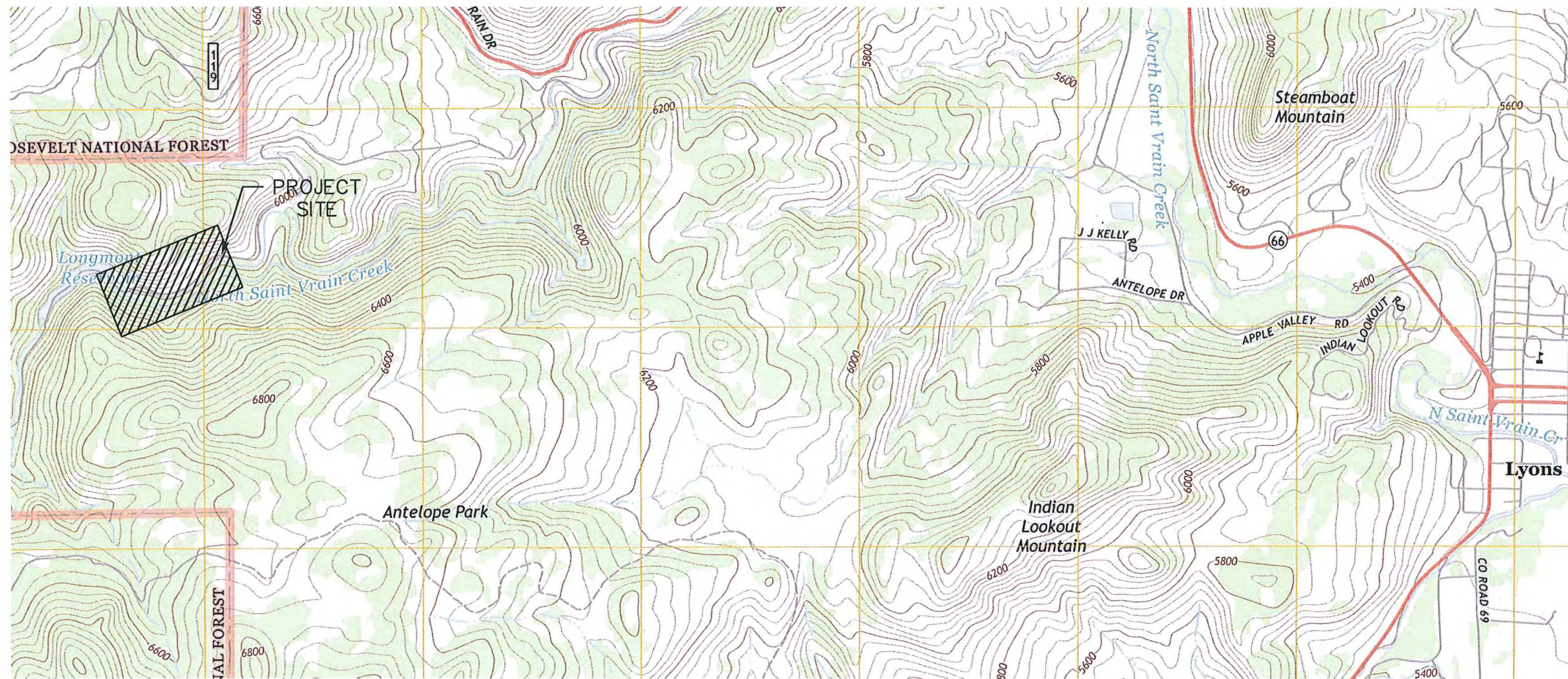


LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

Vicinity Map
SCALE: 1" = 2000'



SHEET INDEX:

1.	C-1	COVER PAGE
2.	N-1	NOTES (1 OF 4)
3.	N-2	NOTES (2 OF 4)
4.	N-3	NOTES (3 OF 4)
5.	N-4	NOTES (4 OF 4)
6.	Q-1	QUANTITIES
7.	S-1	CREEK SITE PLAN
8.	PP-1	CREEK PLAN & PROFILE (1 OF 4)
9.	PP-2	CREEK PLAN & PROFILE (2 OF 4)
10.	PP-3	CREEK PLAN & PROFILE (3 OF 4)
11.	PP-4	CREEK PLAN & PROFILE (4 OF 4)
12.	XS-1	CREEK CROSS SECTION (1 OF 6)
13.	XS-2	CREEK CROSS SECTION (2 OF 6)
14.	XS-3	CREEK CROSS SECTION (3 OF 6)
15.	XS-4	CREEK CROSS SECTION (4 OF 6)
16.	XS-5	CREEK CROSS SECTION (5 OF 6)
17.	XS-6	CREEK CROSS SECTION (6 OF 6)
18.	LS-1	CREEK LANDSCAPE (1 OF 2)
19.	LS-2	CREEK LANDSCAPE (2 OF 2)
20.	D-1	DETAILS PAGE (1 OF 3)
21.	D-2	DETAILS PAGE (2 OF 3)
22.	D-3	DETAILS PAGE (3 OF 3)

PROJECT DIRECTORY

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**LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS**
BOULDER COUNTY
COVER SHEET

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Flatirons, Inc.
Surveying, Engineering
& Geomatics



DRAWING
C-1
SHEET
1 OF 22

REVISION	DATE
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JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/GDP
APPROVED BY: WS/KWC

CENTER OF COLORADO CALL
UTILITY NOTIFICATION
811

MEMBER UTILITIES CALL
2-BUSINESS DAYS IN ADVANCE
FOR THE MARKING OF UNDERGROUND
BEFORE YOU DIG, GRADE, OR EXCAVATE

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

GENERAL CONSTRUCTION NOTES

- ALL WORK SHOWN SHALL BE DONE IN ACCORDANCE WITH THESE DESIGN/BUILD PLANS, THE BOULDER COUNTY MULTIMODEL TRANSPORTATION STANDARDS (JULY 1, 2012), THE COLORADO DEPARTMENT OF TRANSPORTATION'S (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2011), CDOT M&S STANDARD PLANS (2012), THE PLANS, SPECIFICATIONS, AND ESTIMATES FOR THE LONGMONT DAM ROAD FINAL DESIGN/BUILD DOCUMENTS, AND SPECIAL PROVISIONS.
- BOULDER COUNTY WILL PROVIDE U.S. ARMY CORPS OF ENGINEERS (USACE) REGIONAL GENERAL PERMIT 12. ALL OTHER NECESSARY PERMITS AND APPROVALS FROM FEDERAL, STATE, AND COUNTY AGENCIES GOVERNING THIS WORK SHALL BE SECURED BY THE CONTRACTOR AT THEIR EXPENSE. CONTRACTOR SHALL NOTIFY COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) OF ACTIVITIES AND OBTAIN ALL REQUIRED PERMITS. THE CONTRACTOR SHALL OBTAIN A STORMWATER QUALITY MANAGEMENT PERMIT IN ACCORDANCE WITH BOULDER COUNTY LAND USE CODE ARTICLE 7, 7-704 FROM THE BOULDER COUNTY ENGINEER. ALL REQUIRED PERMITS OBTAINED BY CONTRACTOR SHALL BE SUBMITTED TO BOULDER COUNTY AND ENGINEER PRIOR STARTING ANY CREEK CONSTRUCTION.
- BOULDER COUNTY AND THE DESIGN ENGINEER RESERVE THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES TO BE DETERMINED AS THE WORK PROGRESSES.
- THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO DEMOLITION OR CONSTRUCTION. CALL THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811.
- BENCHMARK INFORMATION: A GPS DERIVED ELEVATION WAS ESTABLISHED ON BOULDER COUNTY POINT O'LOUGHLIN, BEING A DISK SET IN ROCK STAMPED "OLOUGHLIN 1999, NGS" LOCATED 0.5 MILES FROM SITE, WITH A PUBLISHED ELEVATION OF 5980.19 FEET (NAVD88). NO DIFFERENTIAL LEVELING WAS PERFORMED TO ESTABLISH THIS ELEVATION.
- CONTRACTOR SHALL WORK WITHIN DEFINED WORKSPACE AND NOT DISTURB AREA OF THE CREEK BED OR CHANNEL NOT PREVIOUSLY DISTURBED BY THE FLOOD EVENT. DAMAGE TO UNDISTURBED AREAS SHALL BE RESTORED BY THE CONTRACTOR AS AGREED UPON WITH BOULDER COUNTY OR THEIR DESIGNATED REPRESENTATIVE.
- CONTRACTOR SHALL NOTIFY ALL RESIDENTS IN WRITING 48 HOURS PRIOR TO ANY SHUT-OFF IN SERVICE. THE NOTICES MUST HAVE CONTRACTOR'S PHONE NUMBER AND NAME OF CONTACT PERSON, AND EMERGENCY PHONE NUMBER FOR AFTER HOURS CALLS. ALL SHUT-OFF'S MUST BE APPROVED BY BOULDER COUNTY, UNLESS WRITTEN PERMISSION IS GIVEN OTHERWISE.

GENERAL CONSTRUCTION NOTES (CONT.)

- CONTRACTOR SHALL REGULARLY PATROL THE LANDS ADJACENT TO THE PROJECT TO REMOVE CONSTRUCTION DEBRIS AND KEEP THE SITE CLEAN AND SAFE.
- WORK HOURS SHALL BE FROM 7:30 A.M. TO 5:30 P.M., MONDAY THRU FRIDAY. WORK OUTSIDE THESE HOURS MUST BE APPROVED BY BOULDER COUNTY.
- CONTRACTOR SHALL FURNISH ALL LABOR, MACHINERY, EQUIPMENT, MATERIALS AND SUPPLIES, AND SUSTAIN ALL THE EXPENSE INCURRED IN DOING THE WORK PER THE PROPOSAL SCHEDULE, AND IN ACCORDANCE WITH THE FULL DETAILS, PLANS, AND SPECIFICATIONS AS PRESCRIBED BY BOULDER COUNTY ON THIS PROJECT. THE ITEMS OF WORK AND THE UNIT PRICES CONTAINED IN THE PROPOSAL SCHEDULE ARE DESCRIBED IN AND ARE A PART OF THE STANDARD SPECIFICATIONS AND ARE TO BE THE METHOD OF MEASUREMENT OF THE PROJECT QUANTITIES AND THE BASIS OF PAYMENT.
- THE DESIGN ENGINEER AND BOULDER COUNTY SHALL BE NOTIFIED 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES, STRUCTURES, AND VEGETATION AFFECTED BY THE WORK, AND ANY DAMAGE SHALL BE REPAIRED AND RESTORED TO THE SATISFACTION OF BOULDER COUNTY.
- THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN TEMPORARY TRAFFIC CONTROL DEVICES NECESSARY THROUGHOUT THE DURATION OF CONSTRUCTION. TRAFFIC CONTROL PLANS SHALL BE SUBMITTED AND APPROVED BY BOULDER COUNTY PRIOR TO CONSTRUCTION.
- WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. WATER WILL NOT BE PAID FOR SEPARATELY.

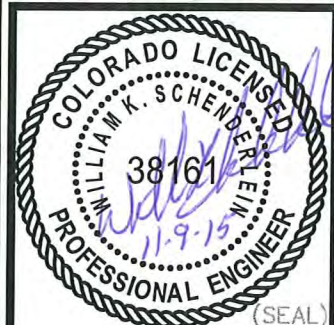
GENERAL DRAWING NOTES

- ONLY FULL SIZED (11" X 17") DESIGN/BUILD PLAN SETS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO ARE TO BE USED FOR DESIGN/BUILD. USING DESIGN/BUILD PLAN SETS NOT STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO ABSOLVES FLATIRONS, INC., BLUE EARTH SOLUTIONS, LLC, THEIR AGENTS AND EMPLOYEES OF ALL LIABILITY.
- AT NO TIME SHALL ANY DESIGN/BUILD PLAN SET STAMPED "PROGRESS", "PRELIMINARY" OR "DRAFT" BE USED FOR CONSTRUCTION. DOING SO ABSOLVES FLATIRONS, INC., BLUE EARTH SOLUTIONS, LLC, THEIR AGENTS AND EMPLOYEES OF ALL LIABILITY.
- BUILDERS, CONTRACTORS AND SUB-CONTRACTORS WILL BE HELD RESPONSIBLE FOR ANY ERRORS IN CONSTRUCTION DUE TO FAILURE TO READ AND ADHERE TO DESIGN/BUILD PLAN NOTES.
- WHEN CONFLICTING, INCONSISTENT OR INCORRECT INFORMATION IS FOUND IN THIS DESIGN/BUILD PLAN SET BY ANY PARTY, SAID PARTY IS REQUIRED TO CONTACT THE DESIGN ENGINEER IMMEDIATELY FOR CLARIFICATION AS TO WHICH INFORMATION IS CORRECT. NEW INFORMATION MAY BE GIVEN AT THE DISCRETION OF THE DESIGN ENGINEER.
- THESE PLANS ARE INTENDED TO BE USED AS A DESIGN/BUILD PLAN SET AND ARE STAMPED AND CERTIFIED TO AS SUCH. ALL BUILDERS, CONTRACTORS AND SUB-CONTRACTORS ARE REQUIRED TO HAVE PLAN SETS PRESENT AT THE JOB SITE DURING CONSTRUCTION. SEPARATING SETS, USING INCOMPLETE SETS AND/OR REMOVAL OF SHEETS FROM SETS VOIDS ANY CERTIFICATION AND ABSOLVES FLATIRONS, INC., BLUE EARTH SOLUTIONS, LLC, THEIR AGENTS AND EMPLOYEES OF ALL LIABILITY.
- THE CERTIFYING DESIGN ENGINEER MUST APPROVE ANY CHANGES, MODIFICATION OR DEVIATION FROM THE ORIGINAL CERTIFIED DESIGN BY ANY PERSON, PERSONS, GROUP, ORGANIZATION OR AGENCY IN WRITING. FAILURE TO OBTAIN WRITTEN APPROVAL BY THE CERTIFYING ENGINEER ABSOLVES FLATIRONS, INC., BLUE EARTH SOLUTIONS, LLC, THEIR AGENTS AND EMPLOYEES OF ALL LIABILITY.
- ANY PARTY WHICH FINDS ANY SURVEY INFORMATION THAT CONFLICTS WITH DESIGN INFORMATION IN THE DESIGN/BUILD PLAN SET OR BOULDER COUNTY STANDARDS AND SPECIFICATIONS IS REQUIRED TO CONTACT THE DESIGN ENGINEER AND THE SURVEYOR FOR CLARIFICATION OF THE CORRECT INFORMATION.
- SCALED MEASUREMENTS ARE APPROXIMATE DIMENSIONS AND SHOULD NOT BE USED FOR DESIGN/BUILD, BID OR REVIEW.

LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS
BOULDER COUNTY
NOTES (1 OF 4)

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N-1
SHEET
2 OF 22

REVISION	DATE
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2	
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CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
MEMBER UTILITIES CALL 2-BUSINESS DAYS IN ADVANCE FOR THE MARKING OF UNDERGROUND BEFORE YOU DIG, GRADE, OR EXCAVATE

JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/CDP
APPROVED BY: WS/KWC

BY:DVILLACRESIS FILE:100519-CREEK COVER SHEET.DWG DATE:11/6/2015 10:16 AM

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

IN-STREAM WORK

- THE CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT USED FOR IN-STREAM WORK. NO EQUIPMENT WITH LEAKING HOSES, LEAKING FLUID, OR OTHER POTENTIAL WATER POLLUTANTS SHALL BE USED. THE DESIGN ENGINEER HAS THE RIGHT TO INSPECT ALL EQUIPMENT AND MAY DESIGNATE ANY EQUIPMENT AS UNACCEPTABLE IF THERE IS ANY POTENTIAL FOR POLLUTANTS ENTERING WATERWAYS.
- ALL MAINTENANCE WORK AND REFUELING OF EQUIPMENT SHALL BE DONE OUTSIDE THE CREEK CHANNEL AND AT LEAST 100 FEET AWAY FROM RIPARIAN AREAS AND WETLANDS. EQUIPMENT SHALL BE REASONABLY CLEAN OF GREASE PRIOR TO OPERATIONS.
- SHOULD ANY GAS OR OIL LEAKAGE OCCUR WHILE WORKING IN THE CREEK, THE CONTRACTOR SHALL IMMEDIATELY REMOVE THE EQUIPMENT FROM STREAM AND ANY CONTAMINANTS SHALL BE PROMPTLY CLEANED UP BY THE CONTRACTOR TO COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT STANDARDS.
- ANY AND ALL FUEL, OILS, LUBRICANTS OR OTHER HAZARDOUS MATERIALS SPILLED IN THE CREEK OR ON THE GROUND SHALL BE ISOLATED AND HANDLED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF CONTAMINATED MATERIAL SPILLED IN THE CREEK OR ON THE GROUND TO COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT STANDARDS AND FOLLOW ALL APPLICABLE BEST MANAGEMENT PRACTICES (INCLUDING IN STREAM OIL/PETROLEUM BOOMS). THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL LIABILITIES ASSOCIATED WITH ANY SPILLS.
- ALL EQUIPMENT SHALL BE REMOVED FROM THE CREEK AT THE END OF EACH WORK DAY AND PARKED IN THE DESIGNATED EQUIPMENT PARKING AREA.

