Squaw Creek Meadow Restoration

Katrina D. Smolen
Executive Director
Friends of Squaw Creek

PROJECT PARTNERS

NATIONAL FOREST FOUNDATION

TROUT UNLIMITED

DEPARTMENT OF WATER RESOURCES · STATE OF CALIFORNIA

COUNTY OF Placer

CALIFORNIA Water Boards

SUPPORTED BY TAHOE TRUCKEE COMMUNITY FOUNDATION

TAHOE RCD · WE DO CONSERVATION

POULSEN COMMERCIAL PROPERTIES

SQUAW VALLEY ALPINE MEADOWS

RESORT AT SQUAW CREEK™ SQUAW VALLEY

FRIENDS OF SQUAW CREEK

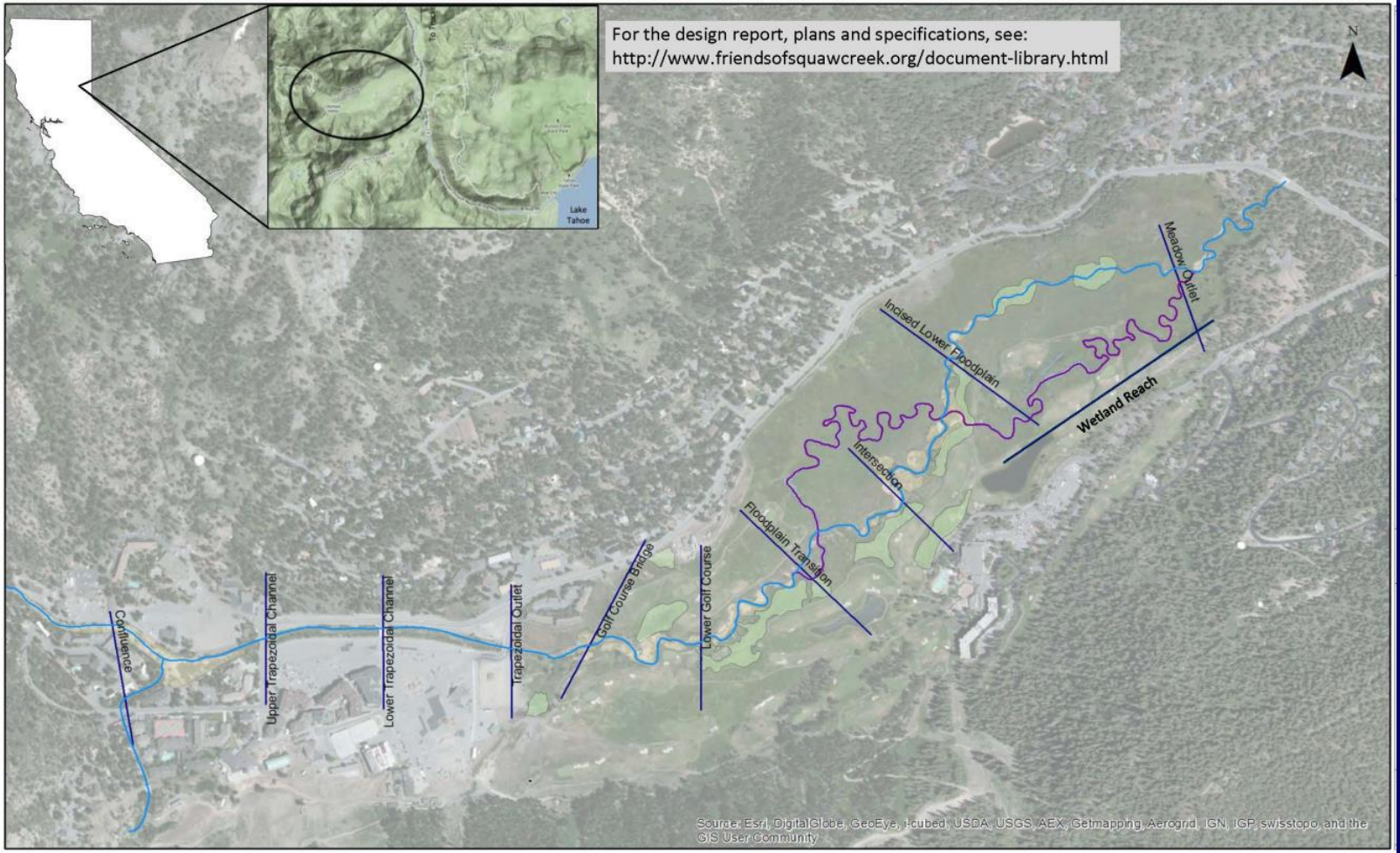
- 1992 - Squaw Creek 303d listing Impaired
- 2002– Friends of Squaw Creek Formation
- 2006No. R6T-2006-0017 Total Maximum Daily Load
- 2007-2013 Placer County Conceptual Plan
- 2017 – Implementation Grants (TU/FOSC)
- 2017-2020 Truckee River Day Projects

1939 vs 1992

1953

LEGACY IMPACTS

1962


For the design report, plans and specifications, see:
http://www.friendsofsquawcreek.org/document-library.html
N
Lake Tahoe
Meadow Outlet
Incised Lower Floodplain
Wetland Reach
Intersection
Floodplain Transition
Lower Golf Course
Golf Course Bridge
Trapezoidal Outlet
Lower Trapezoidal Channel
Upper Trapezoidal Channel
Confluence
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RESTORATION PURPOSE

