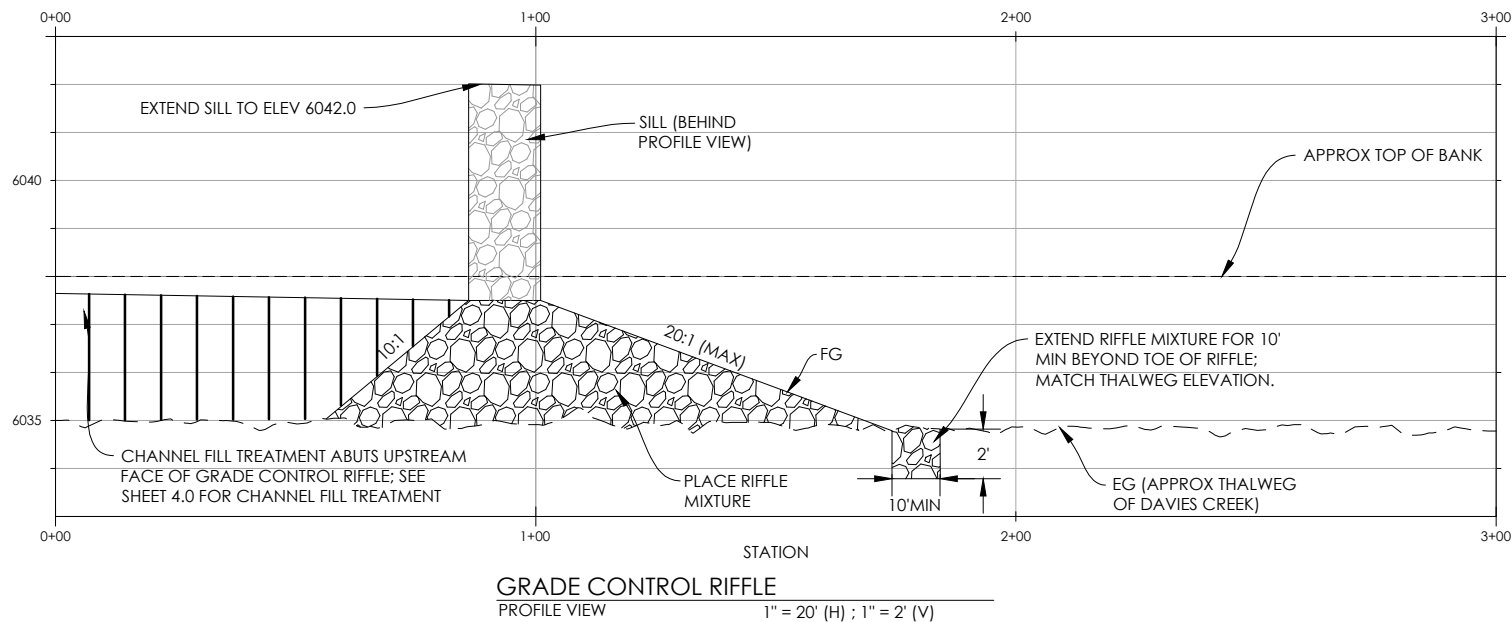
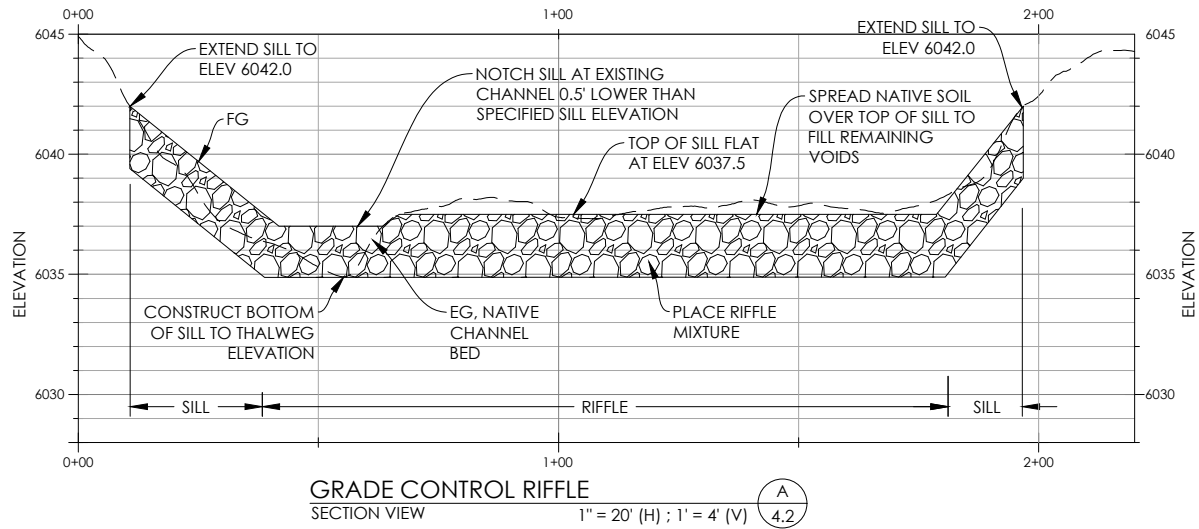
