

# BEAR CREEK CROSSING CONSTRUCTION NOTES:

## SCOPE OF WORK

CONSTRUCTION IMPROVEMENTS AT THE BEAR CREEK CROSSING INCLUDES THE FOLLOWING WORK ITEMS:

- CONCRETE REPAIR PATCHING** – REPAIR OF SPALLED OR DAMAGED CONCRETE WHERE SHOWN ON THE DRAWINGS OR WHERE INDICATED BY THE ENGINEER IN THE FIELD, INCLUDING HORIZONTAL, VERTICAL OR INCLINED SURFACES. REFER TO THE SPECIAL PROVISIONS, SECTION 03500 FOR DETAILED SPECIFICATIONS FOR THIS WORK.
- BIN WALL REHABILITATION** – REMOVAL OF RUSTED MEMBERS; FIELD WELDING REPAIR; SURFACE PREPARATION, CLEANING AND COATING OF EXISTING GALVANIZED BIN WALL SURFACES WHERE SHOWN ON THE DRAWINGS. REFER TO THE SPECIAL PROVISIONS, SECTION 03600 FOR DETAILED SPECIFICATIONS FOR THIS WORK.
- CONCRETE ARCH REPAIR & REHABILITATION** – SELECT DEMOLITION AND RECONSTRUCTION OF TWO AREAS OF THE EXISTING CONCRETE ARCH STRUCTURE AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER IN THE FIELD. THE NORTHEAST HEADWALL IS ON THE DOWNSTREAM SIDE AND THE SOUTHWEST HEADWALL IS ON THE UPSTREAM SIDE OF THE CROSSING. THIS MAY INCLUDE WORK WITHIN AND BELOW THE ORDINARY HIGH WATER LEVEL OF BEAR CREEK. DIVERTING BEAR CREEK TO INSTALL THE UPSTREAM WINGWALL AND ECO-BLOCKS MAY BE REQUIRED. EXCAVATION AND FILLING BELOW THE TYPICAL ROAD RECONSTRUCTION DEPTH, INCLUDING PLACEMENT OF FLOWABLE BACKFILL, IS REQUIRED. THE WINGWALL AT THE SOUTHWEST HEADWALL SHALL BE EXTENDED AND PRECAST CONCRETE "ECO-BLOCKS" INSTALLED UPSTREAM. AN OPENING IN THE EXISTING ARCH WILL BE PLUGGED WITH CONCRETE. REFER TO THE SPECIAL PROVISIONS, SECTION 03700 FOR DETAILED SPECIFICATIONS FOR THIS WORK.

## MATERIALS

PROVIDE ALL MATERIALS TO CONSTRUCT THE WORK SHOWN ON THE DRAWINGS, IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS AND SPECIAL PROVISIONS. SUBMIT PRODUCT DATA FOR EACH TYPE OF MATERIAL PROPOSED FOR USE. SUBMIT CONCRETE AND FLOWABLE BACKFILL MIX DESIGNS FOR APPROVAL AT LEAST 14 DAYS BEFORE STARTING WORK.

- STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
- PATCHING MORTAR SHALL BE POLYMER OR MICROSILICA MODIFIED PORTLAND CEMENT WITH NON-SAG FILLER.
- EPOXY ADHESIVE SHALL BE SIMPSON SET OR HILTI HIT-RE500.
- ECO BLOCKS SHALL BE INTERLOCKING, PRE-CAST CONCRETE BLOCKS WITH A ROCK FACED, TEXTURED FINISH ON EXPOSED, FORMED SURFACES.
- COLD GALVANIZING COMPOUND SHALL BE GALVILITE, MANUFACTURED BY ZRC WORLDWIDE, OR EQUIVALENT APPROVED BY THE ENGINEER.