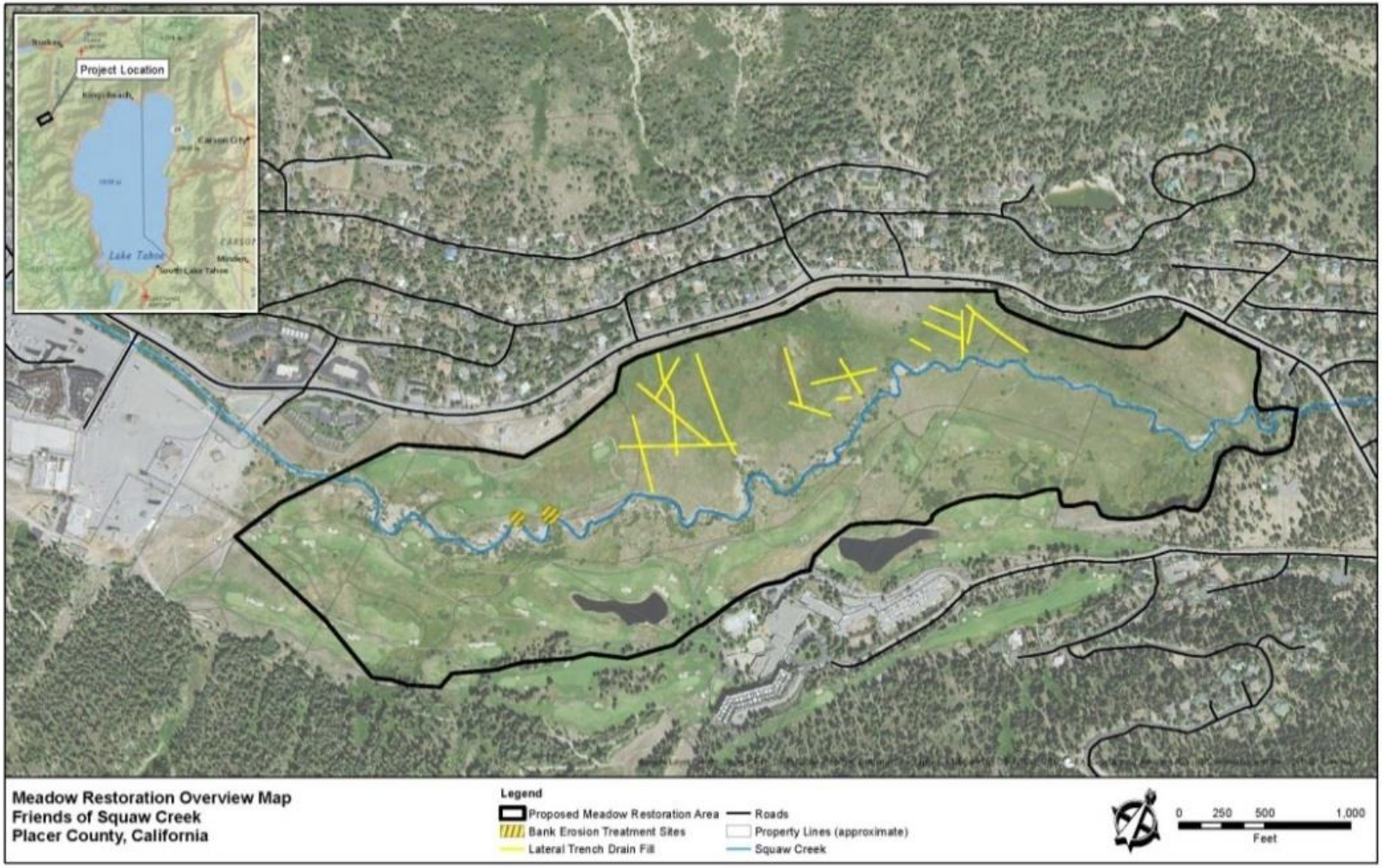
Goals

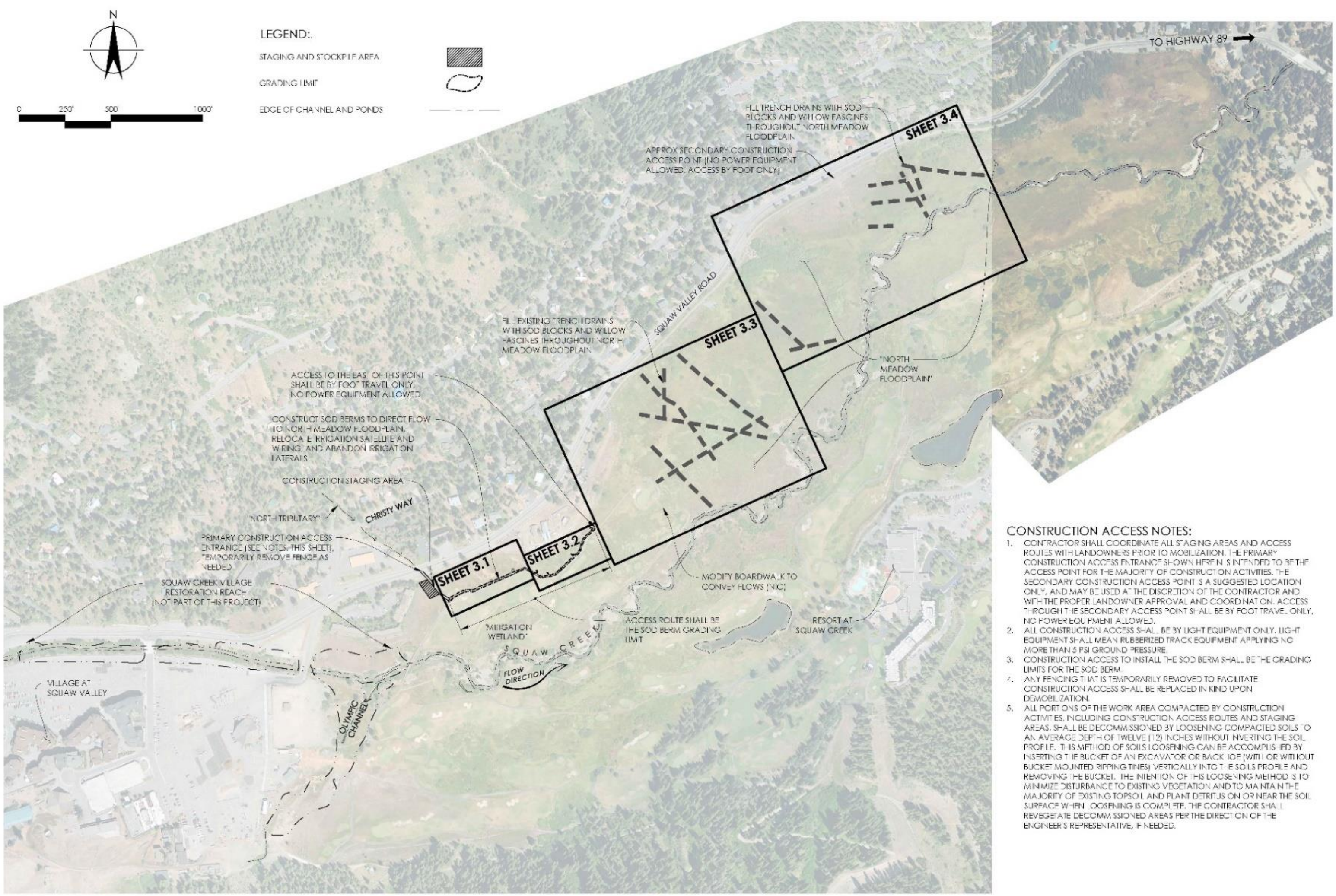
- Reduce Sediment
- Improve Aquatic and Riparian Habitat

