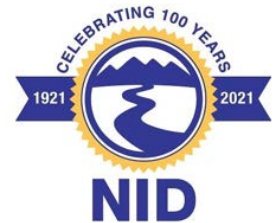


Engineering Department



2021 Year in Review
Department Updates
Plans for 2022

PROJECT HIGHLIGHTS

Alta Sierra Reservoir Replacement - Project # 6971

Scope: The Alta Sierra Reservoir is being replaced with a 3-million-gallon concrete tank. The reservoir was originally used for raw water storage before being reconstructed into a treated water facility utilizing Hypalon lining and cover. The Hypalon liner was vulnerable to damage from the sun and vandalism, and over time required repair and patching, requiring isolation from the system to repair. The new tank is expected to be in service by April 2022.

Division 2 – Nevada County
Construction costs to date: \$5,722,786
Constructed by Gateway Pacific Contractors
Design: Bennett Engineering
Environmental/ISMND: Ascent Environmental
Doug Hobbs, Project Manager
Tony Moscini, Construction Inspector



PROJECT HIGHLIGHTS

Berggren Lane PRV Replacement - Project # 2370

Scope: Replacement of the waterline serving Berggren Lane with an 8" waterline that extends to Jasper Agate Court. Removed existing PRV and replaced with individual pressure reducing valves. A fire hydrant that provides high-flow capacity was also installed.

Division 1 – Nevada County
Construction costs: \$129,310
Constructed by NID Maintenance Crews
One easement acquired
Doug Hobbs, Engineer/Project Manager

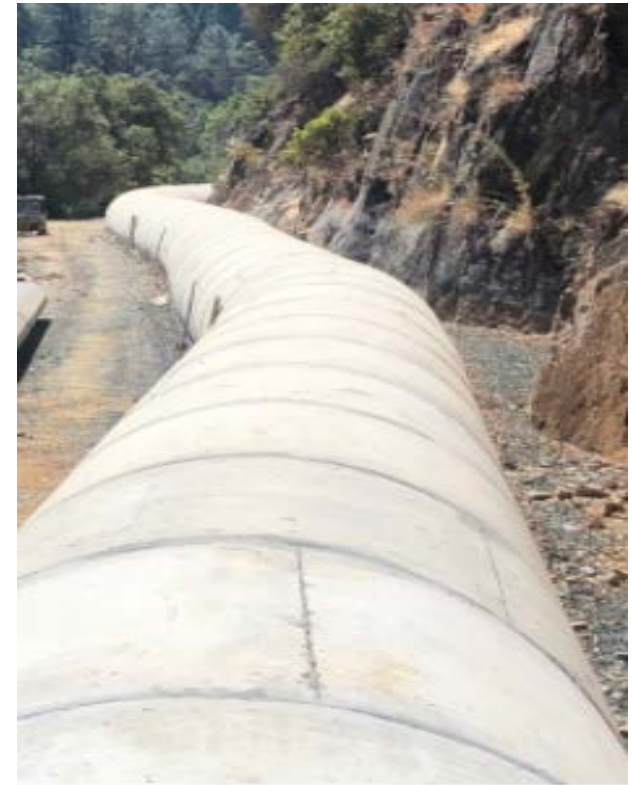


PROJECT HIGHLIGHTS

Combie Phase 1 Pipeline - Project #6746

Scope: Replacement of the 50-year-old Combie Canal with 1.7 miles of 96-inch diameter reinforced concrete pressure pipe. The second phase of construction began in fall 2020 and was placed into service in March 2021. The pipeline is the primary water conveyance from Combie Reservoir, delivering water to 2,650 irrigation water customers, and serves two treatment plants that provide drinking water to 5,077 homes in Lake of the Pines and North Auburn. The system also serves as a secondary conduit for deliveries made through the Bear River Canal, including to 525 NID irrigation water customers and to 3,427 treated water customers located within NID boundaries in the City of Lincoln.

Division 3 – Nevada County
Construction Costs: \$19,476,058.26
Constructed by Steve P. Rados, Inc.
Design by Quincy Engineering
Doug Roderick, Project Manager
Chris Berg, Construction Inspector



PROJECT HIGHLIGHTS

Doty North Canal Siphon Replacement — Project #1031

Scope: Replaced the existing 24-inch raw water siphon crossing over Doty Ravine and Sailors Ravine with a new 350-foot long, inverted aerial siphon constructed of 36-inch diameter welded steel pipe.