EQUIPMENT CLEANING

- IN ORDER TO PREVENT THE SPREAD OF NOXIOUS WEEDS AND OTHER POTENTIAL INVASIVE SPECIES, THE CONTRACTOR SHALL CLEAN ALL CONSTRUCTION EQUIPMENT PRIOR TO MOVING IT TO THE PROJECT AREA. THIS CLEANING SHALL REMOVE ALL SOIL, PLANT PARTS, SEEDS, ORGANIC MATTER, OR OTHER DEBRIS THAT COULD CONTAIN OR HOLD SEEDS OR ORGANISMS. ONLY CONSTRUCTION AND MAINTENANCE EQUIPMENT AND EQUIPMENT NECESSARY TO TRANSPORT SAID EQUIPMENT, SHALL BE CLEANED AND INSPECTED BY BOULDER COUNTY, OR A REPRESENTATIVE APPROVED BY BOULDER COUNTY PRIOR TO OPERATING WITHIN THE PROJECT AREA. ALL SUBSEQUENT MOVE-INS OF EQUIPMENT TO THE PROJECT AREA SHALL BE TREATED IN THE SAME MANNER AS THE INITIAL MOVE-IN. THIS REQUIREMENT DOES NOT APPLY TO SERVICE VEHICLES, WATER TRUCKS, PICKUPS, CARS, AND/OR SIMILAR VEHICLES.
- UNLESS OTHERWISE AGREED, THE CONTRACTOR SHALL GIVE BOULDER COUNTY AT LEAST 24 HOURS NOTICE WHEN EQUIPMENT IS READY FOR INSPECTION. NOTIFICATION WILL INCLUDE AN AGREED UPON LOCATION WHERE THE EQUIPMENT WILL BE AVAILABLE FOR THE INSPECTION BY BOULDER COUNTY OR AN APPROVE REPRESENTATIVE OF BOULDER COUNTY.
- EQUIPMENT INSPECTION WILL BE REQUIRED AFTER EVERY SUBSEQUENT CLEANING ORDERED BY BOULDER COUNTY.
- BOULDER COUNTY SHALL APPROVE THE METHODS OF CLEANING AND THE LOCATION FOR THE SUBSEQUENT CLEANING.

MATERIALS

- STRUCTURE ROCK SHALL BE DELIVERED AND/OR SALVAGED FROM THE CONSTRUCTION SITE OR ADJACENT AREAS WITH APPROVAL FROM THE DESIGN ENGINEER. IMPORTED ROCK SHALL HAVE A COLOR TO MATCH THE SURROUNDING N. ST. VRAIN CREEK BED AND BANK MATERIAL. ROCK WILL BE ACCEPTED BY THE DESIGN ENGINEER UPON VISUAL INSPECTION AT THE POINT OF USAGE.
- STRUCTURE ROCK SHALL HAVE A MINIMUM DIMENSION OF 2.5 FEET. THE NOMINAL SIZE STRUCTURE ROCK SHALL GENERALLY BE 2.5 FEET TO 3.5 FEET.
- ROCK SHALL BE HARD, DURABLE, AND FREE FROM CRACKS, OVERBURDEN, SHALE, AND ORGANIC MATTER. ROCK HAVING A MINIMUM SPECIFIC GRAVITY OF 2.65 IS PREFERRED; HOWEVER, IN NO CASE SHOULD ROCK HAVE A SPECIFIC GRAVITY LESS THAN 2.50.
- BROKEN CONCRETE OR ASPHALT SHALL NOT BE ACCEPTABLE FOR USE AS ROCK.

BY:DVILLACRESIS FILE:100519-CREEK COVER SHEET.DWG DATE:11/6/2015 10:17 AM

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CENTER OF COLORADO CALL
UTILITY NOTIFICATION
811

MEMBER UTILITIES CALL
2-BUSINESS DAYS IN ADVANCE
FOR THE MARKING OF UNDERGROUND
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JOB NUMBER: WS/KWC
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**LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS**
BOULDER COUNTY
NOTES (2 OF 4)

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N-2
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LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

SITE PREPARATION

- THE CONTRACTOR SHALL PERFORM ALL ENGINEERING LAYOUTS FROM BASELINES INDICATED ON DESIGN/BUILD PLANS AND SHALL BE RESPONSIBLE FOR ALL MEASUREMENTS IN CONNECTION THEREWITH.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE DESIGN/BUILD PLANS BEFORE CONSTRUCTION BEGINS AND SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE FINISHED WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING AN AS-BUILT SURVEY SIGNED AND STAMPED BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF COLORADO FOLLOWING CONSTRUCTION.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND MEASURES TO PROTECT ALL PROPERTIES FROM DAMAGE. PRIOR TO THE PROJECT BEING ACCEPTED BY THE OWNER, THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED BY CONSTRUCTION OPERATION TO ALL PUBLIC AND PRIVATE PROPERTY INCLUDING, BUT NOT LIMITED TO WETLANDS, ROADS, WALK, FENCES, UTILITIES, TREES, SHRUBS AND PLANTINGS. THE CONTRACTOR SHALL LEAVE THE PROPERTY IN GOOD CONDITION AND/OR AT LEAST EQUIVALENT CONDITION FOUND PRIOR TO UNDERTAKING WORK.

SITE CONSTRUCTION NOTES

- DESIGN AND CONSTRUCTION OF THE NORTH ST. VRAIN CREEK HABITAT IMPROVEMENT INVOLVES (1) EXCAVATION AND CONFIGURATION OF CREEK BENTHIC MATERIAL TO CREATE, ENHANCE, AND PROTECT AQUATIC RIFFLE, POOL, AND RUN HABITAT, (2) PLACEMENT OF LARGE ROCK STRUCTURES TO PROVIDE BENTHIC STABILITY AND MAINTAIN CREEK RESILIENCE, (3) PLACEMENT OF HABITAT ROCK AND FEATURES FOR STRUCTURE AND FLOW DIVERSITY, AND REVEGETATION OF RIPARIAN AREAS.
- ALL WORK SHALL BE PERFORMED WITH PUBLIC SAFETY AS A PRIORITY. MATERIALS STAGED OR LEFT IN AN UN-FINISHED STATE AT THE END OF EACH WORKING DAY SHALL BE STABILIZED SO AS NOT TO PRESENT A PUBLIC HAZARD.
- EQUIPMENT FUELING WILL ONLY TAKE PLACE IN THE DESIGNATED RE-FUELING AREA. EXCEPT FOR ROUTINE MAINTENANCE, EQUIPMENT REPAIR WILL NOT TAKE PLACE ON-SITE. FUELING WILL BE PERFORMED USING OFF-SITE RE-FUELING TRUCKS - NO FUEL, OILS, LUBRICANTS, OR OTHER POTENTIALLY HAZARDOUS MATERIALS WILL BE STORED ON-SITE.
- THE CONTRACTOR SHALL USE NON-TOXIC HYDRAULIC FLUIDS IN ALL EQUIPMENT TO BE USED IN THE CREEK.
- ANY AND ALL FUEL, OILS, LUBRICANTS OR OTHER HAZARDOUS MATERIALS SPILLED IN THE CREEK OR ON THE GROUND SHALL BE ISOLATED AND HANDLED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF CONTAMINATED MATERIAL SPILLED IN THE CREEK OR ON THE GROUND TO COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT STANDARDS AND FOLLOW ALL APPLICABLE BEST MANAGEMENT PRACTICES (INCLUDING HAVING HAZARDOUS MATERIALS CLEANUP SUPPLIES/EQUIPMENT AVAILABLE ON-SITE). THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL LIABILITIES ASSOCIATED WITH ANY SPILLS.
- ROCK STRUCTURES SHALL BE INSTALLED ACCORDING TO THE STANDARD DETAIL SHEET IN THE DESIGN/BUILD PLANS AND SPECIFICATIONS.
- ALL FIELD CHANGES TO STRUCTURES LOCATION, DIMENSIONS, AND/OR ELEVATIONS MUST BE APPROVED BY THE DESIGN ENGINEER PRIOR TO INSTALLATION.
- ROCK STRUCTURES SHALL BE CONSTRUCTED BY EXCAVATING A TRENCH SLIGHTLY LARGER THAN THE ROCK DIMENSIONS.
- ALL ROCK STRUCTURES SHALL BE SHINGLED UPSTREAM OR INTO STREAM BANK. ALL ROCKS SHALL BE INTERLOCKED AND SHALL NOT ROCK OR ROTATE IN PLACE.

SITE CONSTRUCTION NOTES (CONT.)

- ALL ROCKS SHALL BE PLACED SO THAT THEY FIRMLY ABUT ADJACENT ROCKS LEAVING NO GAPS BETWEEN ROCKS.
- EXCAVATION AROUND STRUCTURES SHALL BE BACKFILLED WITH MATERIAL THAT WAS EXCAVATED FROM THE CHANNEL TO CONSTRUCT THE STRUCTURE .
- ALL OTHER BACKFILL ACTIVITIES AROUND STRUCTURES SHALL BE TAMPED WITH EXCAVATION BUCKET PRIOR TO TRACK-PACKING OPERATIONS. COMPACTION ACTIVITIES SHOULD OVERLAP A MINIMUM OF 2 FEET.
- ALL ELEMENTS OF THE CREEK IMPROVEMENTS MAY BE SUBJECT TO FIELD FIT. THE CONTRACTOR MAY BE REQUIRED TO REPOSITION OR ADJUST THE INSTALLATION AS DIRECTED BY BOULDER COUNTY OR THE DESIGN ENGINEER.
- ALL BENTHIC FILL SHALL BE TRACK-PACKED OR TAMPED WITH A BUCKET OF AN EXCAVATOR IN LIFTS NOT TO EXCEED 1 FOOT THICK.
- SUBSTRATE FILL MAKEUP SHALL BE AS CLOSE TO NATIVE GRADATION AS POSSIBLE.
- SOD MATTES SHALL BE SAVED WHEREVER POSSIBLE FOR REVEGETATING EMBANKMENT BACKFILL.
- CREEK ACCESS POINTS AND STAGING AREAS SHALL BE LOCATED AS SPECIFIED ON THE PLANS. ALL ACCESS ROUTES IMPACTING BANKS SHALL BE RECLAIMED.
- CONTRACTOR SHOULD ANTICIPATE HANDLING ROCK AND BENTHIC MATERIAL MULTIPLE TIMES DURING PLACEMNT. CONSTRUCTION OF ROCK STRUCTURES IS SIMILAR TO PLACEMENT FOR ROCK RETAINING WALLS. ROCK PLACEMENT INVOLVES CHOOSING SPECIFIC ROCKS OF APPROPRIATE SIZE AND SHAPE, CREATING ROCK ALIGNMENT, AND PLACING TO PROPER DEPTH. DURING PLACEMENT, BENTHIC MATERIAL IS TYPICALLY SPREAD AND COMPACTED.
- CREEK BENTHIC MATERIAL THAT MAY BE REUSED AS FILL MATERIAL SHALL BE CLEARED OF VEGETATION AND WOODY DEBRIS PRIOR TO EXCAVATION.
- ANY MISCELLANEOUS DEBRIS ENCOUNTERED DURING EXCAVATION SHALL BE REMOVED FOR OFF-SITE DISPOSAL.
- UPLAND WORK SHALL BE ISOLATED FROM CREEK FLOWS TO THE MAXIMUM EXTENT PRACTICABLE.
- AT ALL TIMES DURING CONSTRUCTION, UPLAND SEDIMENT SHALL BE CONTAINED ON SITE BY APPROPRIATE BEST MANAGEMENT PRACTICES.
- ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.

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DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
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SHEET
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LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

VEGETATION NOTES

- THE CONTRACTOR SHALL IMMEDIATELY REVIEW VEGETATION PLANTING PLANS AND SECURE THE SPECIFIED PLANT AND CUTTING QUANTITIES TO CORRESPOND WITH THE PROJECT SCHEDULE. AN ABUNDANCE OF STREAM RESTORATION PROJECTS ALONG THE NORTHERN FRONT RANGE OF COLORADO HAS SIGNIFICANTLY REDUCED AVAILABLE NATIVE RIPARIAN PLANT STOCK AND CUTTING HARVESTING OPPORTUNITIES. AT ANY TIME, IF SECURING PLANT AND/OR CUTTING QUANTITIES IS SEEN TO BE A PROBLEM, CONTRACTOR SHALL NOTIFY BOULDER COUNTY AND THE DESIGN ENGINEER IMMEDIATELY.
- IN GENERAL, VEGETATION PLANTING SHALL BE PERFORMED ACCORDING TO THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 214. HOWEVER, INSTRUCTIONS AND SPECIFICATIONS PROVIDED ON THESE PLANS SHALL TAKE PRECEDENCE OVER CDOT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING REVEGETATION WORK.
- TREE AND SHRUB SIZE WILL BE THE STANDARD NURSERY CONTAINER SIZE SPECIFIED IN THESE PLANS.
- TREE AND SHRUB PLANTINGS SHALL BE PROTECTED FROM POTENTIAL FOOT TRAFFIC WITH TWO WOOD STAKES ON OPPOSITE SIDES OF THE PLANTING. IF DETERMINED TO BE NECESSARY BY THE DESIGN ENGINEER OR LANDSCAPE ARCHITECT, PROTECT TREE, SHRUB, AND LIVE DORMANT LOG AND BRUSH CUTTINGS FROM BEAVER WITH 2"x4" WELDED WIRE MESH FENCE 4' HIGH.
- ALDER, BIRCH, AND WILLOW SHALL BE PLANTED AS LIVE DORMANT LOG AND BRUSH CUTTINGS ACCORDING TO THE BRUSH LAYER PREPARATION AND PLANTING CDOT SPECIFICATIONS EXCEPT FOR:
 - WILLOW LIVE DORMANT CUTTINGS SHALL BE 4 TO 8 FEET IN LENGTH, DEPENDING UPON THE PLANTING AREA CONDITIONS, AND NOT GREATER THAN 1.5 INCHES IN DIAMETER AT THE BASAL END. A WILLOW LIVE DORMANT "CUTTING" PLACED IN RIPRAP SHALL CONSIST OF THREE (3) CUT AND PREPARED WILLOW STEMS. THE PLANTING HOLE WILL BE EXCAVATED TO THE WATER TABLE. PLACE CUTTING IN PLANTING HOLE WITH 6" TO 2' OF THE CUTTING EXPOSED ABOVE THE LAND SURFACE AND WITH LESS THAN HALF THE CUTTING LENGTH ABOVE THE LAND SURFACE.

VEGETATION NOTES (CONT)

- ALDER AND BIRCH LIVE DORMANT LOG CUTTINGS SHALL BE CUT FROM DONOR TREES AT A 45-DEGREE ANGLE 8 TO 10 INCHES FROM THE GROUND WITH LOPPERS OR HANDSAWS. THE CUTTINGS SHALL BE 4 TO 20 FEET IN LENGTH, DEPENDING UPON THE PLANTING AREA CONDITIONS, AND 1.5 INCHES OR GREATER IN DIAMETER AT THE BASAL END. BRANCHES SHALL BE TRIMMED AS DIRECTED. THE PLANTING HOLE WILL BE EXCAVATED TO THE WATER TABLE IN AN AREA WHERE THE WATER TABLE IS NOT LESS THAN 2 FEET DEEP. PLACE CUTTING IN PLANTING HOLE WITH 1' TO 3' OF THE CUTTING EXPOSED ABOVE THE LAND SURFACE AND WITH LESS THAN HALF THE CUTTING LENGTH ABOVE THE LAND SURFACE.

VEGETATION NOTES (CONT)

- TO THE EXTENT POSSIBLE, PLANTINGS SHALL BE EVENLY DISTRIBUTED THROUGHOUT THE RESPECTIVE ZONES. THE ZONE AREAS AND PLANT QUANTITIES SPECIFIED ARE INTENDED TO BE GUIDELINES FOR PLANT DISTRIBUTION. CONTRACTOR SHALL CONSULT WITH DESIGN ENGINEER OR LANDSCAPE ARCHITECT FOR ULTIMATE PLANT LOCATIONS. GENERAL PLANTING ZONES INCLUDE:
 - ZONE 1 - LIVE DORMANT WILLOW BRUSH CUTTINGS
 - ZONE 2 - LIVE DORMANT ALDER AND BIRCH LOG CUTTINGS AND WILLOW BRUSH CUTTINGS
 - ZONE C - REESTABLISH DIVERSE TREE AND SHRUB COMMUNITY
 - ZONE D - SHRUBS INTERSPERSED WITH EXISTING LARGER VEGETATION.