Objectives

- Enhance meadow functions and floodplain connectivity;
- Maintain flood conveyance;
- Expand wetland areas;
- Alleviate bank erosion, excessive sediment, and water quality impairments through
- restoration of depositional processes and increased nutrient uptake;
- Improve aquatic habitat;
- Enhance groundwater recharge;
- Increase groundwater elevations and storage;
- Increase summer and fall

Squaw Creek
NORTH MEADOW FLOODPLAIN





CONSTRUCTION ACCESS NOTES:

1. CONTRACTOR SHALL COORDINATE ALL STAGING AREAS AND ACCESS ROUTES WITH LANDOWNERS PRIOR TO MOBILIZATION. THE PRIMARY CONSTRUCTION ACCESS ENTRANCE SHOWN HEREIN IS INTENDED TO BE THE ACCESS POINT FOR THE MAJORITY OF CONSTRUCTION ACTIVITIES. THE SECONDARY CONSTRUCTION ACCESS POINT IS A SUGGESTED LOCATION ONLY, AND MAY BE USED AT THE DISCRETION OF THE CONTRACTOR AND WITH THE PROPER LANDOWNER APPROVAL AND COORDINATION. ACCESS THROUGH THE SECONDARY ACCESS POINT SHALL BE BY FOOT TRAVEL ONLY, NO POWER EQUIPMENT ALLOWED.
2. ALL CONSTRUCTION ACCESS SHALL BE BY LIGHT EQUIPMENT ONLY. LIGHT EQUIPMENT SHALL MEAN RUBBERIZED TRACK EQUIPMENT APPLYING NO MORE THAN 5 PSI GROUND PRESSURE.
3. CONSTRUCTION ACCESS TO INSTALL THE SOD BERM SHALL BE THE GRADING LIMITS FOR THE SOD BERM.
4. ANY FENCING THAT IS TEMPORARILY REMOVED TO FACILITATE CONSTRUCTION ACCESS SHALL BE REPLACED IN KIND UPON DEMOBILIZATION.
5. ALL PORTIONS OF THE WORK AREA COMPACTED BY CONSTRUCTION ACTIVITIES, INCLUDING CONSTRUCTION ACCESS ROUTES AND STAGING AREAS, SHALL BE DECOMMISSIONED BY LOOSENING COMPACTED SOILS TO AN AVERAGE DEPTH OF TWELVE (12) INCHES WITHOUT INVERTING THE SOIL PROFILE. THIS METHOD OF SOILS LOOSENING CAN BE ACCOMPLISHED BY INSERTING THE BUCKET OF AN EXCAVATOR OR BACKHOE (WITH OR WITHOUT BUCKET MOUNTED RIPPING TINES) VERTICALLY INTO THE SOILS PROFILE AND REMOVING THE BUCKET. THE INTENTION OF THIS LOOSENING METHOD IS TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION AND TO MAINTAIN THE MAJORITY OF EXISTING TOPSOIL AND PLANT DETRITUS ON OR NEAR THE SOIL SURFACE WHEN LOOSENING IS COMPLETE. THE CONTRACTOR SHALL REVEGETATE DECOMMISSIONED AREAS PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE, IF NEEDED.

REVISED 80% DESIGN - NOT FOR CONSTRUCTION

Balance Hydrologics, Inc.
P.O. Box 1077
12020 Donner Pass Road
Truckee, CA 96161
tel and fax (530) 550-9776
www.balancehydro.com

DATE	BY	SUBMITTALS / REVISIONS
11/4/16	DS	CONCEPTUAL ALTERNATIVES
11/7/17	DS	PREFERRED ALTERNATIVE
1/5/18	DS	REVISED PREFERRED ALT.
5/4/18	PK	80% DESIGN
7/3/19	PK	REVISED 80% DESIGN