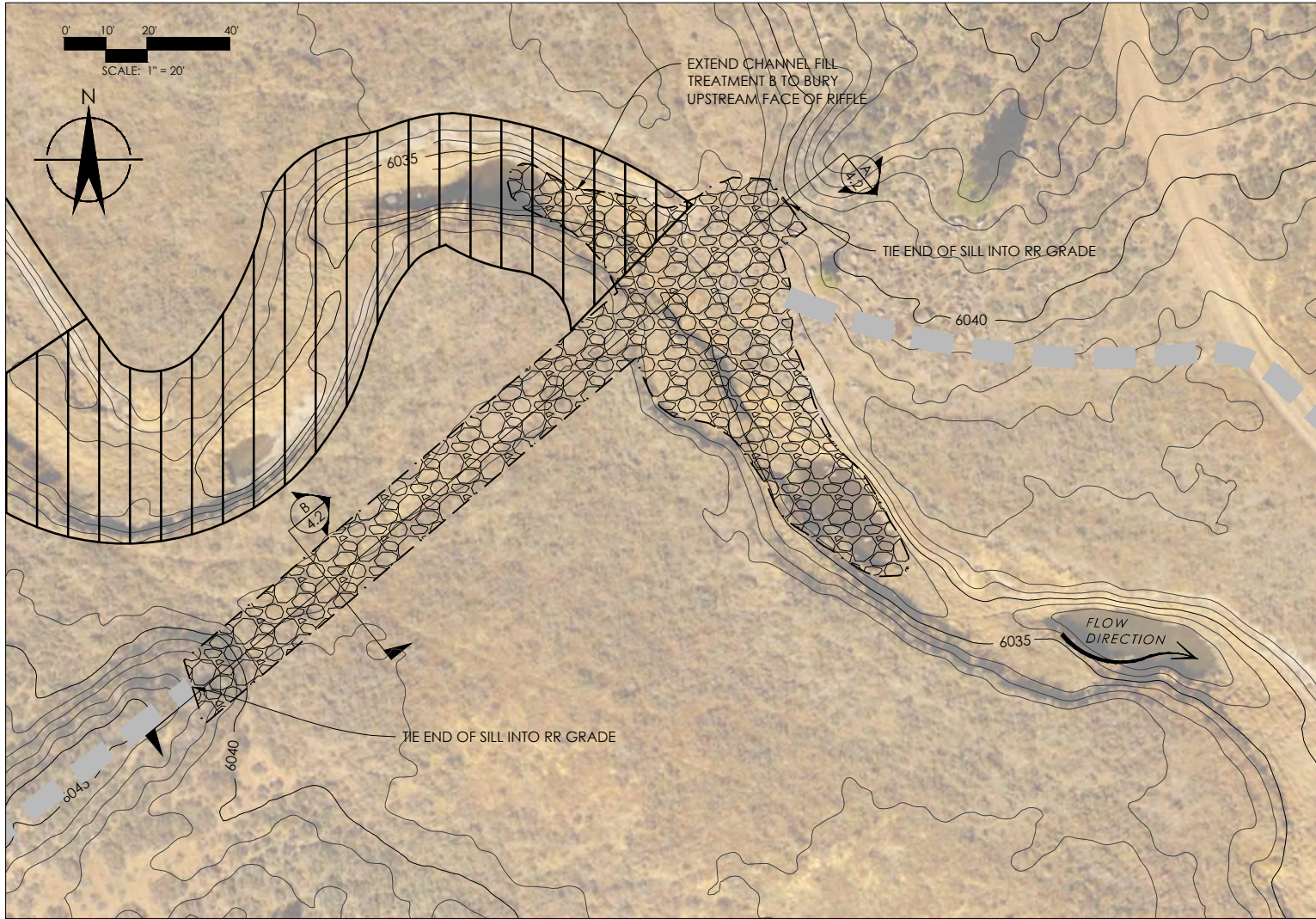
SCALE
AS NOTED