LIVE DORMANT LOG AND BRUSH CUTTINGS							
Plant Species	Unit	Quantity			Size	Spacing	Conditions
		Total	Zone 1	Zone 2			
Western River Birch (<i>Betula occidentilis</i>)	Ea	160	0	160	Log Pole	10' O.C.	Wet
Alder (<i>Alnus rubra</i>)	Ea	160	0	160	Log Pole	10' O.C.	Wet
Sandbar willow (<i>Salix exigua</i>) - preferable Alternate willow species include Coyote willow (<i>Salix exigua</i>), Mountain willow (<i>Salix monticola</i>), and Blue willow (<i>Salix irrorata</i>)	Ea	280	200	80	Brush Cuttings	3' O.C.	Wet

ROOTED PLANTS							
Plant Species	Unit	Quantity			Size	Spacing	Soil Conditions
		Total	Zone 3	Zone 4			
Narrowleaf Cottonwood (<i>Populus angustifolia</i>)	Ea	20	--- ⁽¹⁾	--- ⁽¹⁾	10 GAL	--- ⁽¹⁾	Moist
Hawthorn (<i>Crataegus</i> sp.)	Ea	10	--- ⁽¹⁾	--- ⁽¹⁾	5 GAL	--- ⁽¹⁾	Moist/Dry
Rocky Mountain Maple (<i>Acer glabrum</i>)	Ea	10	--- ⁽¹⁾	--- ⁽¹⁾	5 GAL	--- ⁽¹⁾	Moist/Dry
Chokecherry (<i>Prunus virginiana</i>)	Ea	75	75	0	5 GAL	6' O.C.	Moist
American Plum (<i>Prunus americana</i>)	Ea	50	50	0	5 GAL	6' O.C.	Moist
Gooseberry (<i>Ribes</i> sp.)	Ea	60	30	30	1 GAL	3' O.C.	Moist
Boulder Raspberry (<i>Oreobatus deliciosus</i>)	Ea	20	10	10	1 GAL	3' O.C.	Moist
Snowberry (<i>symphoricarpos albus</i>)	Ea	80	40	40	1 GAL	3' O.C.	Moist
Woods Rose (<i>Rosa woodsii</i>)	Ea	40	20	20	1 GAL	3' O.C.	Moist/Dry

⁽¹⁾ Plant as directed in the field

REVISION	DATE
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JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/CDP
APPROVED BY: WS/KWC

CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
MEMBER UTILITIES CALL 2-BUSINESS DAYS IN ADVANCE FOR THE MARKING OF UNDERGROUND BEFORE YOU DIG, GRADE, OR EXCAVATE

**LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS**
BOULDER COUNTY
NOTES (4 OF 4)

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N-4
SHEET
5 OF 22

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

NORTH ST VRAIN CREEK - CREEK REHABILITATION
BOULDER COUNTY, COLORADO
ENGINEERING COST ESTIMATE
October 28, 2015



North St. Vrain Creek

Item	Description	Unit	Quantity	Unit Cost	Total Cost
201	REMOVAL OF DEAD/DYING TREES	EA	2	\$ -	\$ -
203	BENTHIC EXCAVATION AND PLACEMENT	CY	1050	\$ -	\$ -
208	SEDIMENT CONTROL LOG (12")	LF	2000	\$ -	\$ -
208	ROOT WAD	EA	8	\$ -	\$ -
212	SOIL CONDITIONING	LS	1	\$ -	\$ -
214	PLANTING PERENNIALS - 1 GAL. CONTAINER	EA	200	\$ -	\$ -
214	PLANTING PERENNIALS - 5 GAL. CONTAINER	EA	145	\$ -	\$ -
214	PLANTING PERENNIALS - 10 GAL. CONTAINER	EA	20	\$ -	\$ -
214	PLANTING LIVE STAKES	EA	600	\$ -	\$ -
214	LANDSCAPE ESTABLISHMENT	LS	1	\$ -	\$ -
506	STRUCTURE ROCK DELIVERED AND PLACED	TON	220	\$ -	\$ -
506	STRUCTURE ROCK AVAILABLE ON-SITE AND PLACED	TON	20	\$ -	\$ -
626	MOBILIZATION	LS	1	\$ -	\$ -
630	TRAFFIC CONTROL - FLAGGING	HR	300	\$ -	\$ -

TOTAL \$ -

REVISION	DATE
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JOB NUMBER: WS/KWC
 DATE: 10.09.2015
 DESIGNED BY: SCHENDERLEIN
 DRAWN BY: ED/DV
 CHECKED BY: WS/KWC/GDP
 APPROVED BY: WS/KWC

CENTER OF COLORADO CALL
 UTILITY NOTIFICATION
 811
 MEMBER UTILITIES CALL
 2-BUSINESS DAYS IN ADVANCE
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LONGMONT DAM ROAD
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BOULDER COUNTY
QUANTITIES

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


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Q-1
SHEET
6 OF 22

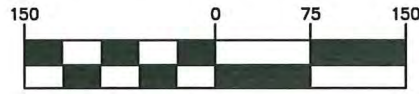
LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

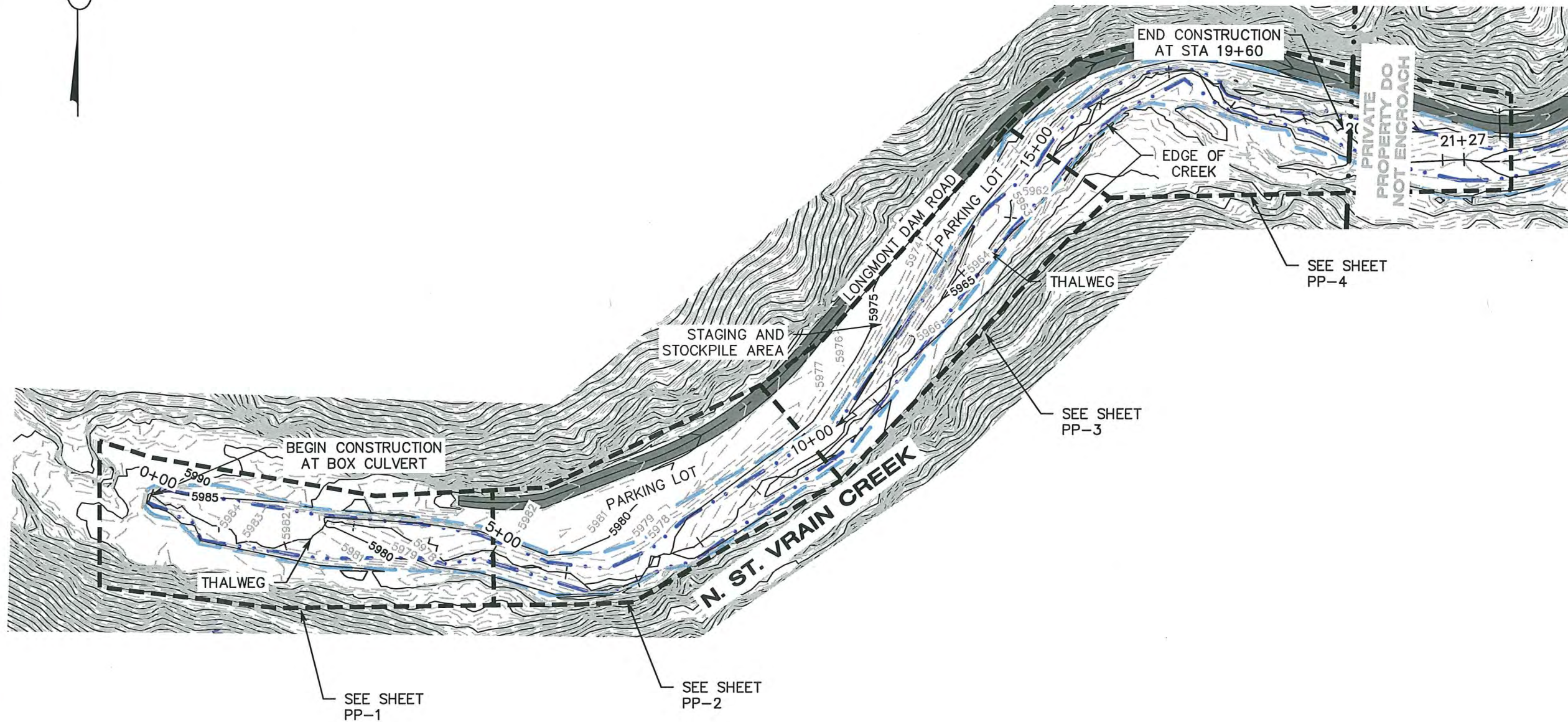
LEGEND:

-  EDGE OF CREEK
-  TOP OF BANK
-  PROPOSED THALWEG

GRAPHIC SCALE



(IN FEET)
1 inch = 150 ft.



BY:DVILLACRESIS FILE:100519-CREEK SITE PLAN.DWG DATE:11/6/2015 10:17 AM

REVISION	DATE
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JOB NUMBER: WS/KWC
 DATE: 10.09.2015
 DESIGNED BY: SCHENDERLEIN
 DRAWN BY: ED/DV
 CHECKED BY: WS/KWC/CDP
 APPROVED BY: WS/KWC

CENTER OF COLORADO CALL
 UTILITY NOTIFICATION
 811
 MEMBER UTILITIES CALL
 2-BUSINESS DAYS IN ADVANCE
 FOR THE MARKING OF UNDERGROUND
 BEFORE YOU DIG, GRADE, OR EXCAVATE

**LONGMONT DAM ROAD
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BOULDER COUNTY
CREEK SITE PLAN

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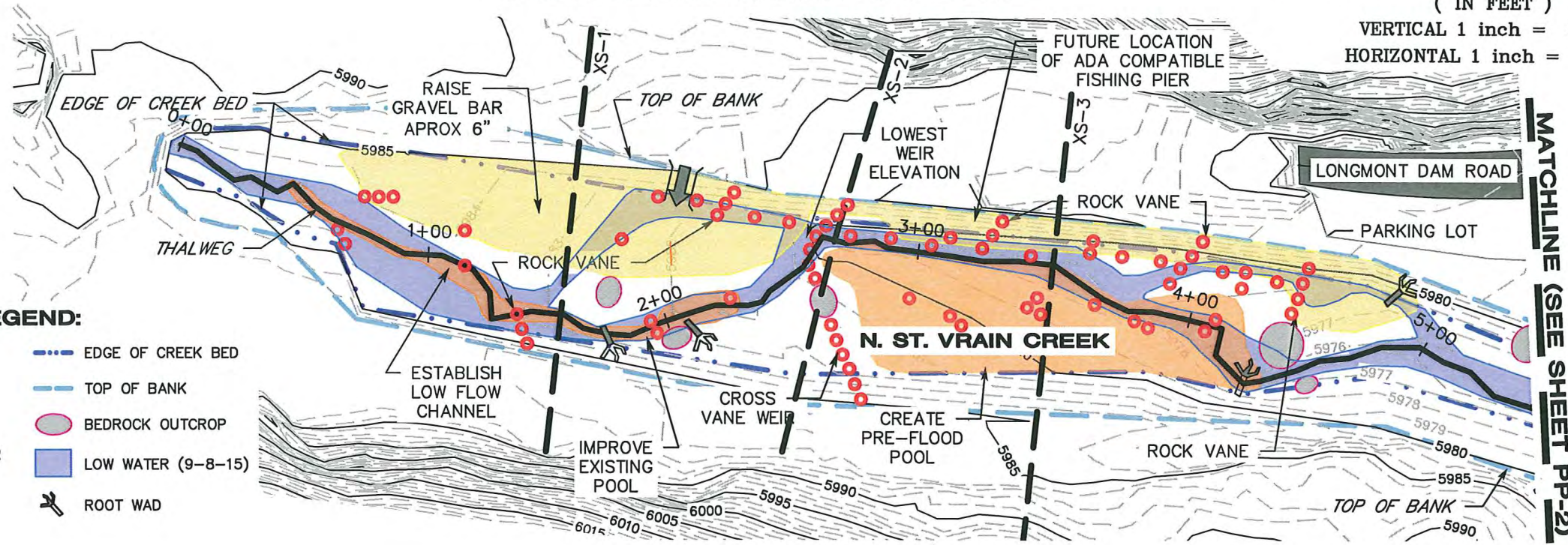
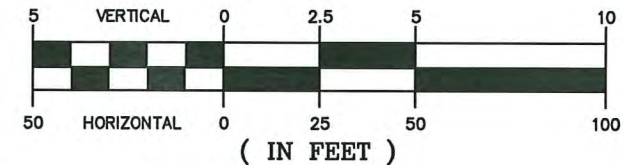



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S-1
SHEET
7 OF 22

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

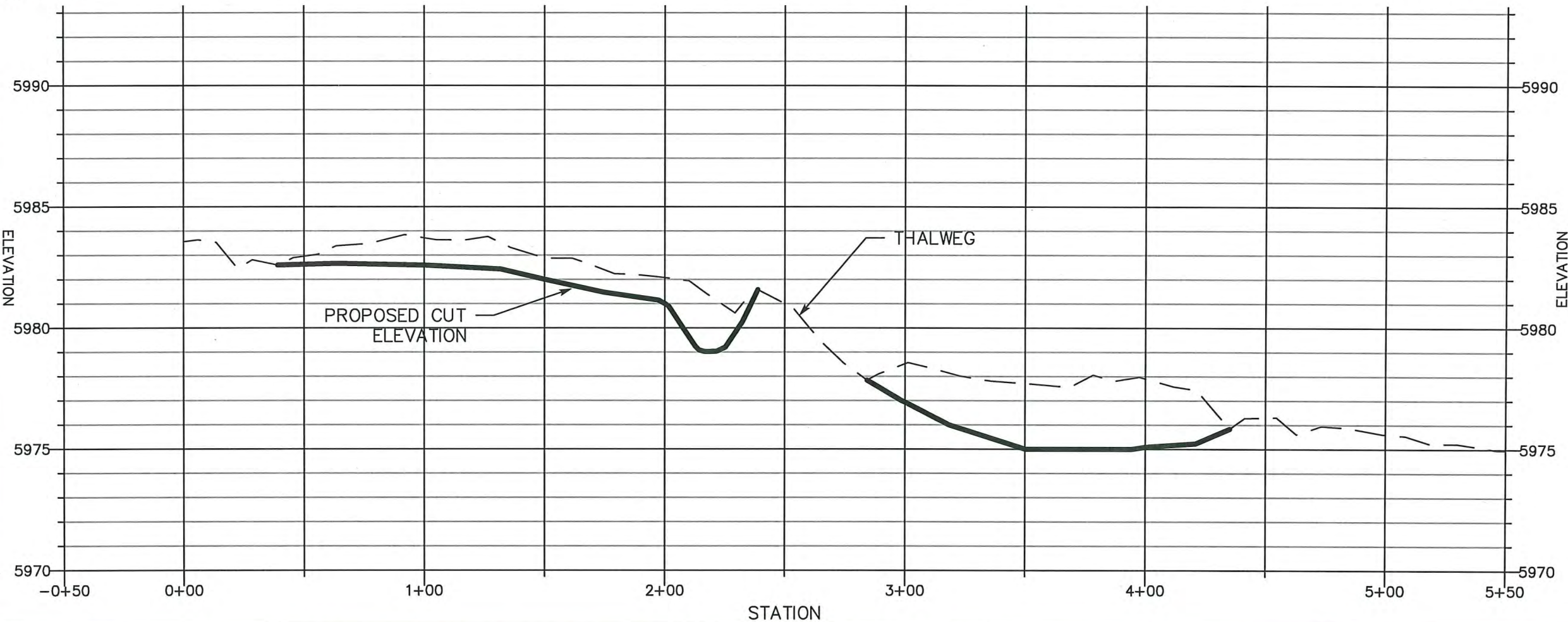
PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

GRAPHIC SCALE



LEGEND:

- CUT
- FILL
- THALWEG
- PROPOSED BOULDER PLACEMENT (NTS)
- CREEK ACCESS
- LOG VANE
- EDGE OF CREEK BED
- TOP OF BANK
- BEDROCK OUTCROP
- LOW WATER (9-8-15)
- ROOT WAD



REVISION	DATE
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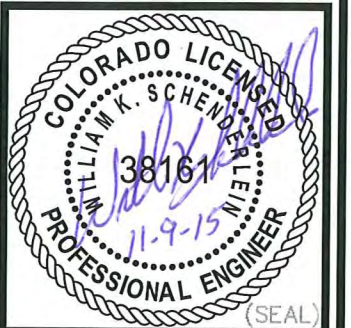
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 DATE: 10.09.2015
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 DRAWN BY: ED/DV
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 APPROVED BY: WS/KWC

CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
 MEMBER UTILITIES CALL 2-BUSINESS DAYS IN ADVANCE FOR THE MARKING OF UNDERGROUND BEFORE YOU DIG, GRADE, OR EXCAVATE

**LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS**
BOULDER COUNTY
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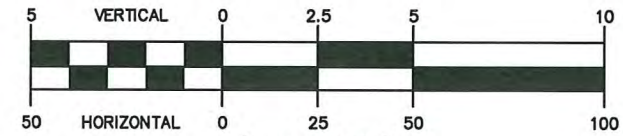
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PP-1**
SHEET
8 OF 22

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LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