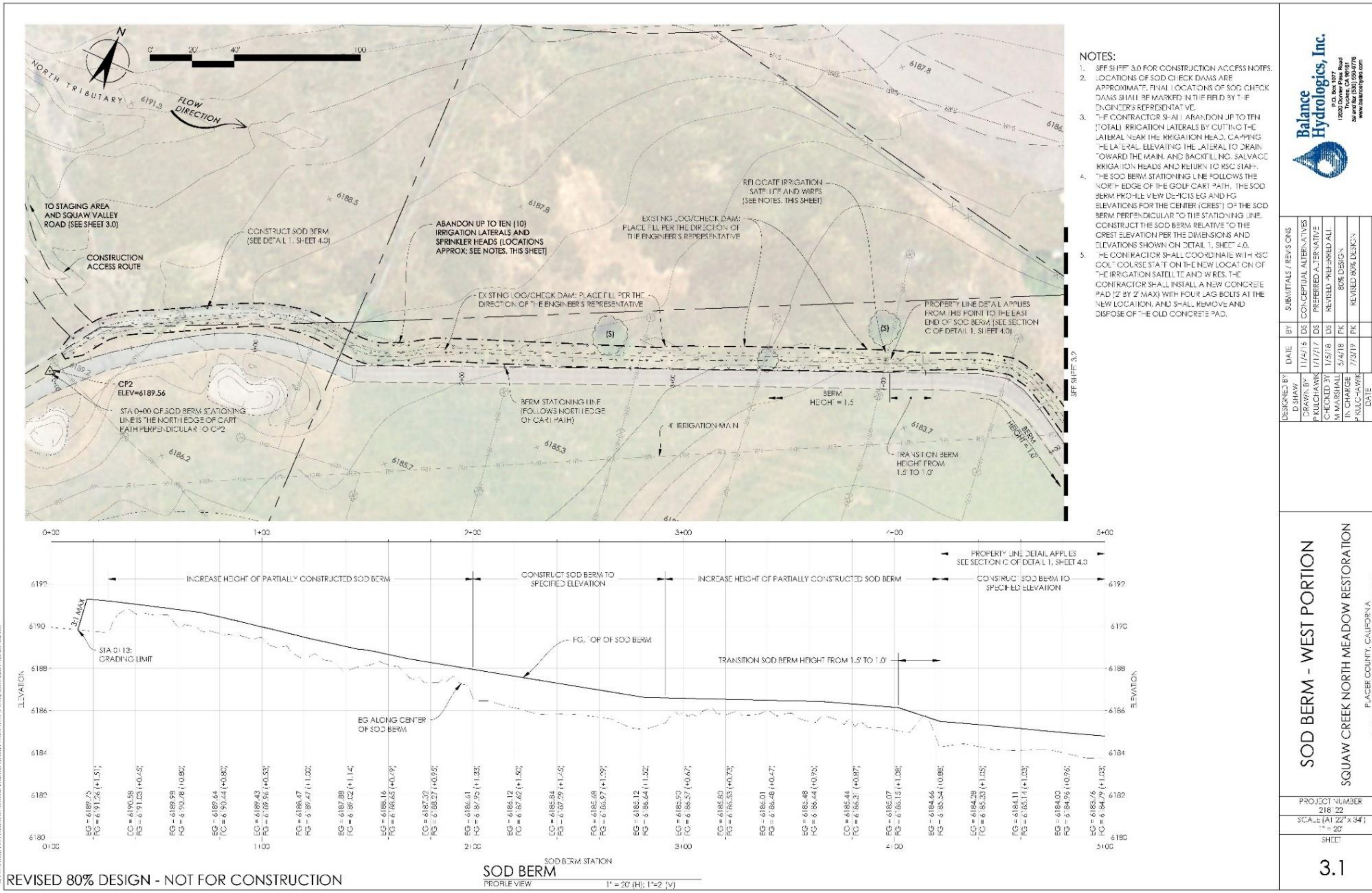
DESIGNED BY D SHAW
DRAWN BY P KULCHAWIK
CHECKED BY M MARSHALL
IN CHARGE P KULCHAWIK
DATE 7/3/19