SHEET
4.1
21 OF 23



DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
DS	20191112	PR	INTERMEDIATE 65% DESIGN
PR	20200417	PR	INTERMEDIATE 90% DESIGN
EB	20200511	PR	100% DESIGN
IN CHARGE			
PK			
DATE	05-11-20		

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100% DESIGN

PREPARED FOR:

foriver
TRUCKEE RIVER WATERSHED COUNCIL

Balance Hydrologics, Inc.
P.O. Box 1077
12000 Highway 101
Truckee, CA 96161
Tel: (530) 550-9776
www.balancehydro.com

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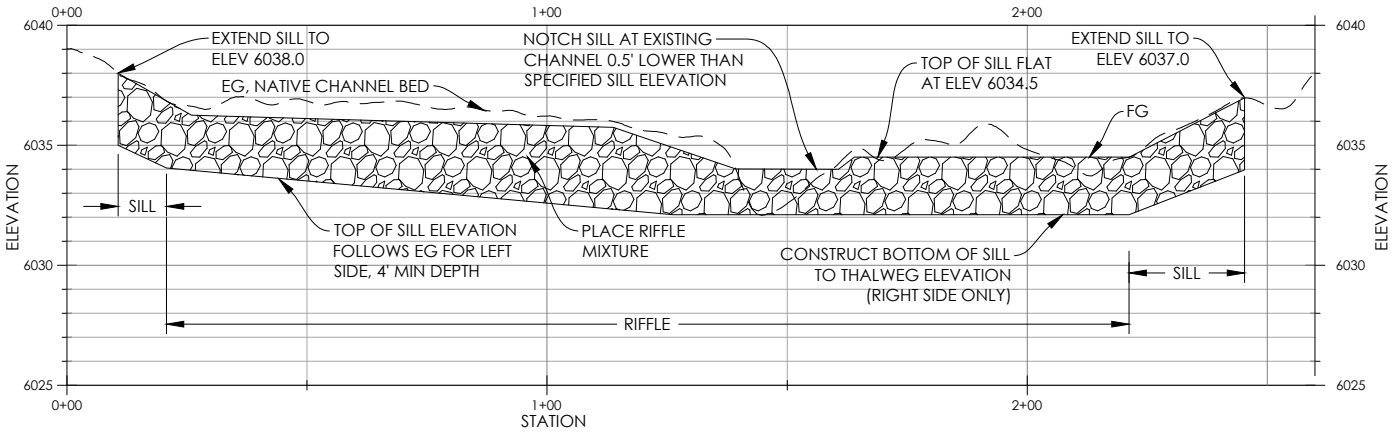
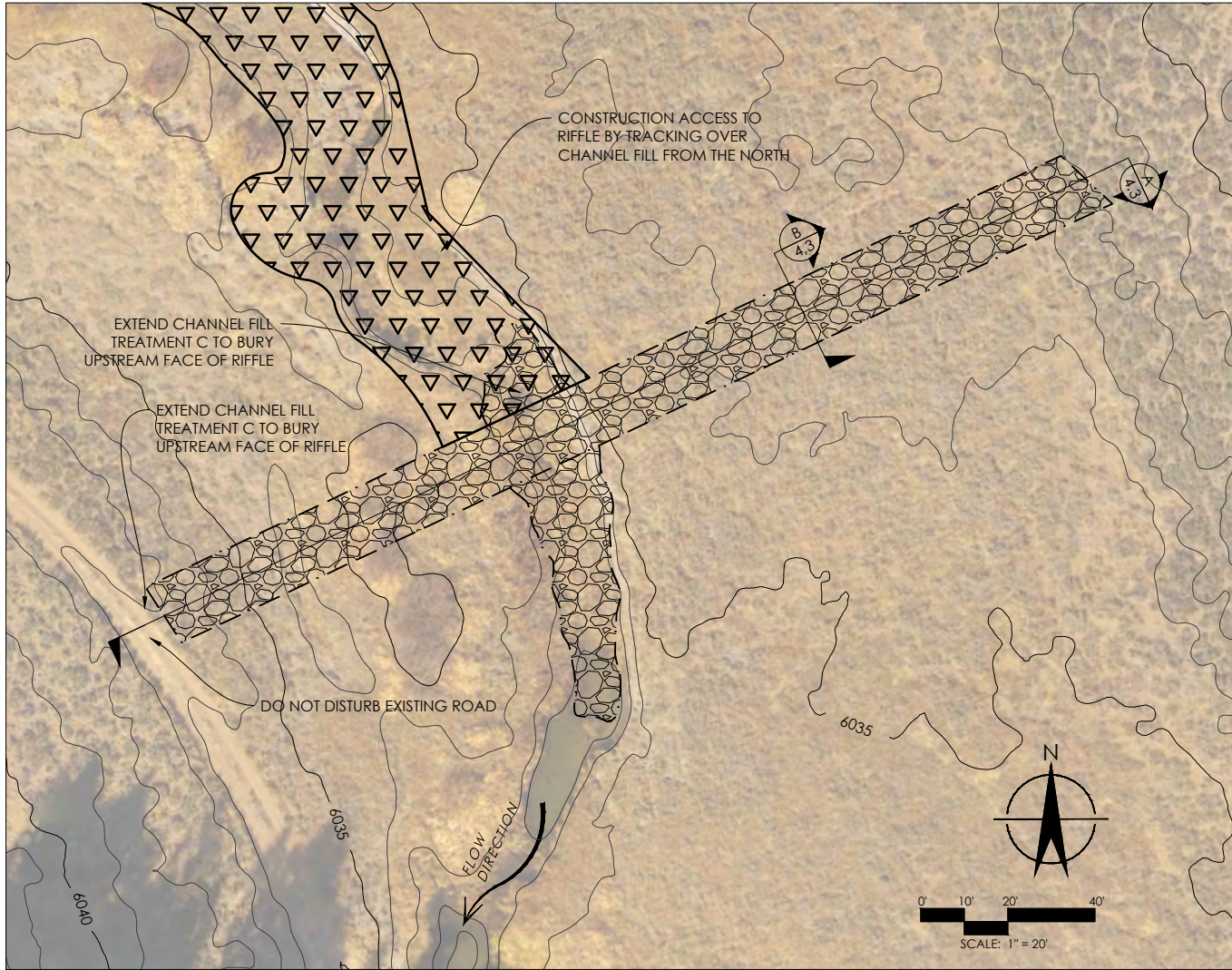