GRAPHIC SCALE

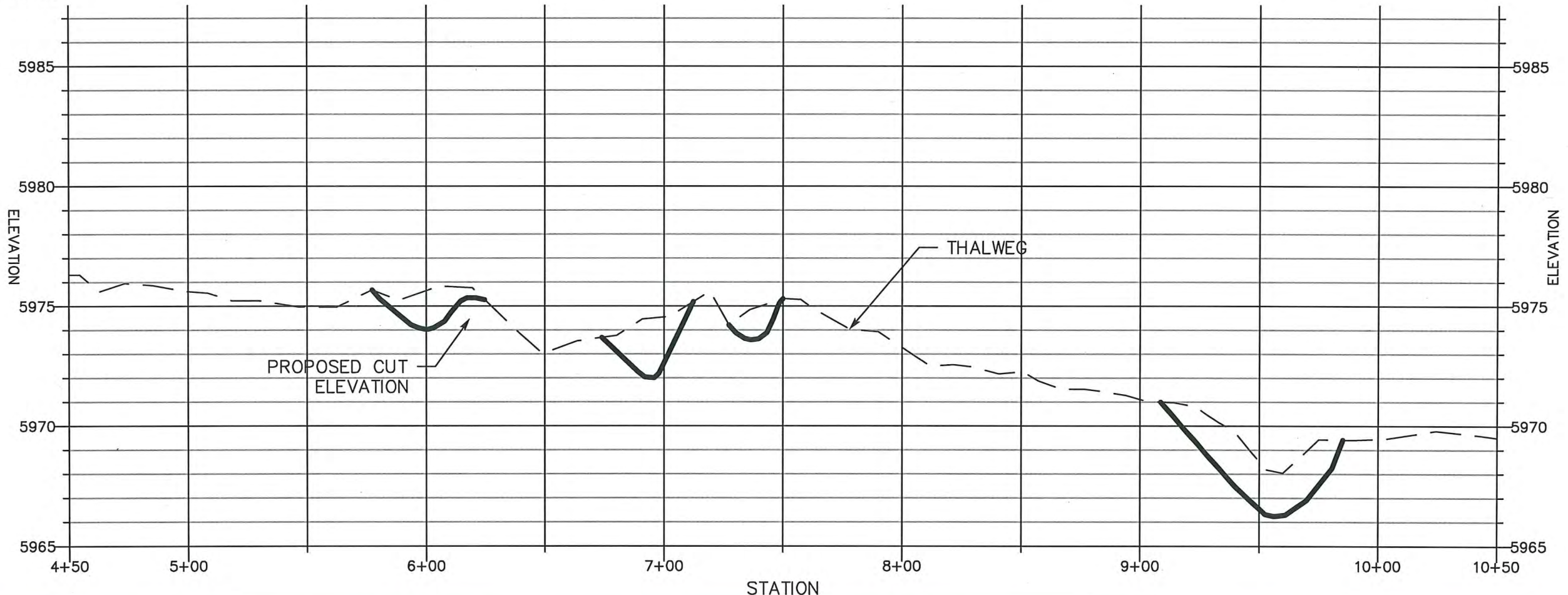
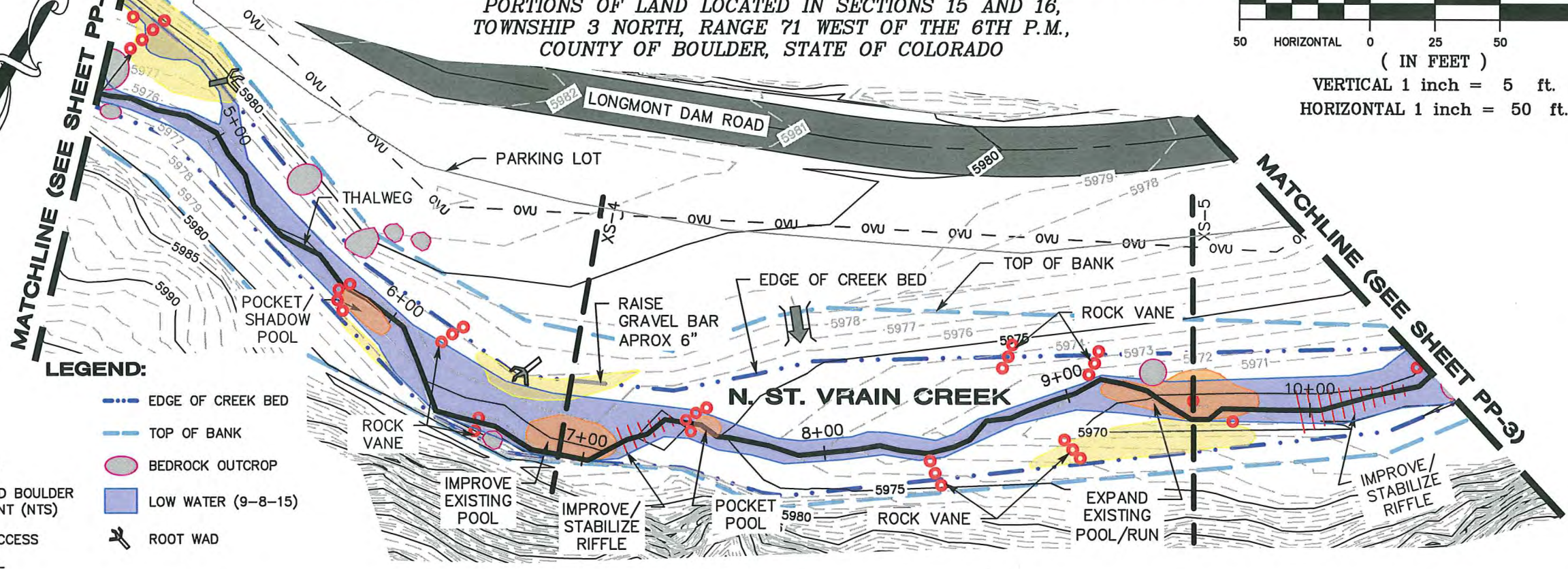


(IN FEET)
VERTICAL 1 inch = 5 ft.
HORIZONTAL 1 inch = 50 ft.

MATCHLINE (SEE SHEET PP-1)

MATCHLINE (SEE SHEET PP-3)

- LEGEND:**
- CUT
 - FILL
 - THALWEG
 - PROPOSED BOULDER PLACEMENT (NTS)
 - CREEK ACCESS
 - LOG VANE
 - EDGE OF CREEK BED
 - TOP OF BANK
 - BEDROCK OUTCROP
 - LOW WATER (9-8-15)
 - ROOT WAD



REVISION	DATE
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CENTER OF COLORADO CALL
 UTILITY NOTIFICATION
 811
 MEMBER UTILITIES CALL
 2-BUSINESS DAYS IN ADVANCE
 FOR THE MARKING OF UNDERGROUND
 BEFORE YOU DIG, GRADE, OR EXCAVATE

**LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS**
BOULDER COUNTY
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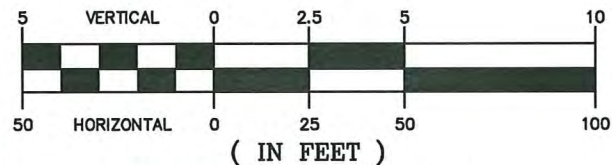
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**DRAWING
PP-2**
SHEET
9 OF 22

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GRAPHIC SCALE



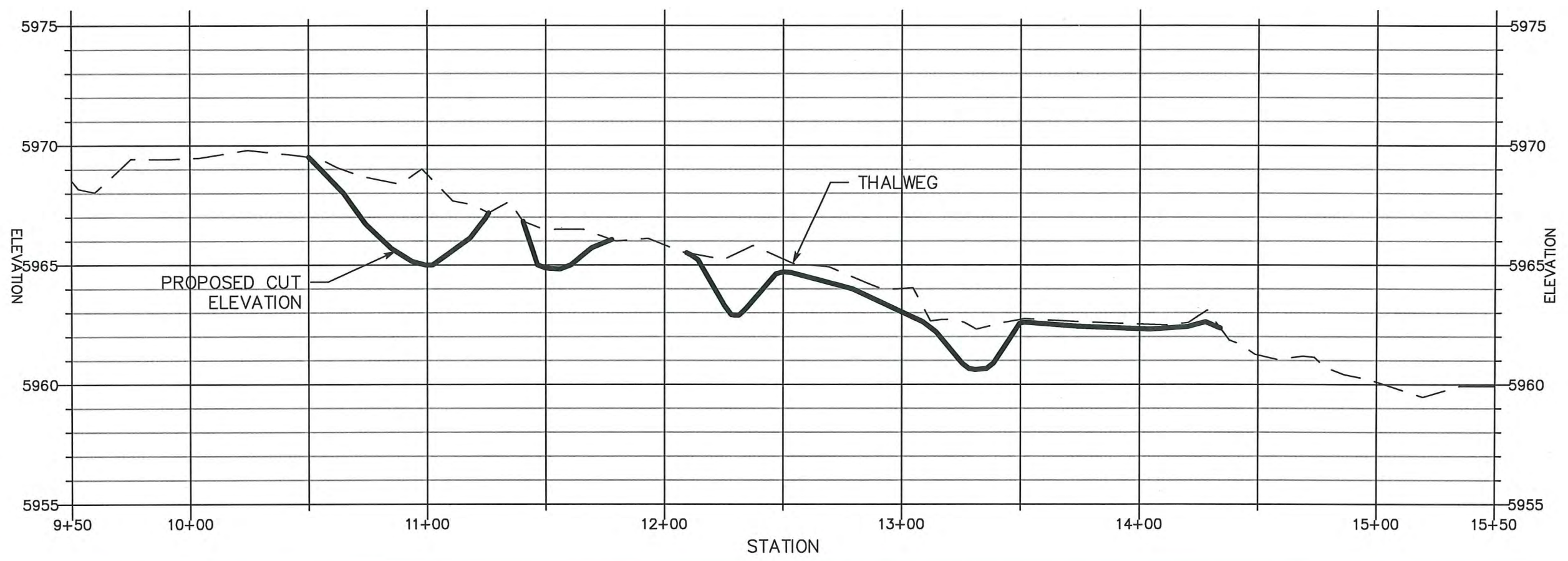
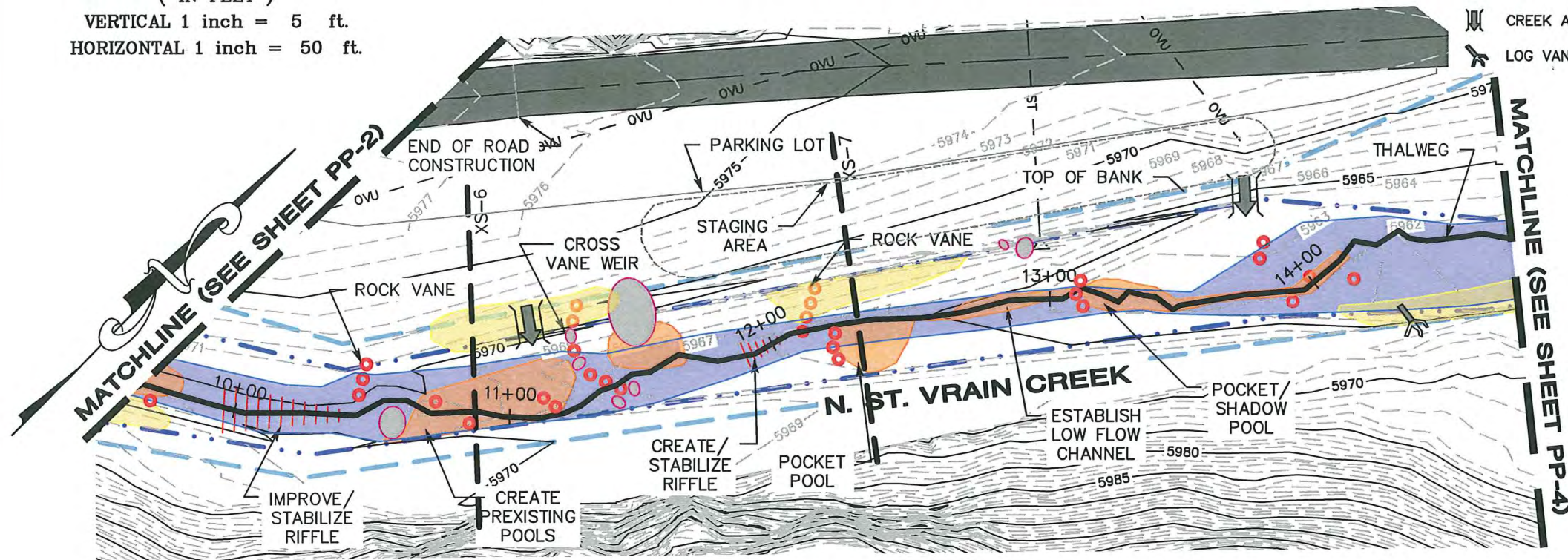
(IN FEET)
 VERTICAL 1 inch = 5 ft.
 HORIZONTAL 1 inch = 50 ft.

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
 TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
 COUNTY OF BOULDER, STATE OF COLORADO

LEGEND:

- CUT
- FILL
- THALWEG
- PROPOSED BOULDER PLACEMENT (NTS)
- CREEK ACCESS
- LOG VANE
- EDGE OF CREEK BED
- TOP OF BANK
- BEDROCK OUTCROP
- LOW WATER (9-8-15)
- ROOT WAD



BY:DVILLACRESIS FILE:100519-CREEK PLAN & PROFILE.DWG DATE:11/6/2015 10:18 AM

REVISION	DATE	DESCRIPTION
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JOB NUMBER: WS/KWC 10.09.2015
 DATE: 10.09.2015
 DESIGNED BY: SCHENDERLEIN
 DRAWN BY: ED/DV
 CHECKED BY: WS/KWC/CDP
 APPROVED BY: WS/KWC

CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
 MEMBER UTILITIES CALL 2-BUSINESS DAYS IN ADVANCE FOR THE MARKING OF UNDERGROUND BEFORE YOU DIG, GRADE, OR EXCAVATE

LONGMONT DAM ROAD
 NSV CREEK HABITAT IMPROVEMENTS
 BOULDER COUNTY
 CREEK PLAN & PROFILE (3 OF 4)

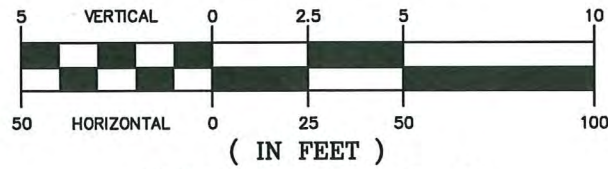
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DRAWING
PP-3
 SHEET
 10 OF 22

GRAPHIC SCALE



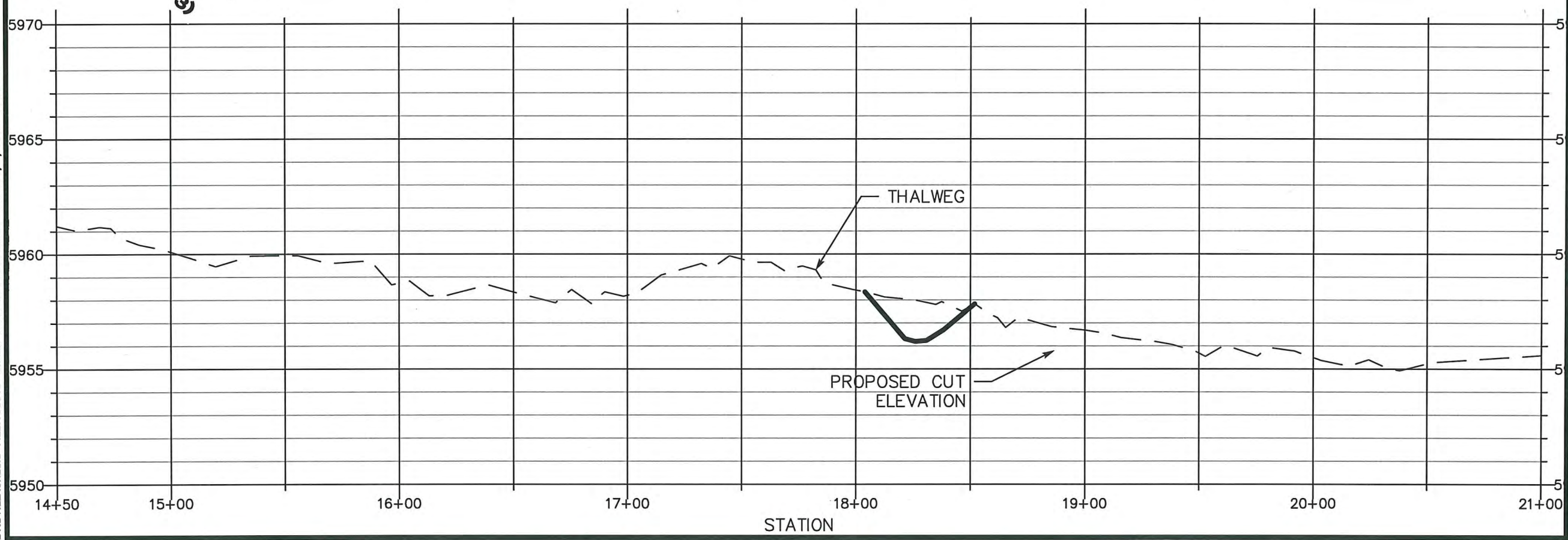
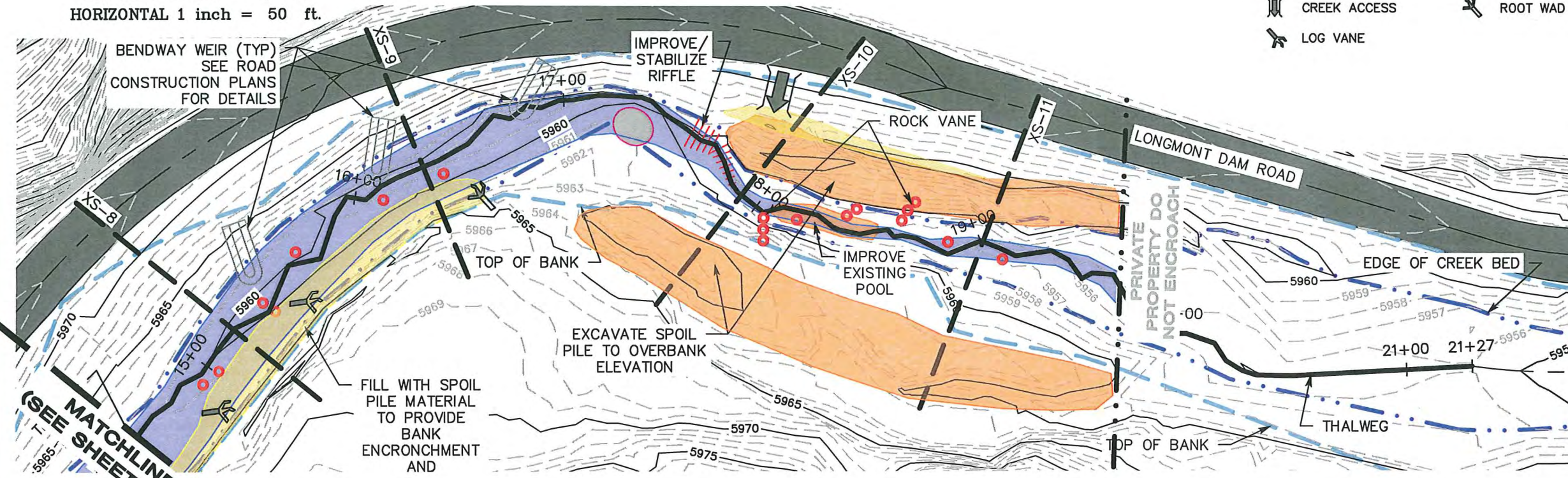
VERTICAL 1 inch = 5 ft.
HORIZONTAL 1 inch = 50 ft.