OVERVIEW MAP AND CONSTRUCTION ACCESS PLAN

SQUAW CREEK NORTH MEADOW RESTORATION

PLACER COUNTY, CALIFORNIA
FRIENDS OF SQUAW CREEK / TROUT UNLIMITED

PROJECT NUMBER 218122
SCALE (AT 22"x 34") 1" = 250'
SHEET
3.0



NORTH TRIBUTARY
6191.3
FLOW DIRECTION
0' 20' 40' 100
TO STAGING AREA AND SQUAW VALLEY ROAD (SEE SHEET 3.0)
CONSTRUCTION ACCESS ROUTE
CONSTRUCT SOD BERM (SEE DETAIL 1, SHEET 4.0)
ABANDON UP TO TEN (10) IRRIGATION LATERALS AND SPRINKLER HEADS (LOCATIONS APPROX; SEE NOTES, THIS SHEET)
EXISTING LOG/CHECK DAM: PLACE FILL PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE
RELOCATE IRRIGATION SATELLITE AND WIRES (SEE NOTES, THIS SHEET)
PROPERTY LINE DETAIL APPLIES FROM THIS POINT TO THE EAST END OF SOD BERM (SEE SECTION C OF DETAIL 1, SHEET 4.0)
6188.5
6187.8
6187.8
(S)
(S)
CP2
ELEV=6189.56
STA 0+00 OF SOD BERM STATIONING LINE IS THE NORTH EDGE OF CART PATH PERPENDICULAR TO CP2
BERM STATIONING LINE (FOLLOWS NORTH EDGE OF CART PATH)
4" IRRIGATION MAIN
BERM HEIGHT = 1.5
BERM HEIGHT = 1.0'
TRANSITION BERM HEIGHT FROM 1.5' TO 1.0'
6189.2
6186.2
6185.7
6185.3
6183.7
SEE SHEET 3.2
NOTES:
1. SEE SHEET 3.0 FOR CONSTRUCTION ACCESS NOTES.
2. LOCATIONS OF SOD CHECK DAMS ARE APPROXIMATE. FINAL LOCATIONS OF SOD CHECK DAMS SHALL BE MARKED IN THE FIELD BY THE ENGINEER'S REPRESENTATIVE.
3. THE CONTRACTOR SHALL ABANDON UP TO TEN (TOTAL) IRRIGATION LATERALS BY CUTTING THE LATERAL NEAR THE IRRIGATION HEAD, CAPPING THE LATERAL, ELEVATING THE LATERAL TO DRAIN TOWARD THE MAIN, AND BACKFILLING. SALVAGE IRRIGATION HEADS AND RETURN TO RSC STAFF.
4. THE SOD BERM STATIONING LINE FOLLOWS THE NORTH EDGE OF THE GOLF CART PATH. THE SOD BERM PROFILE VIEW DEPICTS EG AND FG ELEVATIONS FOR THE CENTER (CREST) OF THE SOD BERM PERPENDICULAR TO THE STATIONING LINE. CONSTRUCT THE SOD BERM RELATIVE TO THE CREST ELEVATION PER THE DIMENSIONS AND ELEVATIONS SHOWN ON DETAIL 1, SHEET 4.0.
5. THE CONTRACTOR SHALL COORDINATE WITH RSC GOLF COURSE STAFF ON THE NEW LOCATION OF THE IRRIGATION SATELLITE AND WIRES. THE CONTRACTOR SHALL INSTALL A NEW CONCRETE PAD (2' BY 2' MAX) WITH FOUR LAG BOLTS AT THE NEW LOCATION, AND SHALL REMOVE AND DISPOSE OF THE OLD CONCRETE PAD.
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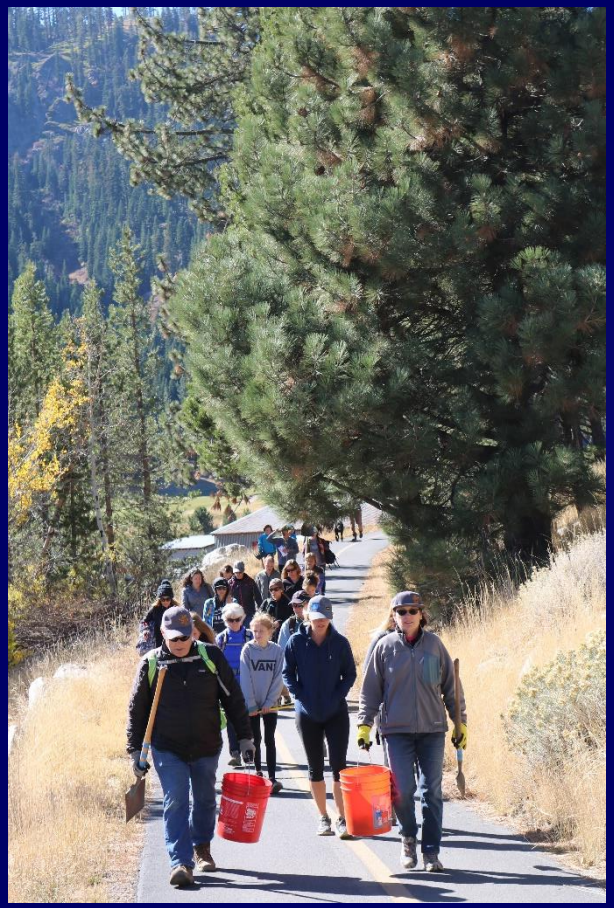
DESIGNED BY D SHAW
DRAWN BY P KULCHAWIK
CHECKED BY M MARSHALL
IN CHARGE P KULCHAWIK
DATE 7/3/19
0+00 1+00 2+00 3+00 4+00 5+00
INCREASE HEIGHT OF PARTIALLY CONSTRUCTED SOD BERM
CONSTRUCT SOD BERM TO SPECIFIED ELEVATION
INCREASE HEIGHT OF PARTIALLY CONSTRUCTED SOD BERM
PROPERTY LINE DETAIL APPLIES SEE SECTION C OF DETAIL 1, SHEET 4.0
CONSTRUCT SOD BERM TO SPECIFIED ELEVATION
3:1 MAX
STA 0+13: GRADING LIMIT
FG, TOP OF SOD BERM
TRANSITION SOD BERM HEIGHT FROM 1.5' TO 1.0'
EG ALONG CENTER OF SOD BERM
ELEVATION
6192 6190 6188 6186 6184 6182 6180
EG = 6189.75 FG = 6191.26 (+1.51)
EG = 6190.58 FG = 6191.03 (+0.45)
EG = 6189.98 FG = 6190.78 (+0.80)
EG = 6189.64 FG = 6190.44 (+0.80)
EG = 6189.43 FG = 6189.96 (+0.53)
EG = 6188.47 FG = 6189.47 (+1.00)
EG = 6187.88 FG = 6189.02 (+1.14)
EG = 6188.16 FG = 6188.65 (+0.49)
EG = 6187.32 FG = 6188.27 (+0.95)
EG = 6186.61 FG = 6187.95 (+1.33)
EG = 6186.12 FG = 6187.62 (+1.50)
EG = 6185.84 FG = 6187.29 (+1.45)
EG = 6185.68 FG = 6186.97 (+1.29)
EG = 6185.12 FG = 6186.64 (+1.52)
EG = 6185.90 FG = 6186.57 (+0.67)
EG = 6185.80 FG = 6186.53 (+0.73)
EG = 6186.01 FG = 6186.48 (+0.47)
EG = 6185.48 FG = 6186.44 (+0.95)
EG = 6185.44 FG = 6186.31 (+0.87)
EG = 6185.07 FG = 6186.15 (+1.08)
EG = 6184.66 FG = 6185.54 (+0.88)
EG = 6184.28 FG = 6185.33 (+1.05)
EG = 6184.11 FG = 6185.14 (+1.03)
EG = 6184.00 FG = 6184.96 (+0.96)
EG = 6183.76 FG = 6184.79 (+1.03)
SOD BERM STATION
SOD BERM
PROFILE VIEW 1" = 20' (H); 1"=2' (V)
REVISED 80% DESIGN - NOT FOR CONSTRUCTION
SOD BERM - WEST PORTION
SQUAW CREEK NORTH MEADOW RESTORATION
PLACER COUNTY, CALIFORNIA
FRIENDS OF SQUAW CREEK / TROUT UNLIMITED
PROJECT NUMBER 218122
SCALE (AT 22" x 34") 1" = 20'
SHEET 3.1

