IMPROVING IRRIGATION DELIVERY IN SHASTA VALLEY

INSTALLATION OF SURFACE IRRIGATION FLOW CONTROL AND MEASUREMENT DEVICES
DESIGNED TO UPGRADE FIELD DELIVERY FOR THE
SHASTA RIVER WATER ASSOCIATION
APRIL 2018
OUR OTHER OFFICE

SHASTA VALLEY IS LOCATED NORTH OF MT. SHASTA IN SISKIYOU COUNTY CALIFORNIA. WE OFTEN SHOP IN MEDFORD OREGON, WE IDENTIFY AS THE STATE OF JEFFERSON AND OUR PRIMARY INDUSTRIES ARE FORESTRY AND AGRICULTURE. YREKA IS THE COUNTY SEAT. OUR POPULATION IS ~44,000 PEOPLE AND A LOT MORE TREES AND COWS. OUR LAND AREA IS ~6300 SQUARE MILES.
LOCATION MAP OF OUR PROJECT - SRWA
A CLOSER LOOK
TELEMETRY PARTS AND PIECES FOR IRRIGATION

- Electronic Relay Station
- Network Hub
- Uplink to online devices
- Flow Measuring Equipment
WHY IS THIS A GOOD IDEA?

USING STATE OF THE ART ELECTRONIC TELEMETRY EQUIPMENT REDUCES MAINTENANCE AND MANAGEMENT COSTS, AND CONSERVES SURFACE WATER.

YOU CAN'T CONSERVE WATER IF YOU CAN'T MEASURE IT ACCURATELY.

MAINTENANCE: REQUIRES EYES ON EACH SECTION OF DITCH TO ASSESS ISSUES AND SOURCE EQUIPMENT TO ADDRESS THEM

EX: LEAK IN A DIVERSION BOX OR DITCH BANK

MANAGEMENT: USING REMOTE ACCESS INFORMATION REDUCES TIME SPENT ADJUSTING FLOW AND MOVING WATER BETWEEN IRRIGATORS

EX: WATER IS DELIVERED FROM IRRIGATOR A TO IRRIGATOR B AT 2AM.
SRWA - UPPER DITCH SPLIT PROJECT

EARLY PROJECTS BUILT WITH OTHER FUNDS
LOOKING SOUTH WHERE A PIPELINE IS BURIED “UPPER SPLIT PIPELINE”

LOOKING NORTH
LOOKING NORTH FROM THE SPLIT LOCATION WHERE FLOWS ARE DIRECTED INTO THE NORTH DITCH

TYPICAL DITCH VIEW
LOOKING SOUTH AT A TYPICAL DITCH SECTION. NOTE DIVERSION BOX TO APPLY IRRIGATION FLOWS TO THE FIELD. THIS IS THE LOWER SOUTH DITCH.
UPPER DITCH SPLIT WITH NEW ELECTRONICS

BOARD AND STAFF GETS A LESSON
READING SCREENS IN THE FIELD SOUNDS EASY BUT THERE ARE MANY THINGS THAT CAN CONFOUND EQUIPMENT IN THE ELEMENTS

UPPER DITCH SPLIT WITH TWO HEADGATES
SOLAR PANEL PROVIDES ENERGY TO RUN THE ELECTRONICS
SITE 9

STAFF INSPECTED NEW EQUIPMENT IN 2016

THIS SITE HAS BEEN USED SUCCESSFULLY AS A STAND ALONE ‘TEST’ FOR 2 SEASONS.

THE FIRST COMPLETED SITE WITH UPLINK TO A PRIVATE SITE

NEW NETWORKING WILL INCLUDE TWO WAY RADIO COMMUNICATION WITH THE HOST SITE #5

PARSHALL FLUME IN FOREGROUND
LOWER SPLIT CONSTRUCTION – WINTER 2017

NEW WEIR DIVISION BOXES AT THE MAIN DITCH
TWO BURIED PIPELINE DELIVER PUMPED SURFACE FLOW INTO THE LOWER DITCH SYSTEM

CLOSE UP

COMPLETED
OLD MEETS NEW. FARMER CONCRETE LASTS 100 YEARS.
SITE 7

SOME SITES ARE MORE CHALLENGING THAN OTHERS TO DESIGN AND DEPLOY EQUIPMENT. AT SITE 7, A SLUICE GATE HAS BEEN INSTALLED THAT CAN BE MANUALLY CONTROLLED. THIS GATE CAN BE MODIFIED FOR ELECTRONIC CONTROL IN THE FUTURE.

FOR FLOW MEASUREMENT, TWO PRESSURE TRANSDUCERS WILL COLLECT DATA IN THE OPEN CHANNEL ABOVE AND BELOW THE NEW HEADGATE. THIS FLOW DATA WILL BE USED TO CREATE A STAGE FLOW RELATIONSHIP WHICH IS SIMILAR TO THE HISTORIC STAFF GAGE METHOD.

DATA LOGGERS WILL TIE TO RADIOS TO DELIVER THE FLOW DATA FROM THE TWO DEVICES (STAGE DATA) TO THE HOST STATION AT SITE #5. THE NETWORK WILL HAVE THREE HOST STATION. THIS WILL REDUCE COST FOR UPLINKING, CELL SERVICE AND IMPROVE COMMUNICATION BETWEEN SITES.

NOTE THE METAL BOX TO HOLD ELECTRONICS AND THE SOLAR PANEL TO PROVIDE ENERGY TO THE SITE.
SITE 5
UNDER CONSTRUCTION THIS SPRING 2018

SRWA BOARD MEMBER WALDO LORENZINI CHECKS THE CONCRETE Poured TO HOLD THE NEW PARSHALL FLUME IN PLACE.

TELEMETRY WILL BE ADDED TO ALLOW DITCH USERS TO READ FLOWS REMOTELY.

A PARSHALL FLUME WILL HOUSE A PRESSURE TRANSDUCER TO COLLECT STAGE DATA THAT WILL BE CONVERTED TO FLOW IN CUBIC FEET PER SECOND FROM THE FLUME. THIS WILL BE SENT FROM THIS HOST STATION TO A SHARED CELLULAR SERVICE.
WE SHOP LOCAL

THE SHASTA VALLEY RESOURCE CONSERVATION DISTRICT AND THE SHASTA RIVER WATER ASSOCIATION SUPPORT LOCAL BUSINESSES FOR ALL OUR DESIGN AND CONSTRUCTION WORK WHENEVER WE CAN

THANKS TO ALL OUR LOCAL BUSINESSES

- NORTH RIVERS CONSTRUCTION - ETNA
- GS BLACK, INC. - ETNA
- VESTRA ENGINEERING - REDDING
- DAVIDS ENGINEERING - CHICO
- MIKE PETERS CONSTRUCTION - MONTAGUE
- WATCH TECHNOLOGIES - GRANTS PASS
- THE ACCESS DOCTOR - MONTAGUE
- HUFFMAN COMPUTING - YREKA
THANK YOU
TO THE NORTH COAST RESOURCE PARTNERSHIP,
THE DEPARTMENT OF WATER RESOURCES,
THE USDI, BUREAU OF RECLAMATION,
LANDOWNERS AND IRRIGATORS IN THE SRWA
FOR FINANCIAL SUPPORT TO THE SHASTA RIVER WATER
ASSOCIATION FOR THIS PROJECT

FOR MORE INFORMATION OR QUESTIONS
CONTACT: THE SHASTA VALLEY RESOURCE CONSERVATION DISTRICT AT 530-572-3120 OR PERRY@SVRCD.ORG.