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

LEGEND:

- CUT
- FILL
- THALWEG
- PROPOSED BOULDER PLACEMENT (NTS)
- CREEK ACCESS
- LOG VANE
- EDGE OF CREEK BED
- TOP OF BANK
- BEDROCK OUTCROP
- LOW WATER (9-8-15)
- ROOT WAD



REVISION	DATE
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JOB NUMBER: WS/KWC
DATE: 10.09.2015
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CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
MEMBER UTILITIES CALL 2-BUSINESS DAYS IN ADVANCE FOR THE MARKING OF UNDERGROUND BEFORE YOU DIG, GRADE, OR EXCAVATE

**LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS**
BOULDER COUNTY
CREEK PLAN & PROFILE (4 OF 4)

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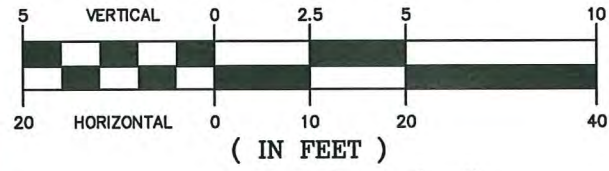
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PP-4**
SHEET
11 OF 22

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GRAPHIC SCALE



LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

LEGEND:

- EXISTING GROUND
- PROPOSED GROUND
- █ FILL
- PROPOSED BOULDER PLACEMENT (NTS)
- BEDROCK OUTCROP

REVISION	DATE
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JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/CDP
APPROVED BY: WS/KWC

CENTER OF COLORADO CALL
UTILITY NOTIFICATION
811
NUMBER UTILITIES CALL
2-BUSINESS DAYS IN ADVANCE
FOR THE MARKING OF UNDERGROUND
BEFORE YOU DIG, GRADE, OR EXCAVATE

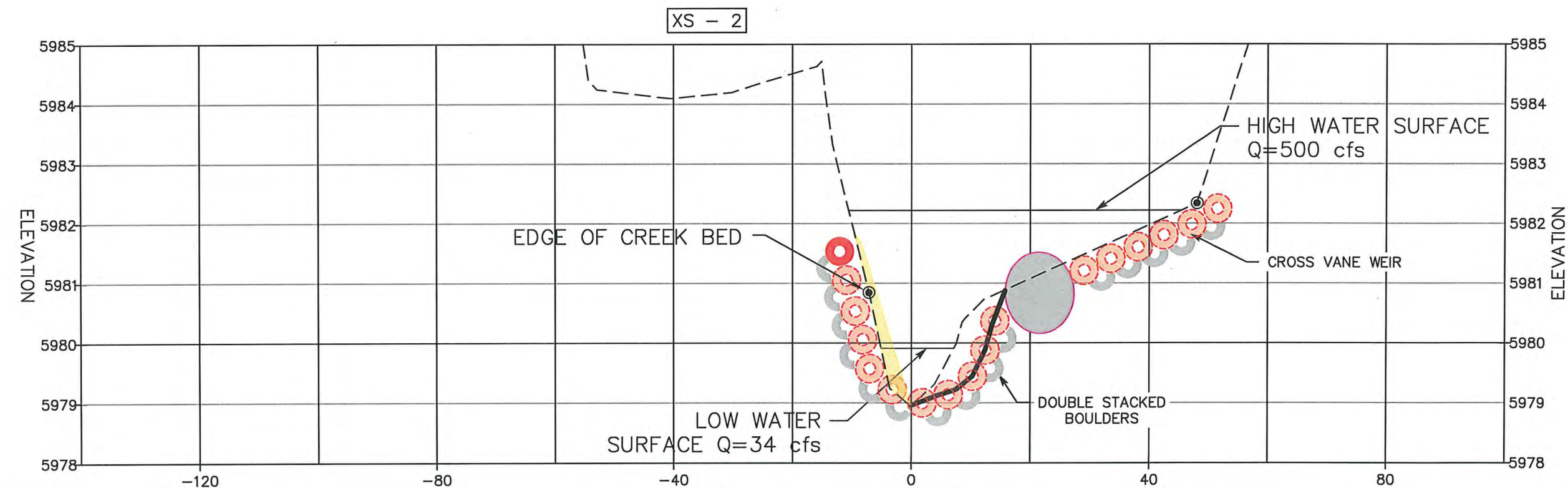
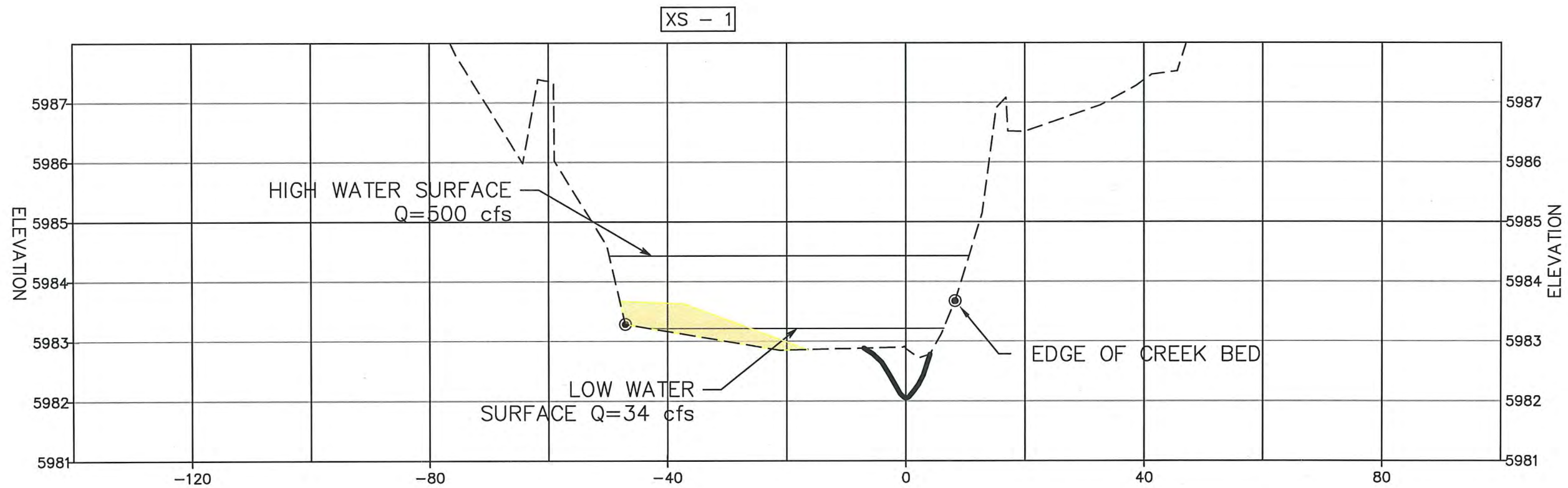
LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS
BOULDER COUNTY
CREEK CROSS VIEW (1 OF 6)

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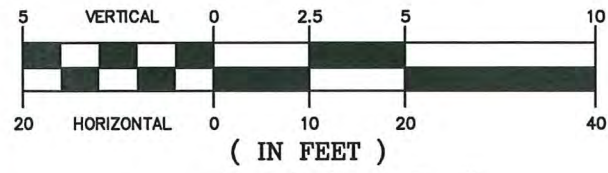


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XS-1
SHEET
12 OF 22



BY:DVILLACRESIS FILE:100519-CREEK CROSS VIEW.DWG DATE:11/6/2015 10:19 AM

GRAPHIC SCALE



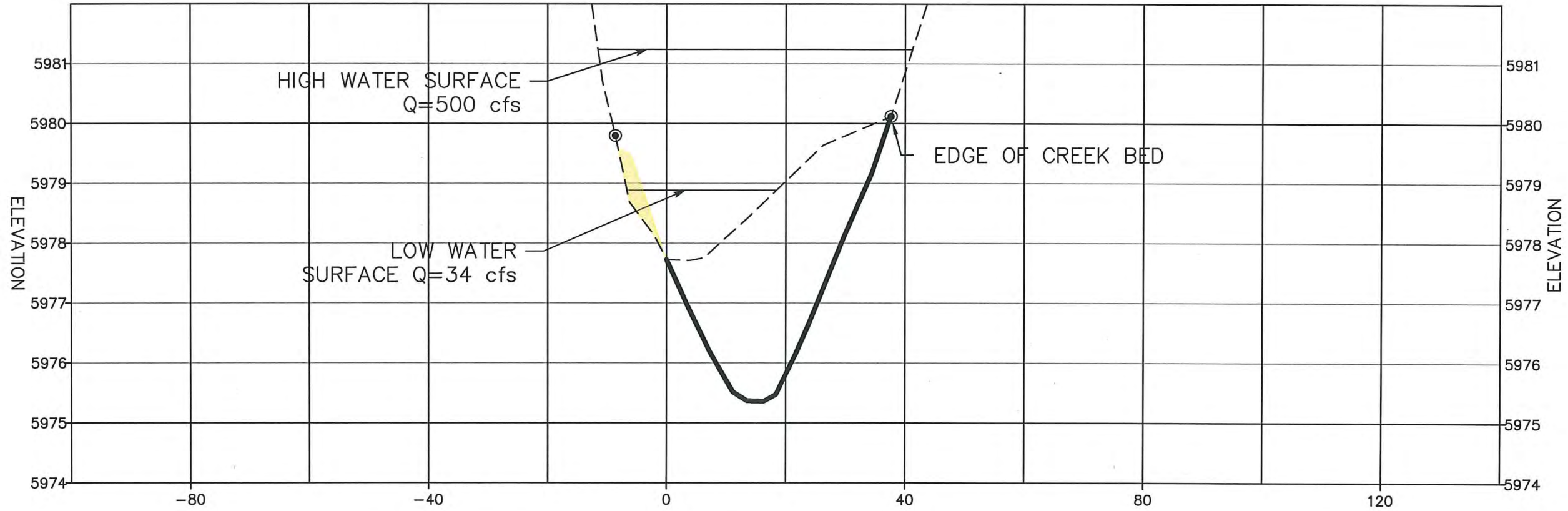
LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
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COUNTY OF BOULDER, STATE OF COLORADO

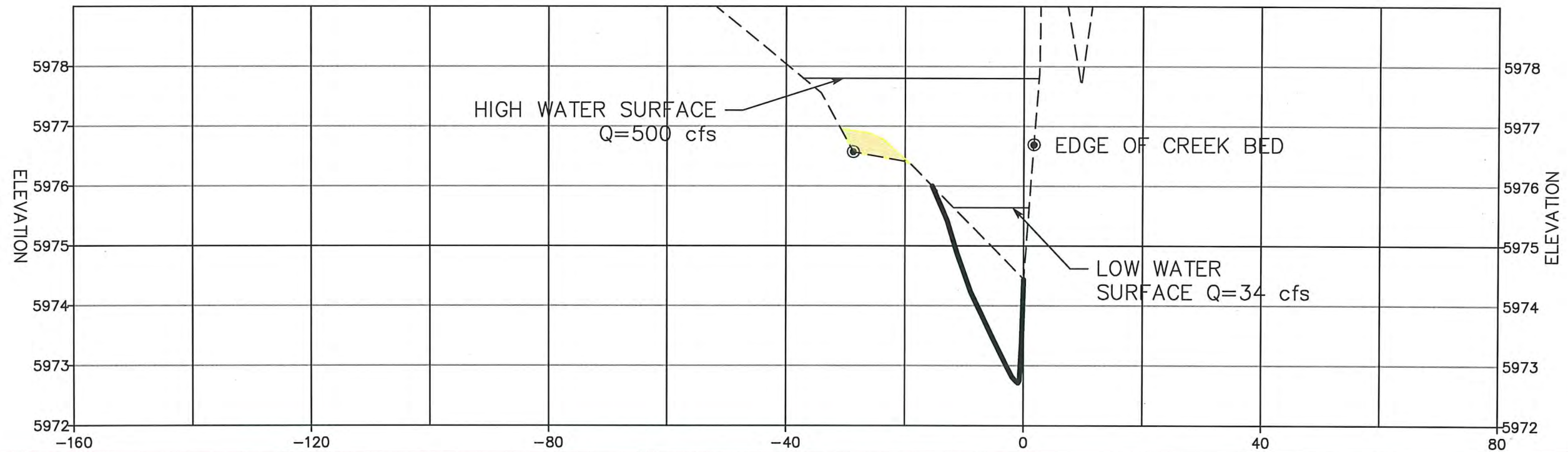
LEGEND:

- EXISTING GROUND
- PROPOSED GROUND
- BEDROCK OUTCROP
- FILL
- PROPOSED BOULDER PLACEMENT (NTS)

XS - 3



XS - 4



REVISION	DATE
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CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
MEMBER UTILITIES CALL 2-BUSINESS DAYS IN ADVANCE FOR THE MARKING OF UNDERGROUND BEFORE YOU DIG, GRADE, OR EXCAVATE

JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/CDP
APPROVED BY: WS/KWC

LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS
BOULDER COUNTY
CREEK CROSS VIEW (2 OF 6)

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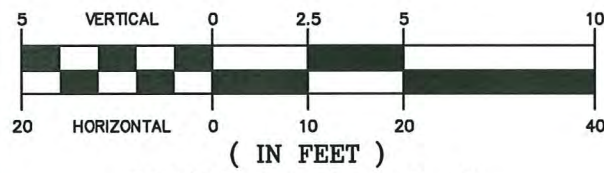
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XS-2
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13 OF 22

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GRAPHIC SCALE



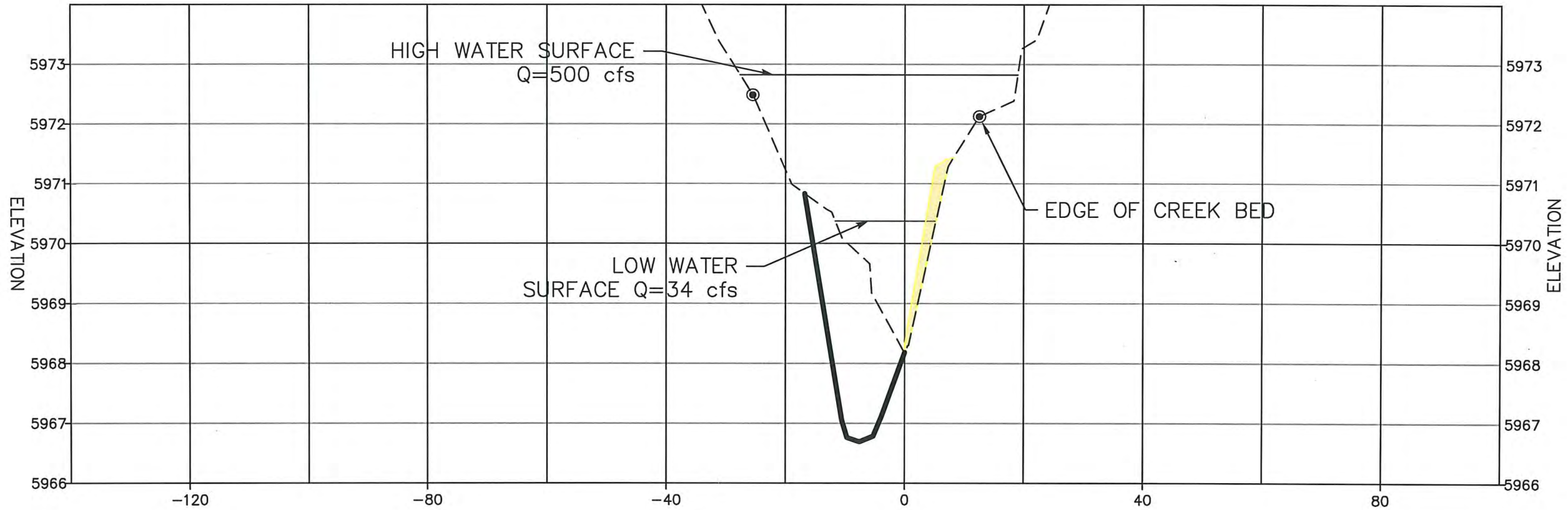
LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

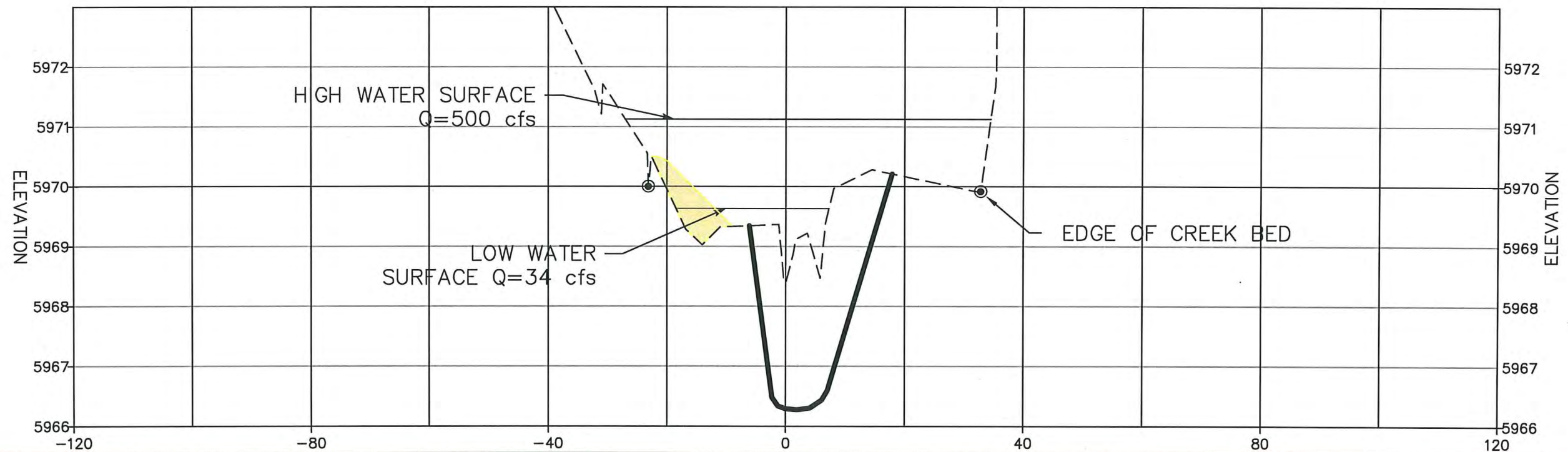
LEGEND:

- EXISTING GROUND
- PROPOSED GROUND
- BEDROCK OUTCROP
- FILL
- PROPOSED BOULDER PLACEMENT (NTS)

XS - 5



XS - 6



REVISION	DATE
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JOB NUMBER: WS/KWC
 DATE: 10.09.2015
 DESIGNED BY: SCHENDERLEIN
 DRAWN BY: ED/DV
 CHECKED BY: WS/KWC/CDP
 APPROVED BY: WS/KWC

CENTER OF COLORADO CALL
 UTILITY NOTIFICATION
 811
 MEMBER UTILITIES CALL
 2-BUSINESS DAYS IN ADVANCE
 FOR THE MARKING OF UNDERGROUND
 BEFORE YOU DIG, GRADE, OR EXCAVATE

LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS
 BOULDER COUNTY
 CREEK CROSS VIEW (3 OF 6)

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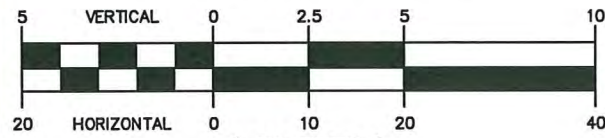
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DRAWING
XS-3
 SHEET
 14 OF 22

BY:DVILLACRESIS FILE:100519-CREEK CROSS VIEW.DWG DATE:11/6/2015 10:19 AM

GRAPHIC SCALE



(IN FEET)
 VERTICAL 1 inch = 5 ft.
 HORIZONTAL 1 inch = 20 ft.