2018 SITE PREPARATION
COUNTY CULVERT MAINTENANCE

CART PATH BERM

HYDRO RESTORATION 2020

TRUCKEE RIVER DAY

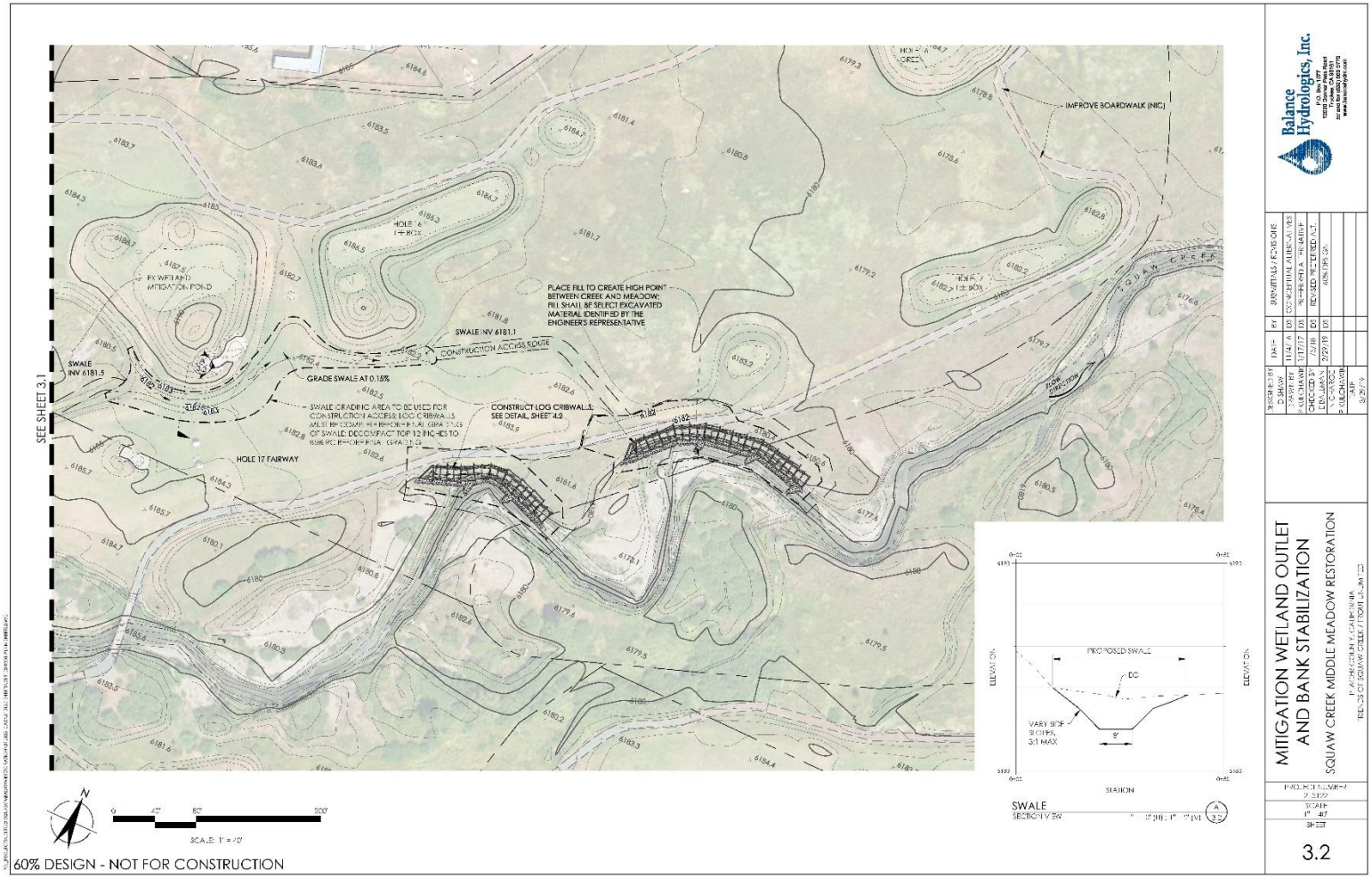



HYDRO RESTORATION 2019

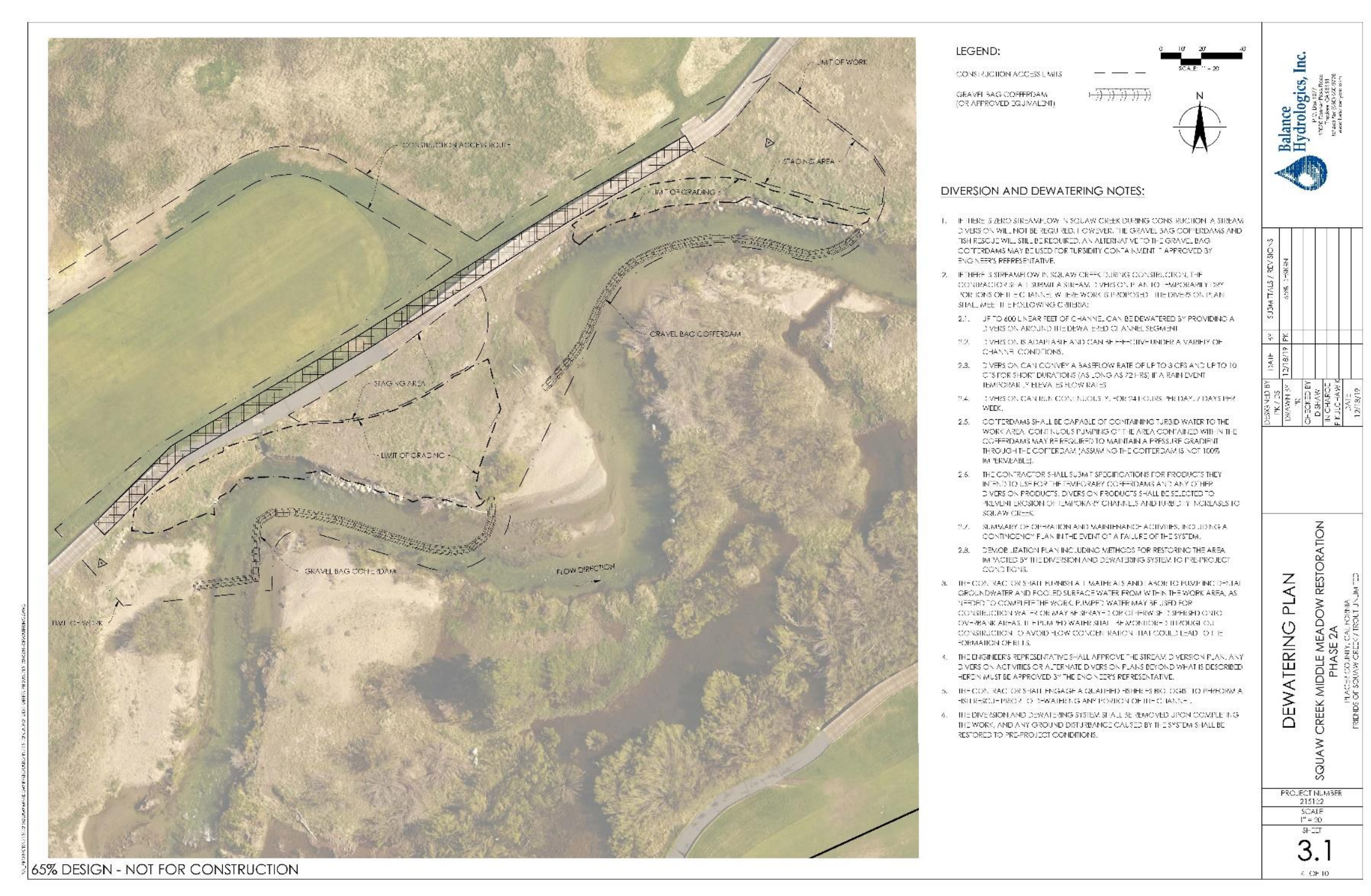