Division 4 – Placer County
Construction costs: \$634,486
Constructed by Westcon Construction Corp.
Doug Roderick, Engineer/Project Manager
Tony Moscini, Construction Inspector
Environmental Compliance/ISMND: ECORP
Temporary Access and Construction Easements
Acquired

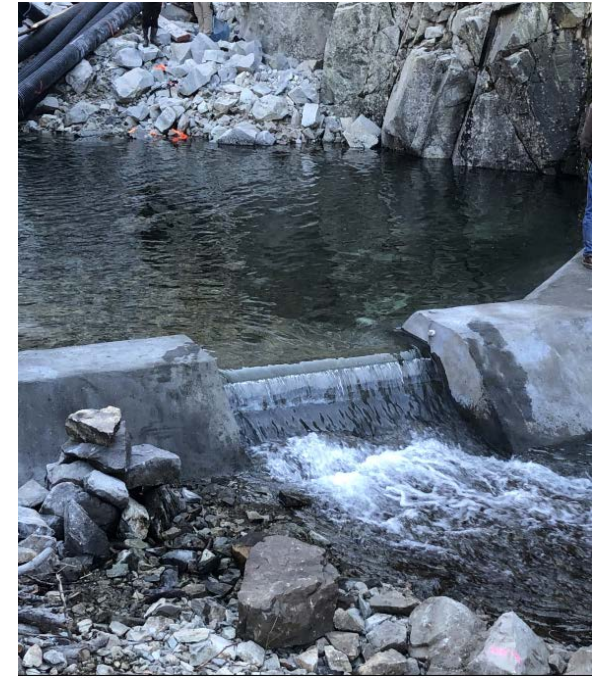


PROJECT HIGHLIGHTS

French Dam Upgrades — Project #2360

Scope: The French Dam Upgrades Project included three major upgrades 1. Replaced damaged sections of the concrete lining on the upstream dam face. 2. Modified the spillway training walls to prevent overtopping, and 3. Construction of a new gauging station located approximately 65 feet downstream of the dam outlet to measure flows. Most of the construction was done by hand.

Division – Upper Division
Construction costs: \$890,888
Constructed by Glissman Construction
Dar Chen, Dam Safety Engineer
Adrian Schneider, Project Manager
Chris Berg, Construction Inspector



PROJECT HIGHLIGHTS

Hemphill Diversion Structure Fish Passage – Project #7032

Scope: The Hemphill Diversion Fish Passage Project, currently in the design phase, will remove the existing diversion structure and construct a roughen-rock ramp fish passage in its place to allow for fish passage. Improvements to the Hemphill Canal will include a fish screen to prevent fish entrapment while maintaining water deliveries to NID raw water customers. The Project was approved for a \$1,500,000 Prop 68 Wildlife Corridor and Fish Passage Program Grant from the Wildlife Conservation Board

Division 4 – Placer County
Construction Estimate: \$4,000,000
Design by McMillen-Jacobs
Environmental Compliance/EIR: ECORP
Tonia Tabucchi Herrera, Project Manager



PROJECT HIGHLIGHTS

Loma Rica Reservoir Sediment Removal – Project #2090

Scope: The final phase of this multi-year reservoir cleaning project included relocating 5,700 cubic yards of sediment stockpiled adjacent to the reservoir and moved onto airport property, and installation of erosion control measures. From 2017 to 2019, 48,910 cubic yards of sediment was removed from this reservoir.

Division 2 – Nevada County
Construction Costs: \$275,835
Overall Construction Costs: \$1,043,015
Constructed by C & D Contractors
Environmental Compliance/ISMND: Helix
Adrian Schneider, Engineer/Project Manager
Tony Moscini, Construction Inspector