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
 TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
 COUNTY OF BOULDER, STATE OF COLORADO

LEGEND:

- EXISTING GROUND
- PROPOSED GROUND
- BEDROCK OUTCROP
- FILL
- PROPOSED BOULDER PLACEMENT (NTS)

REVISION	DATE
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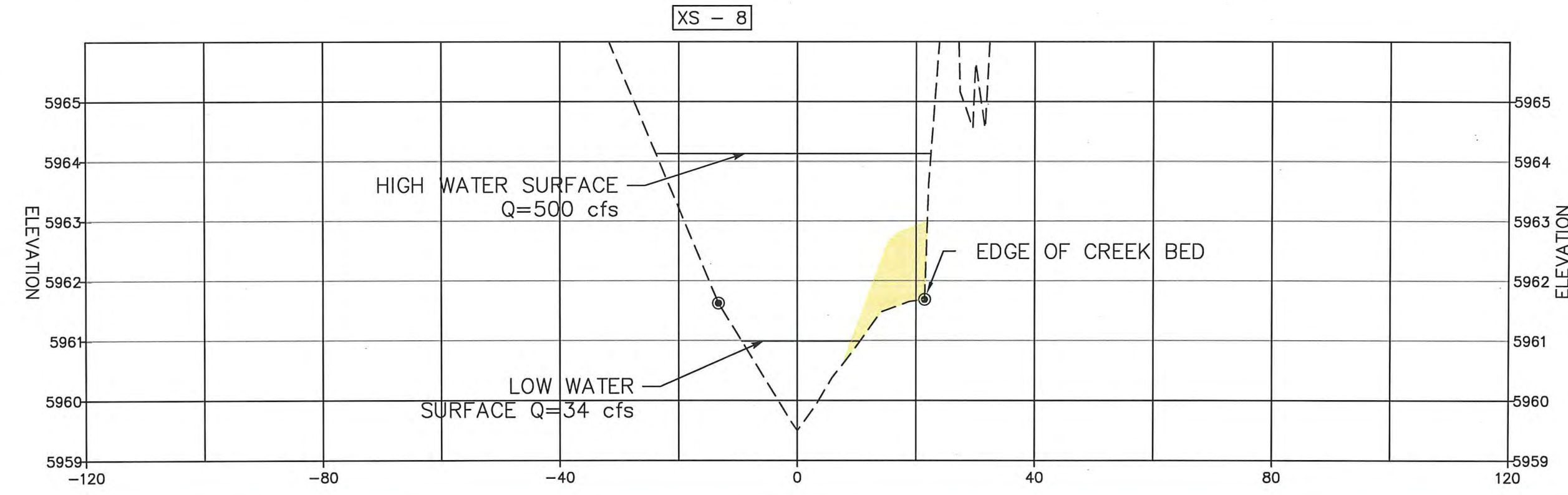
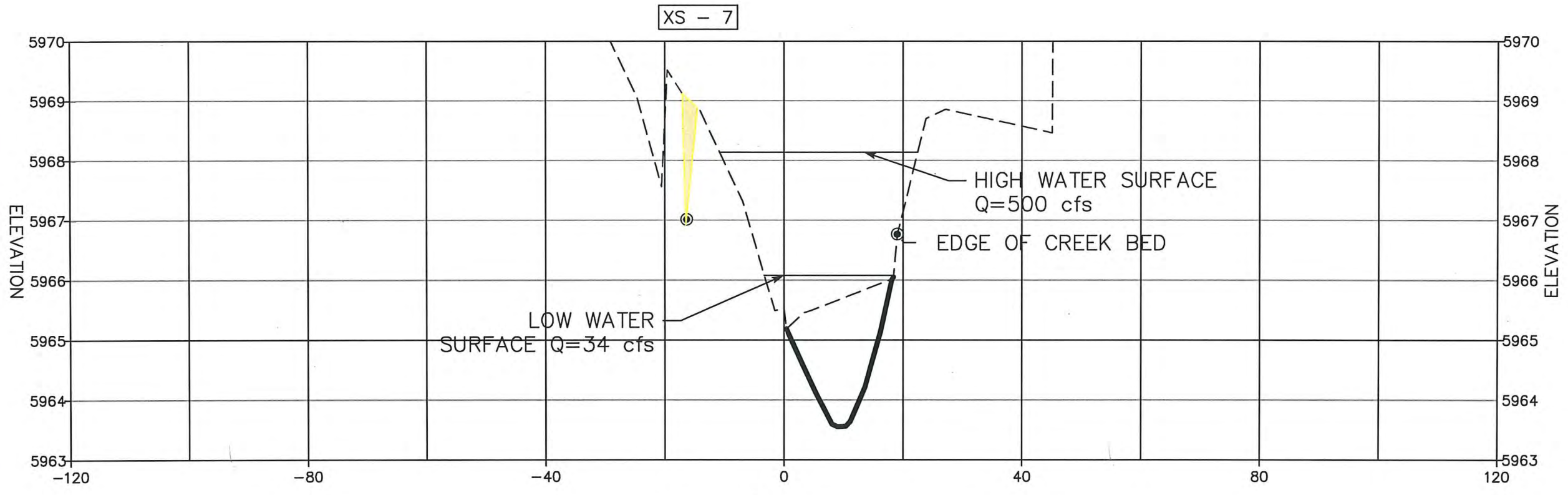
JOB NUMBER: WS/KWC
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 DRAWN BY: ED/DV
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 CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
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 BOULDER COUNTY
 CREEK CROSS VIEW (4 OF 6)

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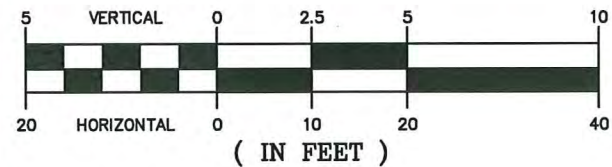


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XS-4
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 15 OF 22



BY:DVILLACRESIS FILE:100519-CREEK CROSS VIEW.DWG DATE:11/6/2015 10:19 AM

GRAPHIC SCALE



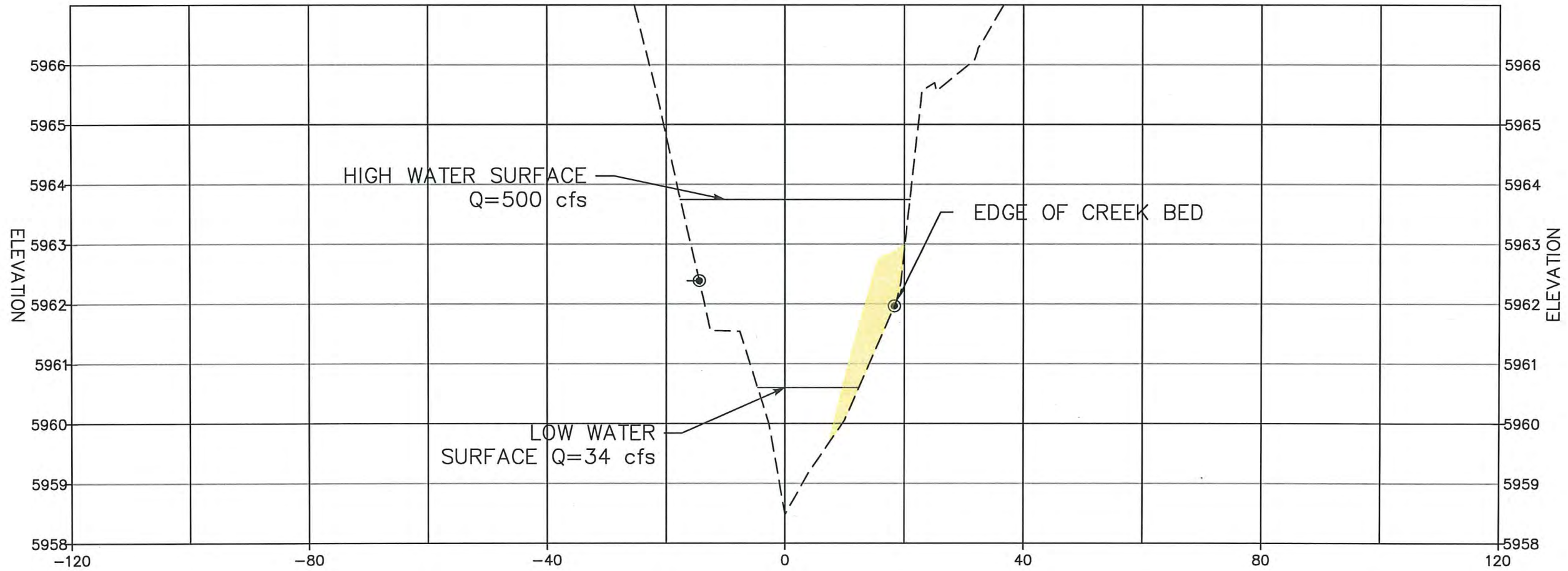
LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

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TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

LEGEND:

- EXISTING GROUND
- PROPOSED GROUND
- BEDROCK OUTCROP
- FILL
- PROPOSED BOULDER PLACEMENT (NTS)

XS - 9



REVISION	DATE
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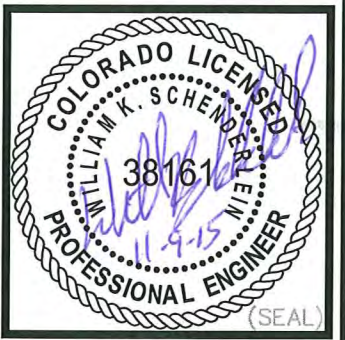
JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/CDP
APPROVED BY: WS/KWC

CENTER OF COLORADO CALL
UTILITY NOTIFICATION
811
NUMBER UTILITIES CALL
2-BUSINESS DAYS IN ADVANCE
FOR THE MARKING OF UNDERGROUND
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LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS
BOULDER COUNTY
CREEK CROSS VIEW (5 OF 6)

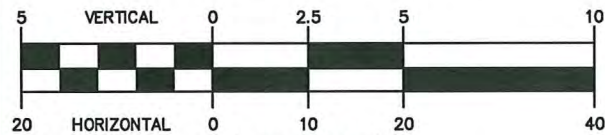
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XS-5
SHEET
16 OF 22

GRAPHIC SCALE



(IN FEET)

VERTICAL 1 inch = 5 ft.

HORIZONTAL 1 inch = 20 ft.

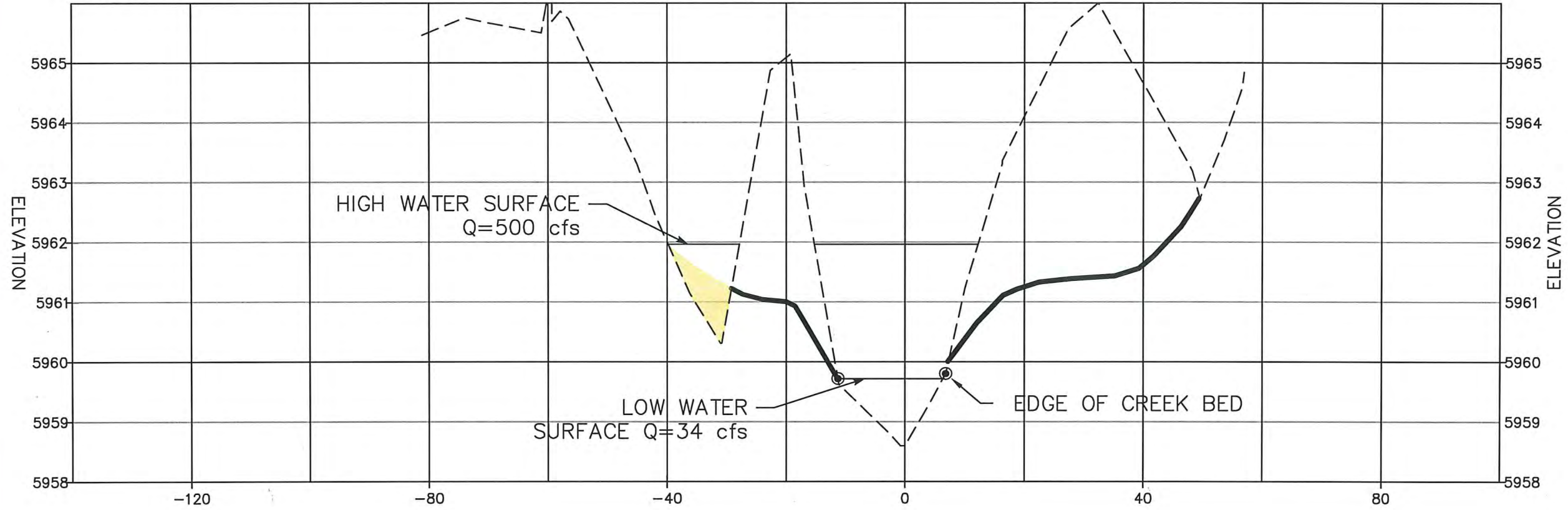
LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
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COUNTY OF BOULDER, STATE OF COLORADO

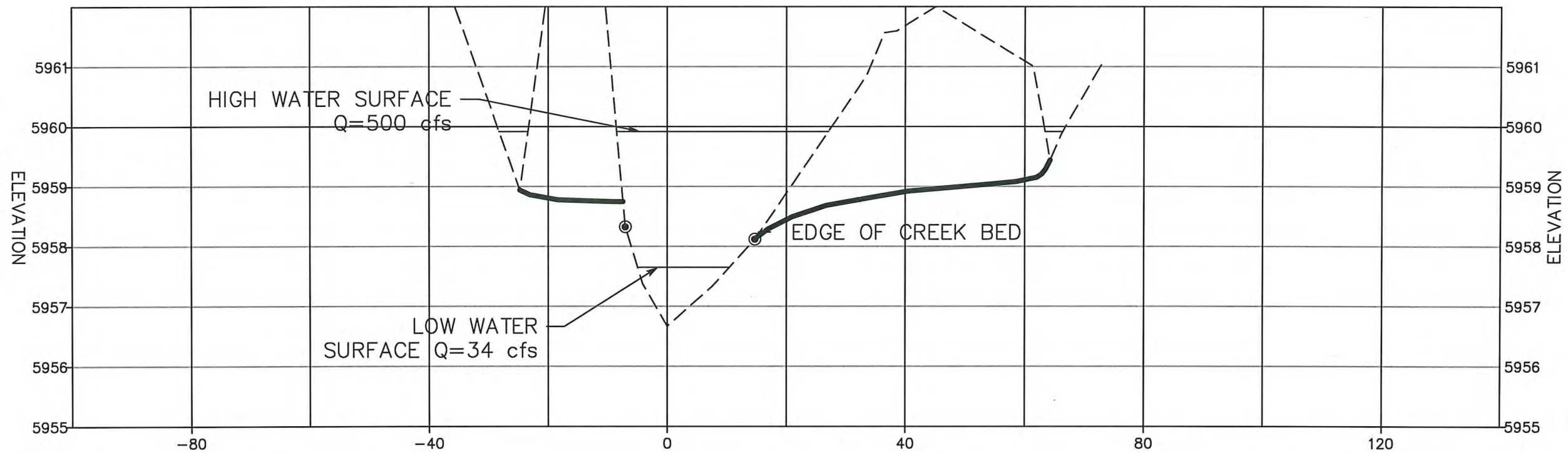
LEGEND:

- EXISTING GROUND
- PROPOSED GROUND
- FILL
- PROPOSED BOULDER PLACEMENT (NTS)
- BEDROCK OUTCROP

XS - 10



XS - 11



BY:DVILLACRESIS FILE:100519-CREEK CROSS VIEW.DWG DATE:11/6/2015 10:19 AM

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JOB NUMBER: WS/KWC
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LONGMONT DAM ROAD
NSV CREEK HABITAT IMPROVEMENTS
 BOULDER COUNTY
 CREEK CROSS VIEW (6 OF 6)

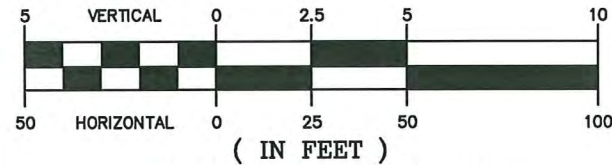
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XS-6
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 17 OF 22