HYDRO RESTORATION 2019

BANK STABILIZATION

PHASE 2: BANK STABILIZATION



PHASE 2: BANK STABILIZATION



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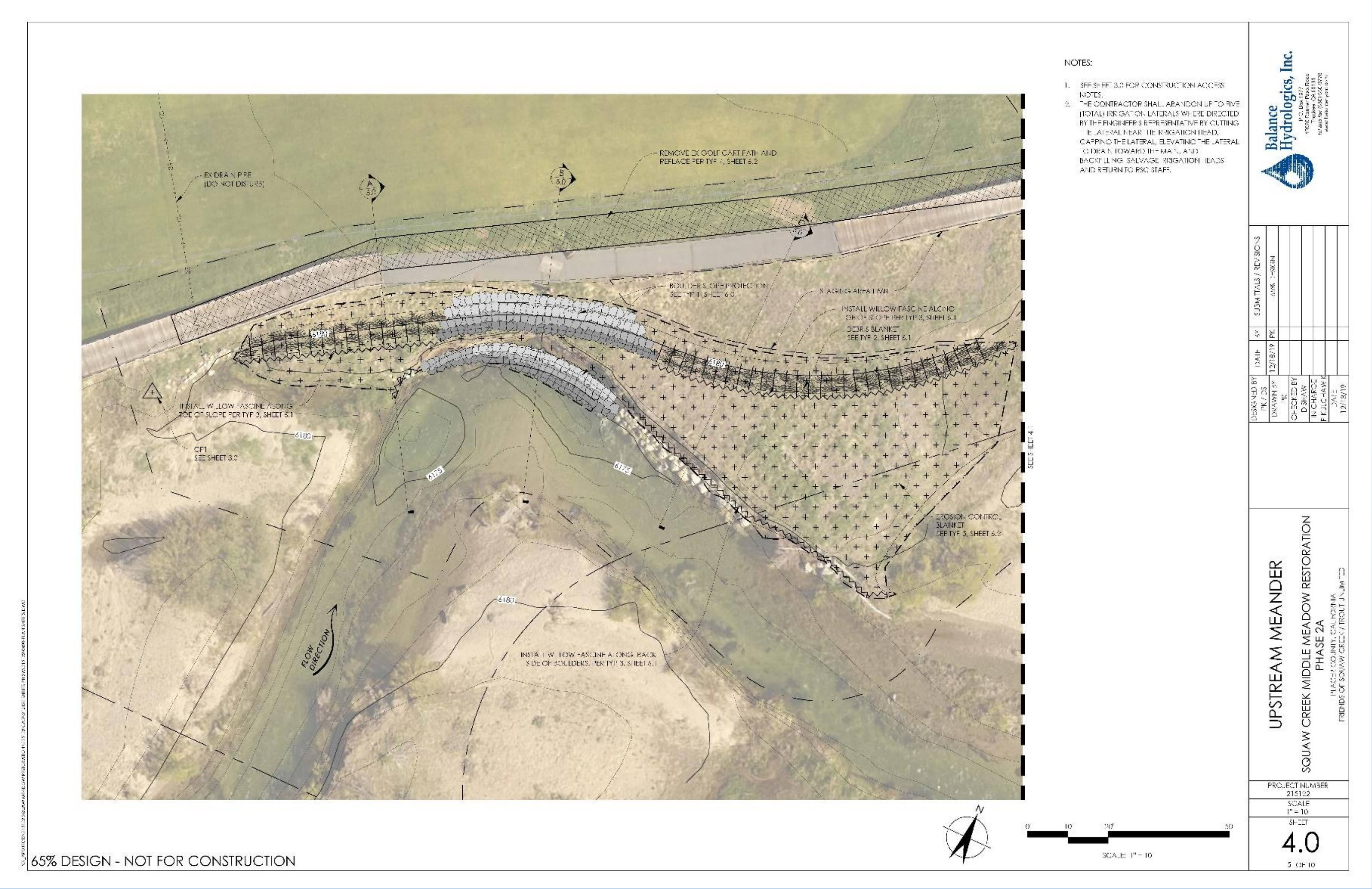