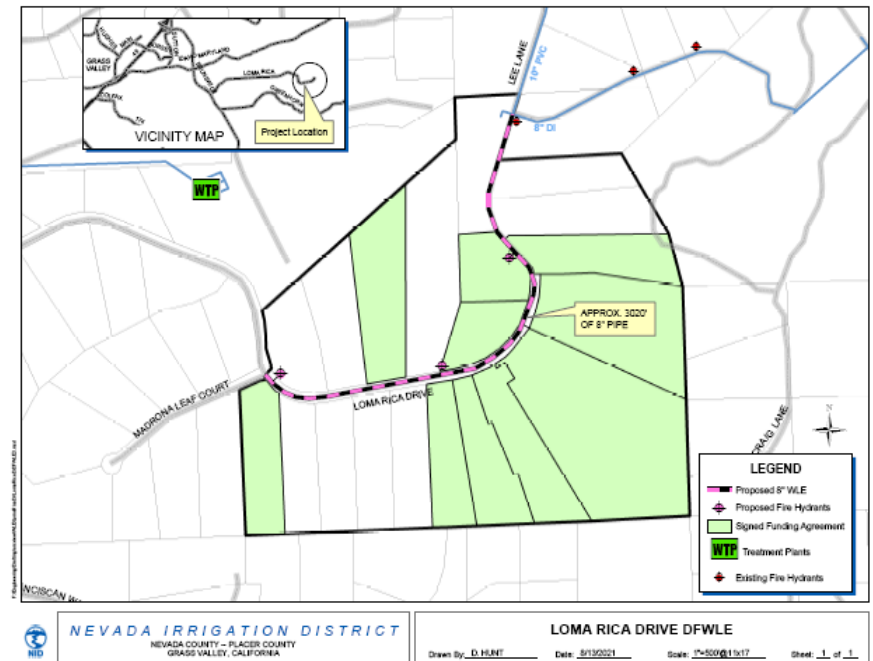


PROJECT HIGHLIGHTS

Loma Rica District Financed Waterline Extension - Project #2181

Scope: The project included placement of approximately 3,020 feet of 8-inch diameter treated water pipeline along Loma Rica Drive and Lee Lane. The project will provide opportunity for treated water service for up to 20 properties.

Division 2 – Nevada County
Construction Costs: \$612,571
Constructed by C & D Contractors
Adrian Schneider, Engineer
Project Coordinator: Shannon Wood
Tony Moscini, Construction Inspector
Six easements acquired



PROJECT HIGHLIGHTS

Santini Siphon #1 Replacement – Project #1098

Scope: Replacement of old and undersized pipe with 1,500 feet of 18-inch pipe. The District anticipates the moratorium on the Gold Blossom Canal will be lifted in time for the 2022 irrigation season. The new siphon pipe was constructed and put into service in December 2021.

Division 4 – Placer County

Total Construction costs: \$475,315

Constructed by NID Maintenance Crews

Doug Hobbs, Engineer/Project Manager

Four easements were negotiated with property owners



PROJECT HIGHLIGHTS

E. George to Lake Wildwood BEP – Phase 5b – Project #2255

Scope: The intent of the project is to extend a pipeline from the E. George Treatment Plant to Lake Wildwood to increase water supply, capacity, reliability, and create redundancy. The project was split into multiple phases to be completed as funds become available. Several of the phases include upgrades and repairs to existing facilities. Phase 5b, also known as the Ridge Road waterline Replacement, replaced 1,210 feet of 20-inch pipe along Ridge Road between Sierra College Drive and Deeken Court. The Slate Creek PRV replacement is associated with this phase.

Division 5 – Nevada County

Phase 5b – Construction Costs: \$498,898

Constructed by NID Maintenance Crews

Tonia Tabucchi Herrera, Engineer/Project Manager



PROJECT HIGHLIGHTS

Projects Scheduled for 2022 Budget:

- Hemphill Diversion Structure Fish Passage
- DS Canal Shotgun Culverts
- Banner Tank Isolation Valves
- Christian Life Way Pipeline Replacement
- Ramp Repairs, Main Office
- Pet Hill Extension Canal Encasement
- David Way Pump Station
- North Day Road Pipeline Replacement
- Alta Hill Reservoir
- Sugarloaf Reservoir
- Lake Wildwood Treatment Plant Upgrades

Business Development Services

Business Development Services Provided in 2021

- Customer Service Requests
 - 130 Water Availability Inquiries
 - 27 Water Availability Letters Issued
 - 7 Treated Water Meter Variance Approvals
 - 3 Temporary Service Location Approval
 - 10 Canal Setback Variance Approvals
 - 4 Memorandums of Pipeline Reimbursement Costs
- County Route Responses:
 - 44 Nevada County
 - 6 Placer County
- Fire Flow Letters
 - 11 Residential
 - 10 Commercial
- Developer Installed Projects
 - 10 New Private Fire Service Projects – 2 Completed
 - 10 New Waterline Extension Projects – 2 Completed
 - 2 New Canal Encasement Projects
- Placer County Annexation Completed
- District Financed Waterline Extensions (DFWLE)
 - 1 Loma Rica – Lee Lane

Encroachments

Encroachment Permits:

- 37 Encroachment Permit Applications Received
- 37 Encroachment Permits Issued:
 - 12 Culverts
 - 10 Utility crossings
 - 6 Foot bridges
 - 6 Gates
 - 3 Combie dock permits
- Temporary Encroachment Permits issued to PG&E:
 - 8 Permits for pole replacement
 - 6 Permits for dead tree removal
 - 6 permits for routine tree trimming
 - 3 permits for tree removal near transmission lines
- Issued permit to Terra Alta Development to construct road over DS Canal Siphon #10 for forest land management project
- Working with Placer maintenance and Placer County to replace 2 county road culverts

Encroachment Violations:

- Worked with Maintenance to upgrade three blow-offs due to property owner's encroachment activity
- Issued violations to property owners of three failing culverts discovered by Maintenance and Operations

Other Encroachment Activity:

- Reviewed and provided comments on 78 route slips
- Reviewed five setback variance requests and worked with property owners to complete the indemnification permit.
- Updating and streamlining the indemnification process and forms.

Right of Way

Right of Way Activity:

- 2 Easements acquired for E. George to Lake Wildwood #2255
- 2 Easements perfected for Maben-Kyler Canal #8099
- 1 Easement acquired for Berggren Lane PRV #2370
- 4 Easements acquired for Santini Siphon #1098
- 4 Easements in process for Bowman Spaulding #2264
- 6 Easements acquired for Loma Rica DFWLE #2181
- 20 Easements in process for North Day Road #2182
- Research record title documents and NID history for Red Hill Canal and Dudley Canal
- Obtaining/perfecting right of way for treated water lines installed in 1930's and 1950's for Flicker Place and Miller Place
- Stipulated Judgment for road access to Chicago Park Powerhouse
- In negotiations with property owner for road access to Combie South Powerhouse
- Finalized negotiations with property owners for road access to Valley View Reservoir

Routes Reviewed:

- 73 Requests for Treated Water/Fire Service
- 10 Treated Water Variance Requests
- 10 Canal Setback Variance Requests
- 40 TSL, Rezoning, Minor Use Permits, misc. requests
- 5 PUE Abandonments
- 13 Lot-line adjustments
- 10 Parcel Maps
- 12 Subdivision Maps
- 6 Quit Claims
- 28 Public Inquiries
- 41 Easement acquisitions in process
- 14 Completed Acquisitions

Survey & Drafting

Survey Activity:

- 19 Topo -Preliminary Project Work
- 12 Project Stakeouts
- 10 Boundary – Right of Way Field Survey
- 13 Boundary – Right of Way Office Survey
- 9 Drone Surveys
- 14 GPS Surveys
- 8 Dam Monument Checks

Right of Way, Drafting, and Encroachments Staff assisted in the Survey Activities when necessary

Drafting Activity:

- Loma Rica DFWLE
- China Pipe Drop Replacement
- Combie South PH access road
- Silver Way PRV
- East Ridge PRV
- David Way Pump Station
- China Union Parshall Flume
- North Day Road
- Willaura Acres Pipeline Replacement
- English Meadows Restoration

Geographical Information Systems (GIS)

The **Geographical Information System (GIS)** is an electronic map using features specific to NID and has been developed for use by all Departments. The GIS is updated daily with construction drawings, Right of Way and Encroachment documents, photos and facilities.

- Treated water features include waterlines, valves, hydrants, meters, tanks, treatment plants, pump stations, and PRVs
- Irrigation water features include canals, pump stations, reservoirs, service boxes, checks, diversions, spill structures and channels
- Parcel lines and assessor's data as well as county and city boundaries, rivers and lakes, roads, aerial photography, USGS quad maps and hill shades for base layers.
- Hydro and Recreations facilities and features
- The GIS is used for the Fire Hydrant locator map on the NID Website
- It is the foundation for the mapping function in the CMMS
- The GIS is connected to the Customer Service database to view customer information, meters, service boxes and parcel information.

Department Goals for 2022

Updates, Improvements, Developments

- Updates to District's Standard Details and Specifications
- Develop and Implement Contractor Pre-qualification Process
- Implementation of Project Review Committee
- Development of 5-Year Capital Improvement Program
- Review of Programs, Policies, and Rules/Regulations for:
 - Temporary Service Location (TSL) Policies
 - District Financed Waterline Extensions (DFWLE)
 - Pipeline Reimbursement Program
- Plan for Water
- Capacity Charge Update
- Combie Encroachments
- Improve Project Status Report
- Improve Project Information on Website

Improvements to Engineering Department Processes

- Process for Project Closures
- Design Deliverables/Documentation
- Developer Projects
- Standardization
- Review Processes for Engineering and Other Departments