GRAPHIC SCALE



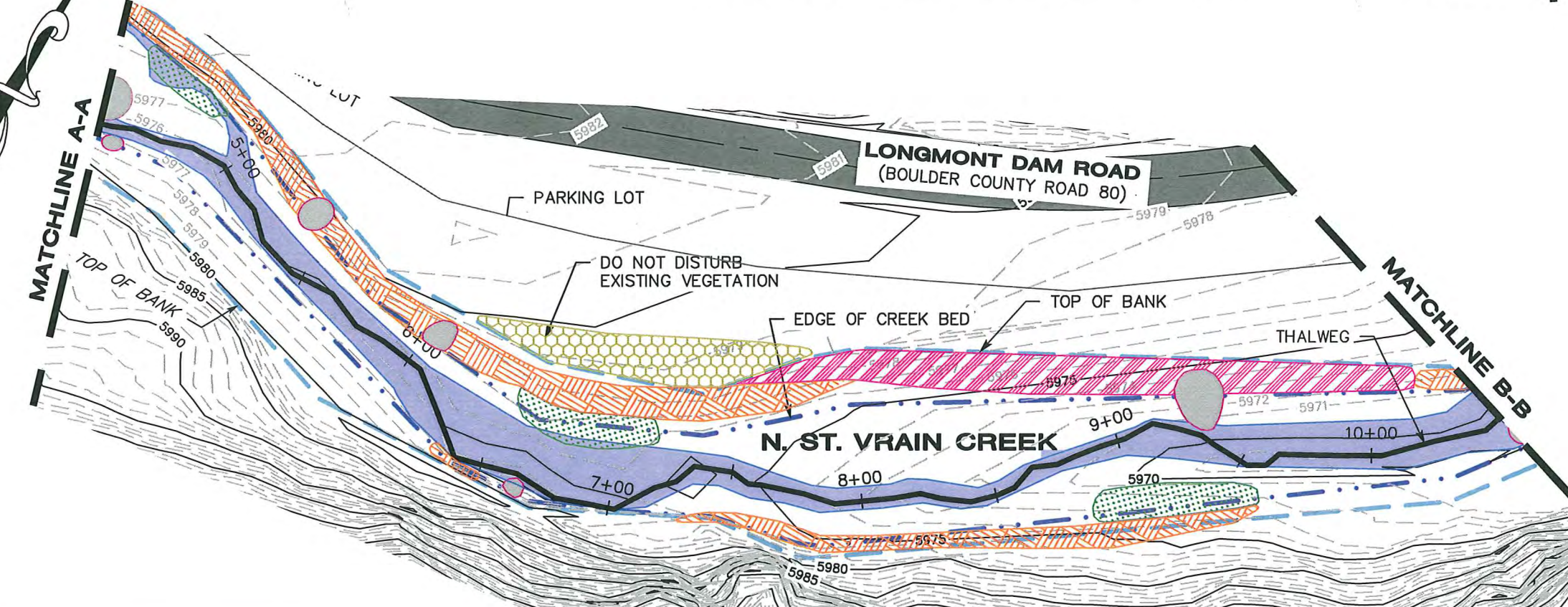
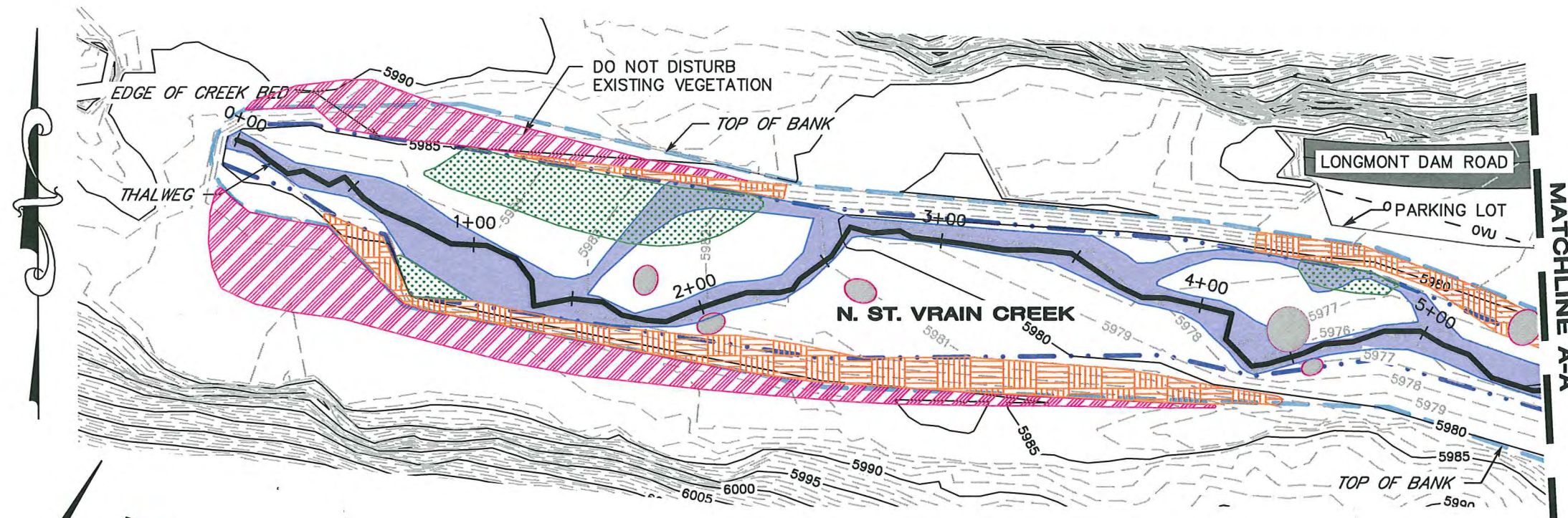
(IN FEET)
 VERTICAL 1 inch = 5 ft.
 HORIZONTAL 1 inch = 50 ft.

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
 TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
 COUNTY OF BOULDER, STATE OF COLORADO

- LEGEND:**
- ZONE 1
 - ZONE 2
 - ZONE 3
 - ZONE 4

- EDGE OF CREEK BED
- TOP OF BANK
- THALWEG
- PROPERTY LIMIT



REVISION	DATE
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CENTER OF COLORADO CALL
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 APPROVED BY: WS/KWC

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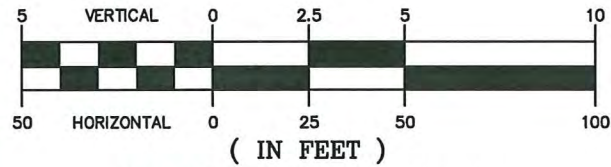
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**DRAWING
 LS-1**
 SHEET
 18 OF 22

BY:DVILLACRESIS FILE:100519-CREEK LANDSCAPE.DWG DATE:11/6/2015 10:20 AM

GRAPHIC SCALE



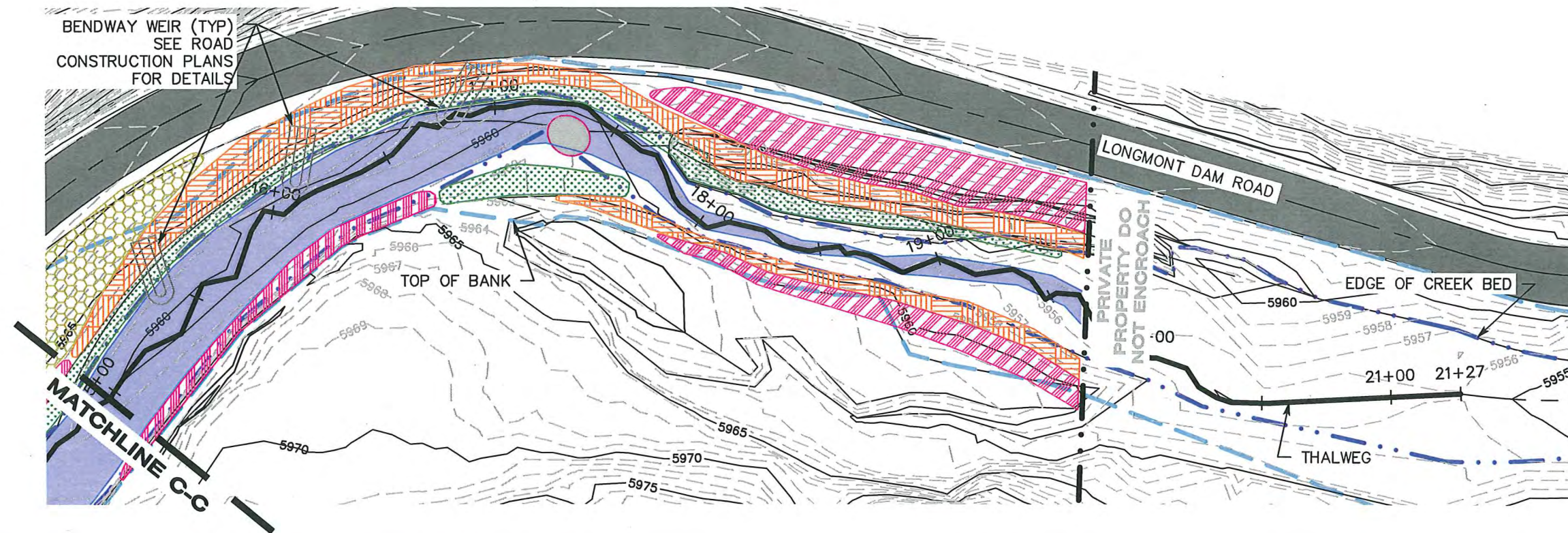
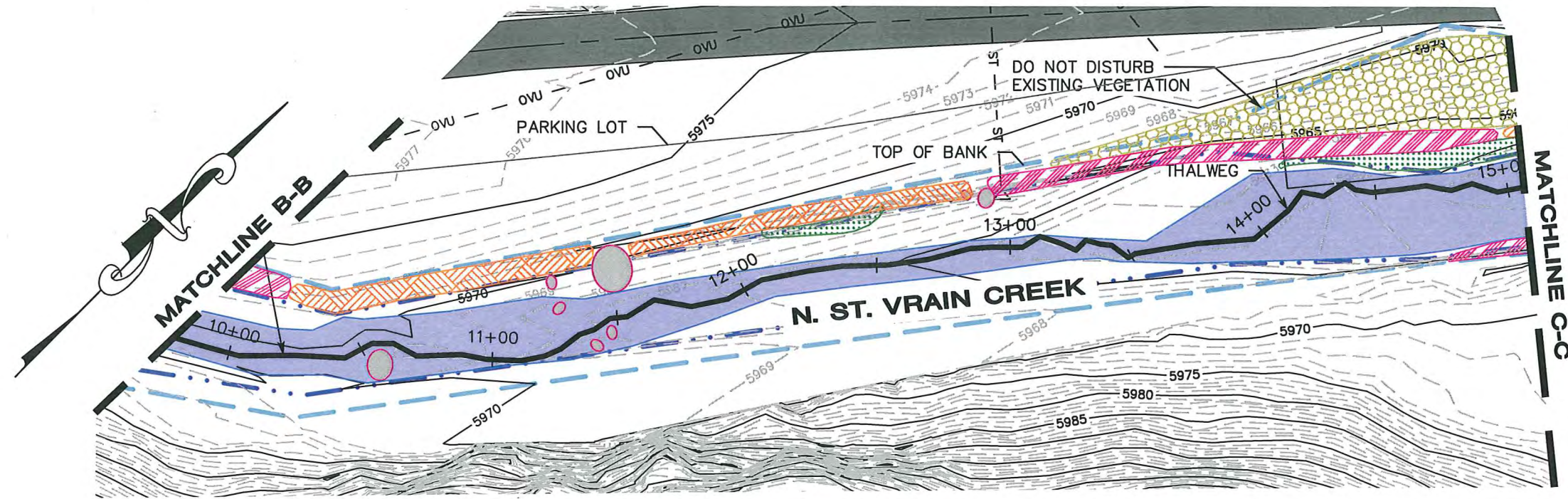
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LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
 TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
 COUNTY OF BOULDER, STATE OF COLORADO

LEGEND:

- ZONE 1
- ZONE 2
- ZONE 3
- ZONE 4
- EDGE OF CREEK BED
- TOP OF BANK
- THALWEG
- PROPERTY LIMIT



REVISION	DATE

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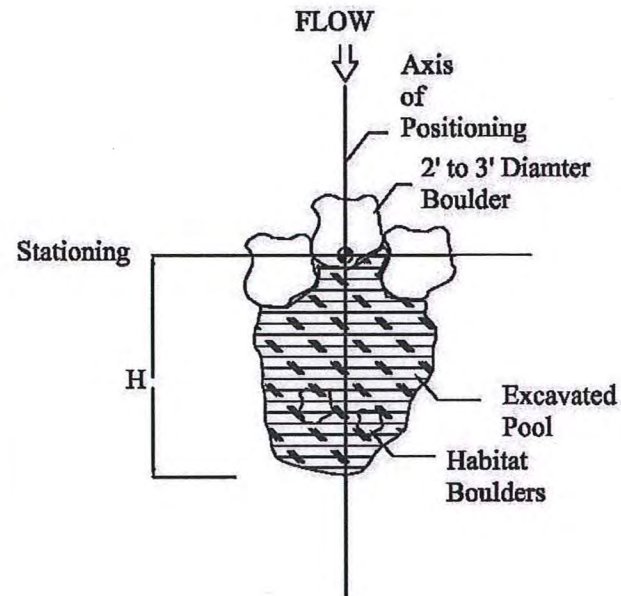


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 LS-2**
 SHEET
 19 OF 22

BY:DVILLACRESIS FILE:100519-CREEK LANDSCAPE.DWG DATE:11/6/2015 10:20 AM

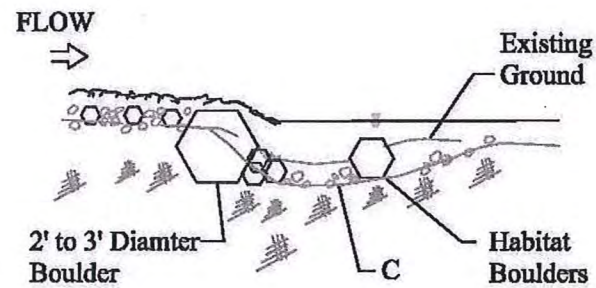
LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

PORTIONS OF LAND LOCATED IN SECTIONS 15 AND 16,
TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO



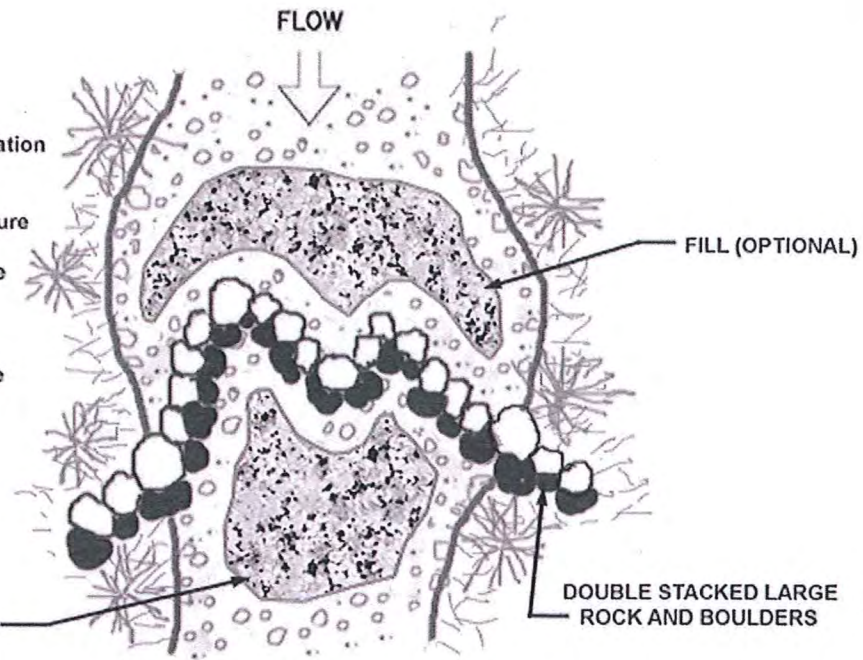
PLAN VIEW

POCKET POOL
NTS

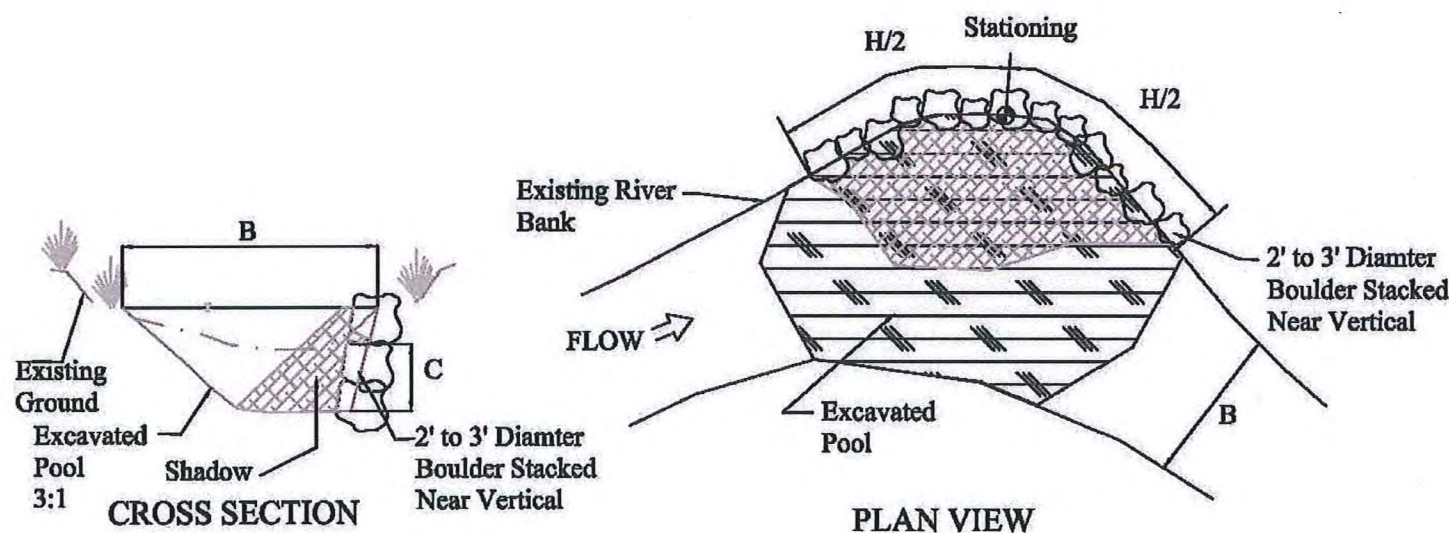


PROFILE

- NOTES:
1. Boulder Structure is variation of Improved Pool (see Improved Pool Profile).
 2. Optional fill above structure to create raised riffle.
 3. Bottom rocks in structure embedded a minimum 2/3 boulder height into channel substrate.
 4. Structure pattern variable depending upon site conditions.