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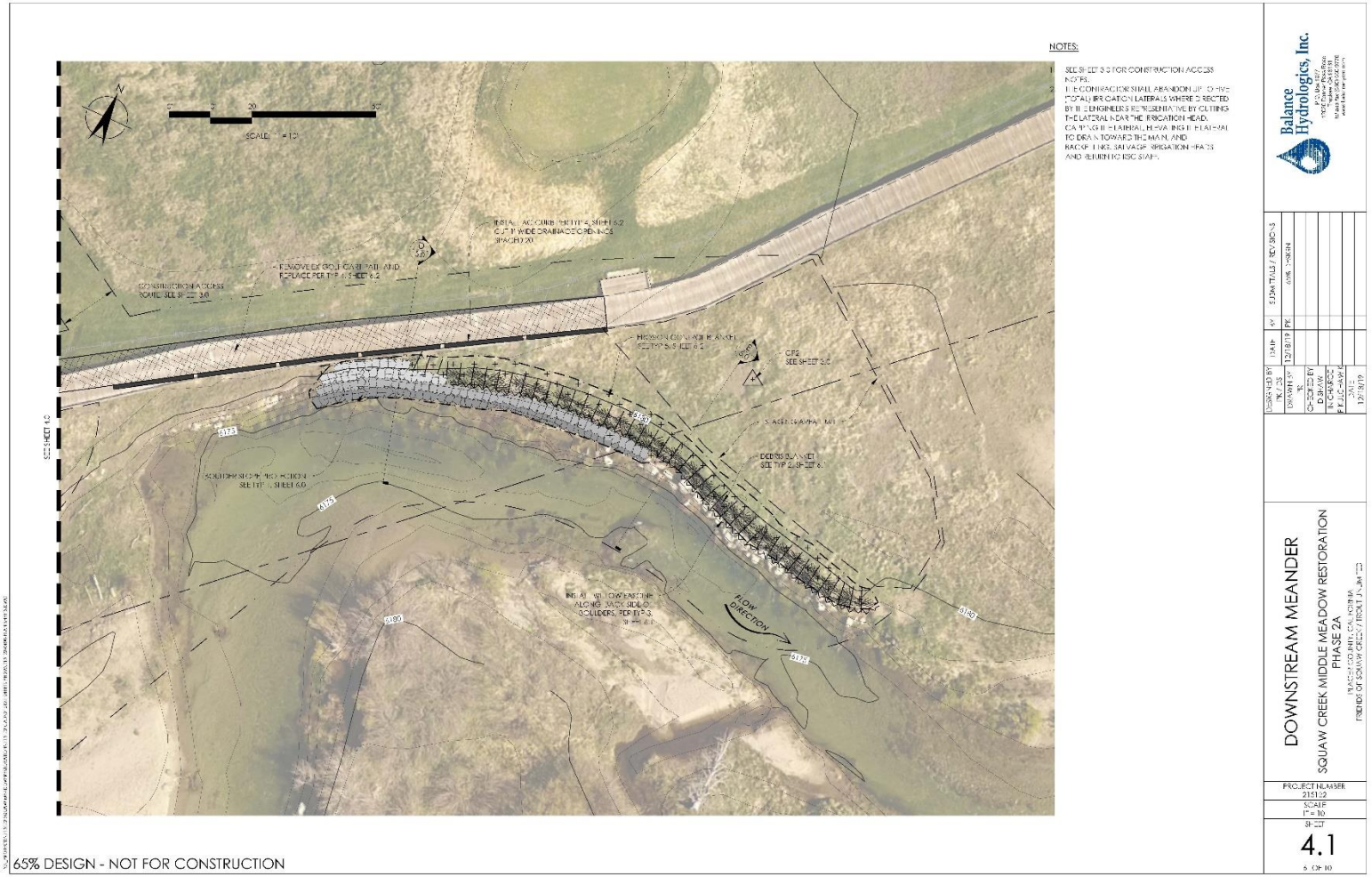
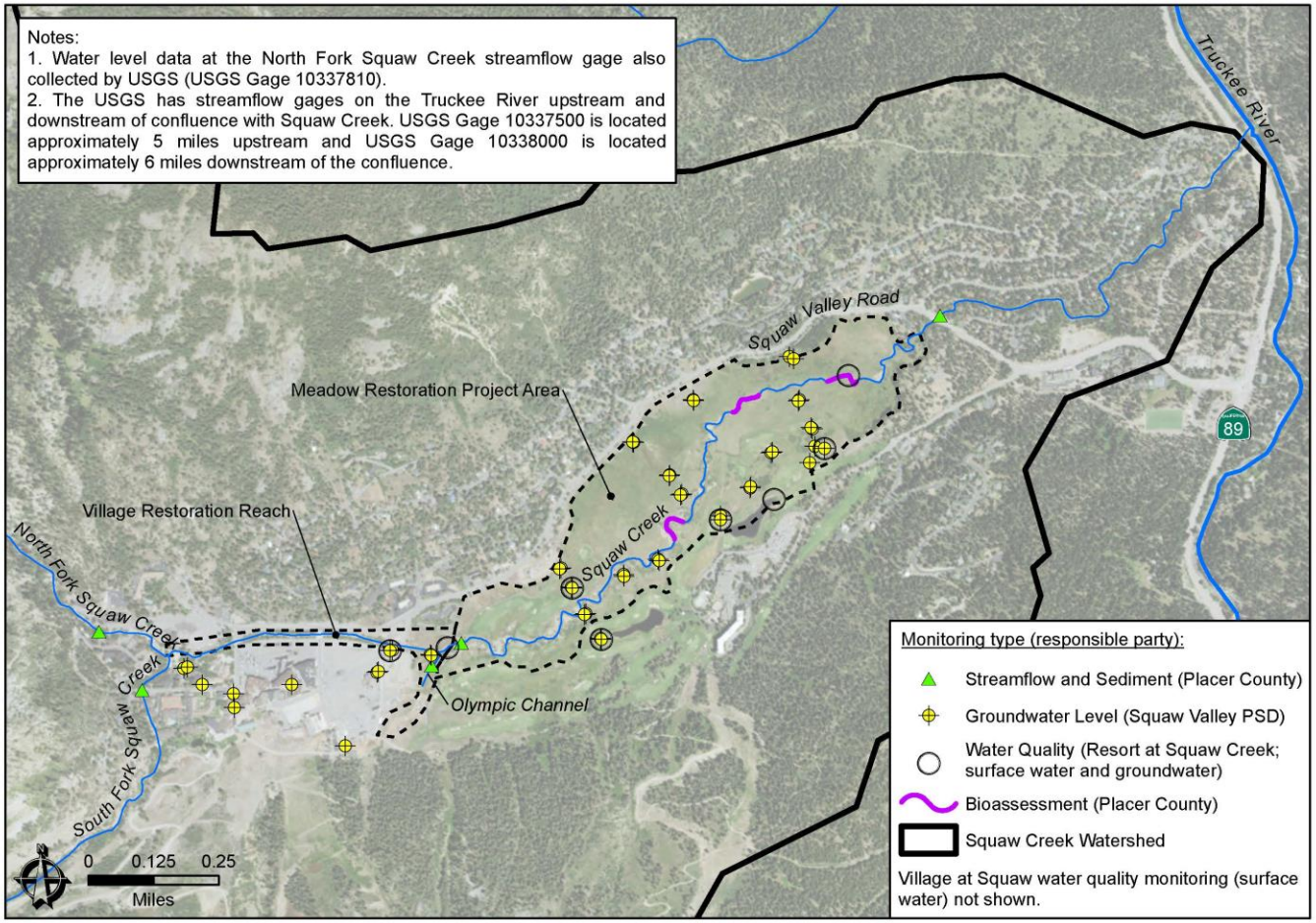


CULVERTS

MONITORING



Attachment A.4: **Squaw Valley Hydrologic and Water Quality Monitoring Locations (HUC12 Code 160501020202)**

Basemap source: ESRI ArcGIS Online and data partners
Data source: National Hydrologic Dataset, CDM Smith, SVPSD, RSC, Stantec, Broadbent, Inc.

PIN: 37441

Thank You!