UPSTREAM GRADE
CONTROL DETAIL

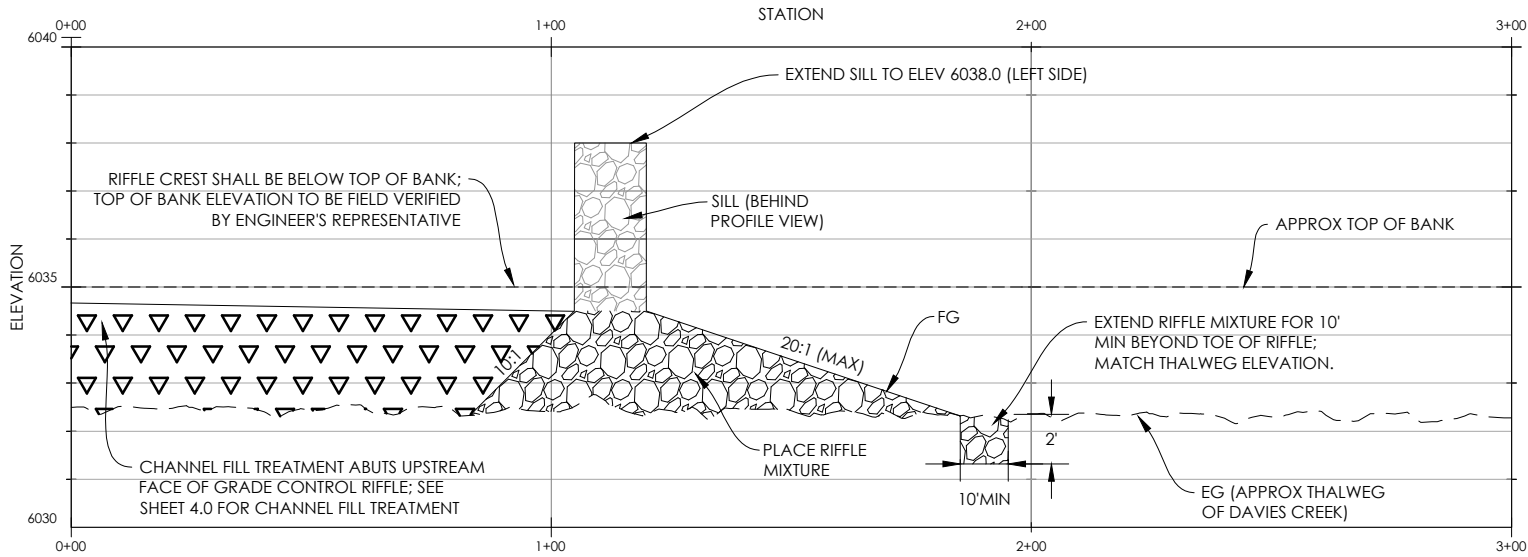
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER 219095
SCALE 1" = 20'
SHEET 4.2
22 OF 23

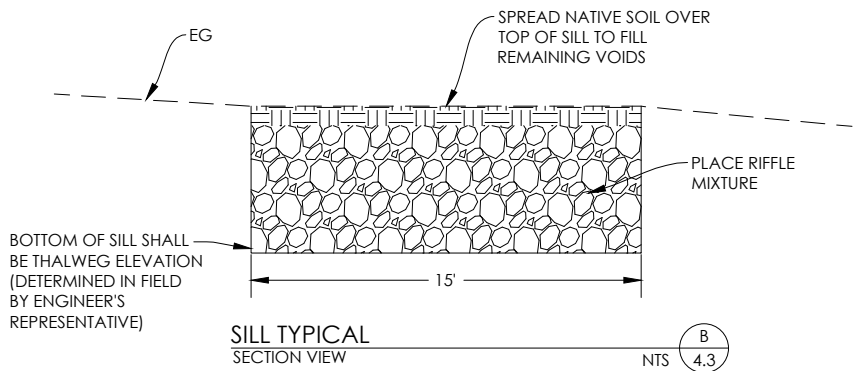
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GRADE CONTROL RIFFLE
SECTION VIEW
1" = 20' (H) ; 1" = 5' (V) A
4.3



GRADE CONTROL RIFFLE
PROFILE VIEW
1" = 20' (H) ; 1" = 2' (V)



DOWNSTREAM GRADE
CONTROL DETAIL
SARDINE MEADOW RESTORATION PROJECT
SIERRA COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
219095
SCALE
1" = 20'
SHEET

4.3

23 OF 23



DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
DS	20191112	PR	INTERMEDIATE 65% DESIGN
PR	20200417	PR	INTERMEDIATE 90% DESIGN
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