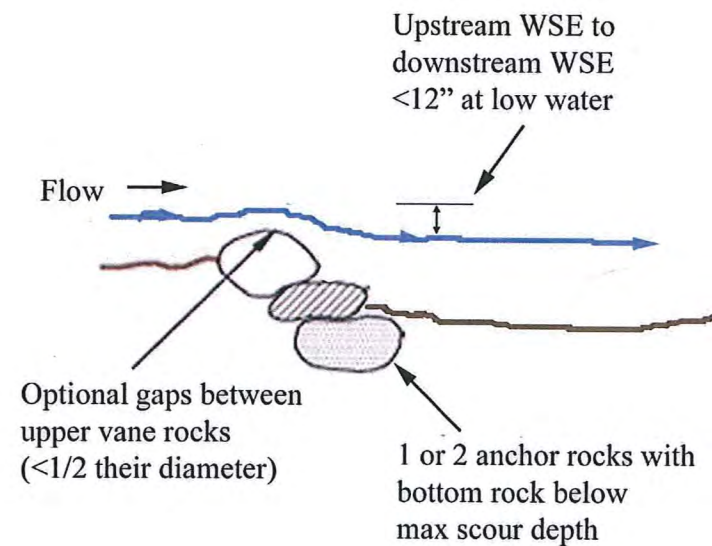
CROSS VANE WEIR
NTS



CROSS SECTION

PLAN VIEW

SHADOW POOL
NTS



CROSS VANE WEIR PROFILE VIEW
NTS

REVISION	DATE
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JOB NUMBER: WS/KWC
DATE: 10.09.2015
DESIGNED BY: SCHENDERLEIN
DRAWN BY: ED/DV
CHECKED BY: WS/KWC/COP
APPROVED BY: WS/KWC

CENTER OF COLORADO CALL UTILITY NOTIFICATION 811
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BOULDER COUNTY
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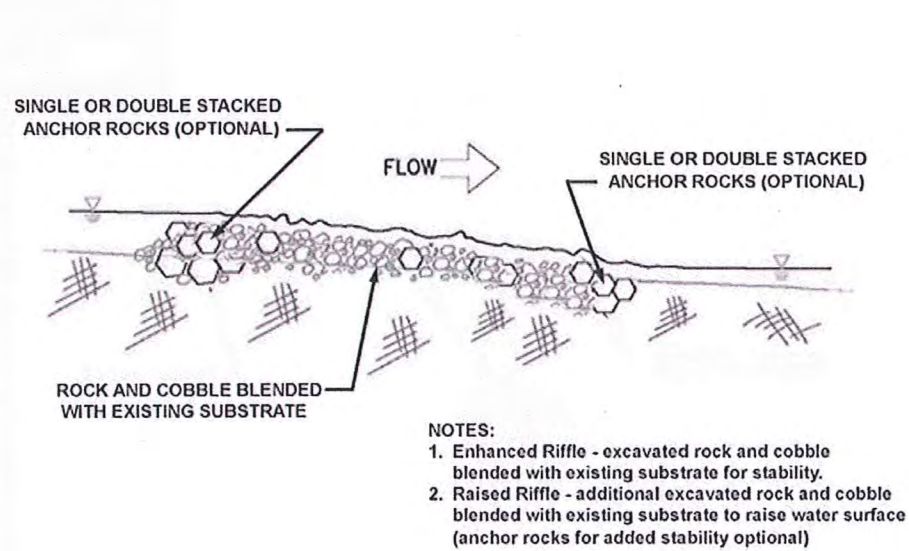
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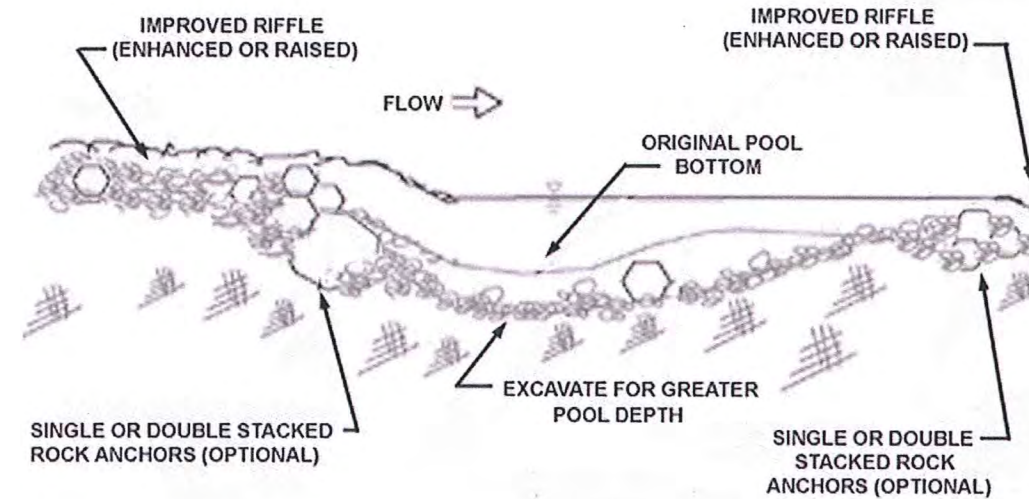
DRAWING
D-1
SHEET
20 OF 22

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

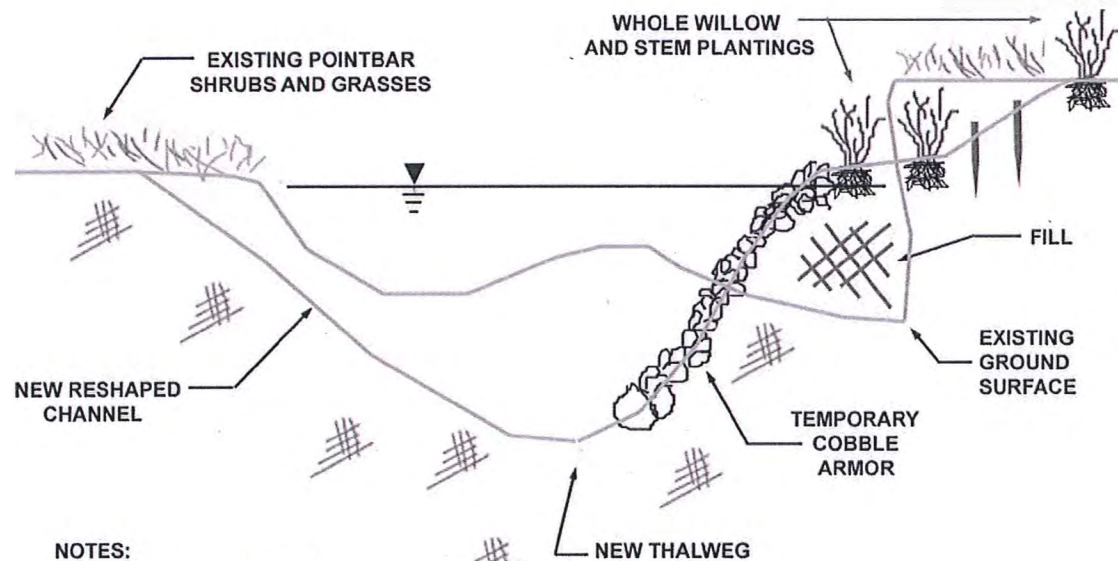
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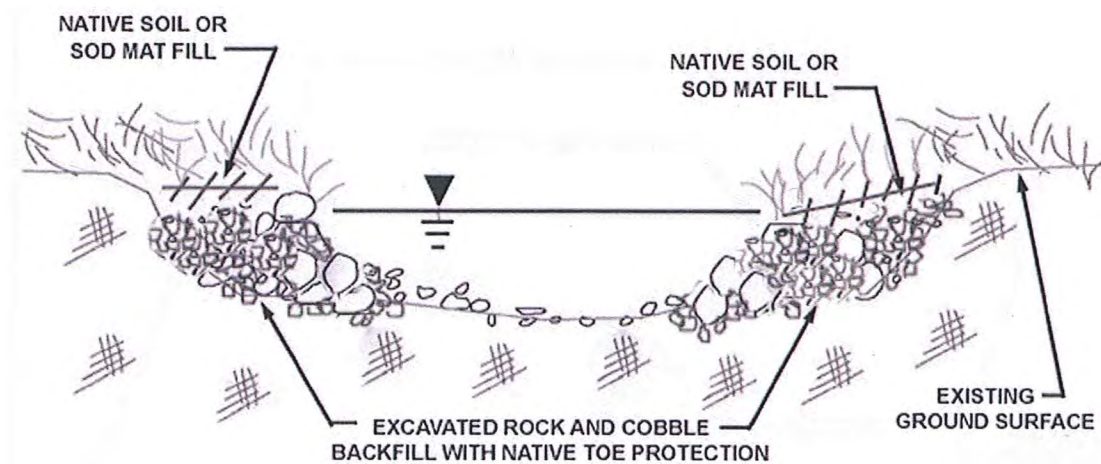
⊖ IMPROVED RIFFLE PROFILE
NTS



⊖ IMPROVED POOL PROFILE
NTS



⊖ PASSIVE BANK STABILIZATION SECTION
NTS



⊖ BANK ENCROACHMENT SECTION
NTS

REVISION	DATE
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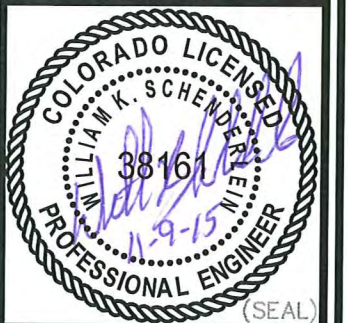
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BOULDER COUNTY
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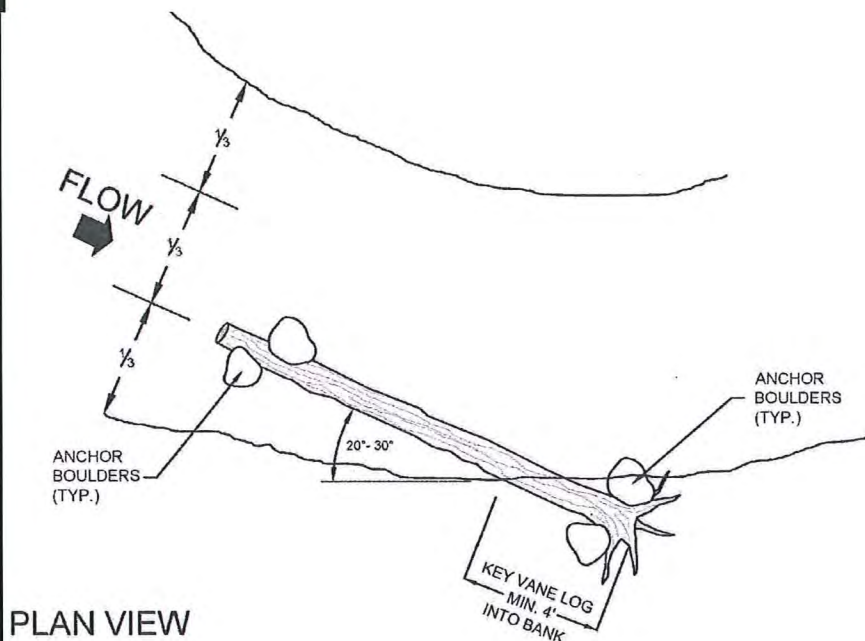
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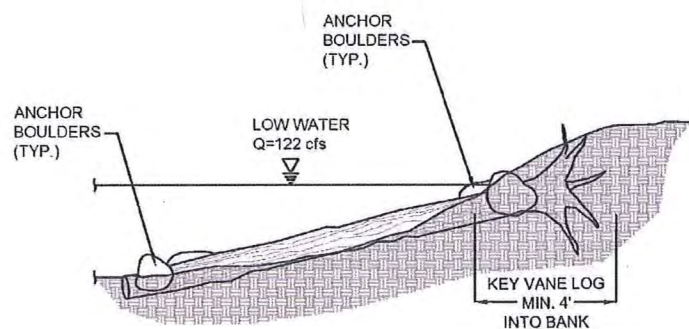
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21 OF 22

LONGMONT DAM ROAD NSV CREEK HABITAT IMPROVEMENTS

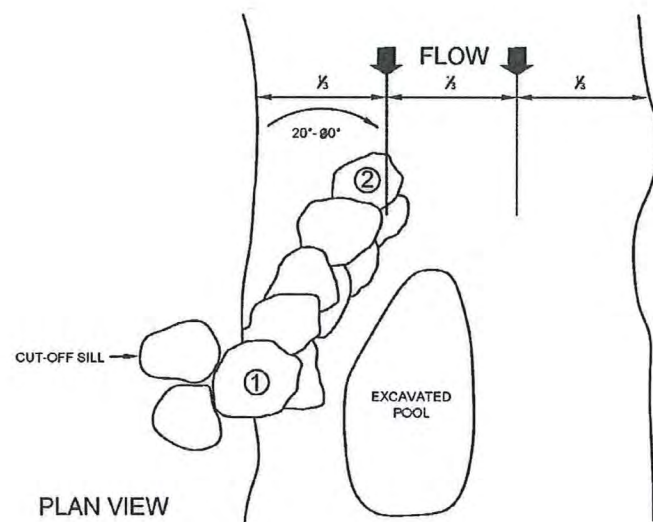
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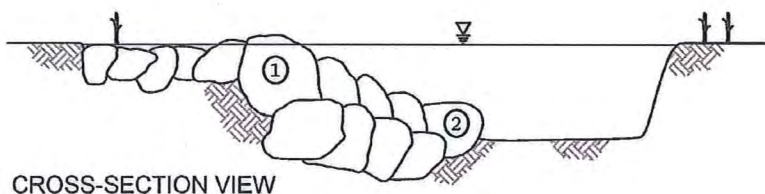
PLAN VIEW



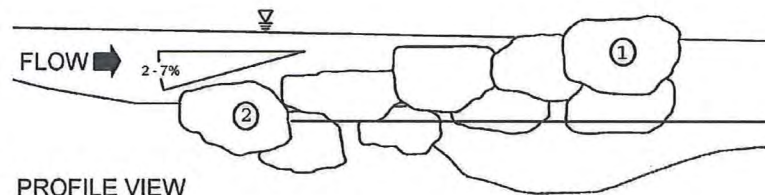
CROSS-SECTION VIEW



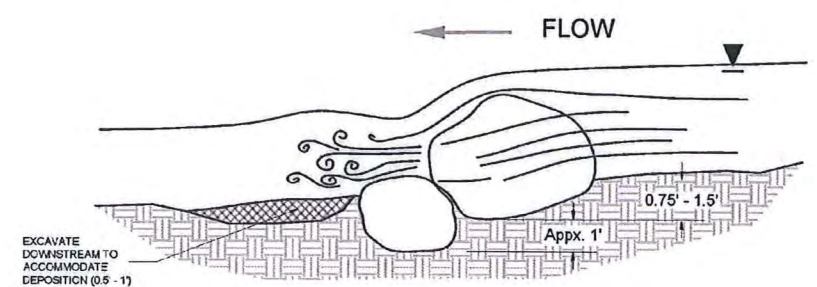
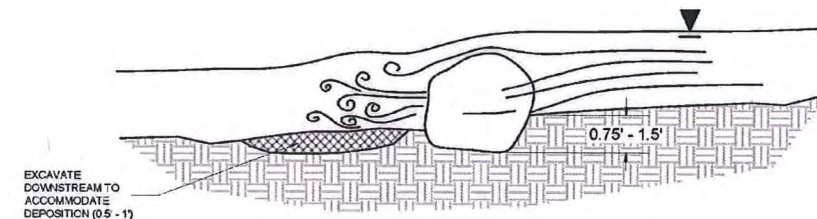
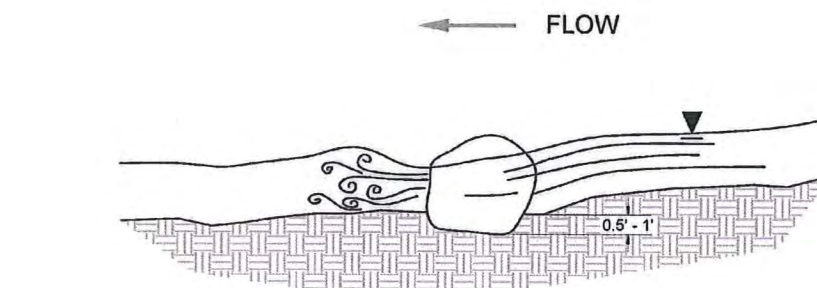
PLAN VIEW



CROSS-SECTION VIEW



PROFILE VIEW



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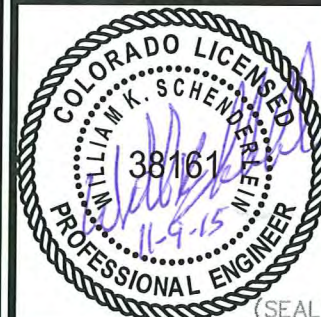
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BOULDER COUNTY
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22 OF 22