## CONSTRUCTION NOTES

### A. GENERAL

- REFER TO THE PROJECT SPECIFICATIONS FOR COMPREHENSIVE CONSTRUCTION REQUIREMENTS. IN CASE OF CONFLICT, DETAILS SHOWN ON THESE DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES OR STANDARD DETAILS. IF A SPECIFIC DETAIL IS NOT SHOWN FOR ANY PART OF THE WORK, THE CONSTRUCTION SHALL BE THE SAME AS FOR SIMILAR WORK.
- PROVIDE AND REMOVE UPON COMPLETION, ALL STAGING, SHORING, SAFETY EQUIPMENT, AND ENVIRONMENTAL PROTECTION NECESSARY TO COMPLETE THE WORK AND PROTECT THE PUBLIC AND ADJACENT PROPERTY.
- CLEAN UP AND REMOVE FROM SITE ALL SURPLUS MATERIALS AND DEBRIS AT COMPLETION OF PROJECT.

### B. CONCRETE REPAIR PATCHING

- SAW CUT, MINIMUM 1-1/2 INCHES DEEP, ROUGHLY RECTANGULAR AREAS, AROUND THE AREA TO BE REPAIRED, PER DETAIL 4/S102.
- BREAK OUT AND REMOVE UNSOUND CONCRETE OR DEBRIS TO A MINIMUM 1-1/2 INCHES DEEP.
- CLEAN AND PREPARE CONCRETE SURFACES; MIX AND APPLY PATCHING MORTAR PER THE SPECIFICATIONS.
- PATCH FIVE AREAS SHOWN ON THE DRAWINGS – LESS THAN 3 SQUARE FEET PER PATCH.

### C. BIN WALL REHABILITATION

- COMPLETE CUTTING AND FIELD WELDING OF TIE ROD, PER DETAIL 4/S101, PRIOR TO REFINISHING IN THAT AREA.
- REMOVE AND DISPOSE OF STEEL PIPE SECTIONS AND ASSOCIATED BRACKETS, TYPICALLY LOCATED AT 5-FOOT O.C., AT THE UPPER PORTION OF THE BIN WALLS, ON BOTH SIDES OF THE STREET. CUT OFF, REMOVE, AND/OR GRIND FLAT ALL PROJECTING STUDS, BOLTS, OR OTHER PROTRUSIONS OUTSIDE THE BIN WALL SURFACE. REMOVE RUST SCALE AROUND BRACKETS TO BRIGHT METAL.
- RUST STAINED, DIRTY, GREASY, OR OILY AREAS SHALL BE PREPARED TO SOUND, GALVANIZED SURFACES, PER SSPC SURFACE PREPARATION SPI – SOLVENT CLEANING.
- PREPARE AREAS HAVING RUST SCALE, OR EASY TO REMOVE GALVANIZING SURFACE MATERIAL, PER SSPC SURFACE PREPARATION SP3 – POWER TOOL CLEANING.
- APPLY COLD GALVANIZING COATING AT SUFFICIENT WET FILM THICKNESS TO ACHIEVE A MINIMUM DRY BUILD OF 2.5 TO 3.5 MILS, WHERE ONE COAT IS SPECIFIED, OR 5.0 MILS, WHERE TWO COATS ARE SPECIFIED.
- THE FOLLOWING AREAS SHALL BE REFINISHED WITH AT LEAST TWO COATS:
  - TOP BIN WALL RIB, FULL LENGTH, BOTH SIDES OF SECOND STREET, WITH COVERAGE PER DETAIL 3/S101.
  - FULL HEIGHT BIN WALL SURFACE FROM STA. 16+01 – 16+08, RIGHT.
  - PIPE BRACKETS AT 5-FOOT O.C. – TOP BRACKET: COVERED IN TOP RIB AREA, OR 8" X 8" MINIMUM.
    - LOWER BRACKET AREA: 8" X 8" MINIMUM.
    - DOUBLE BRACKETS ARE AT 53 LOCATIONS.
  - TIE ROD WASHER PLATES – PROJECTED AREA: 9" X 9" (1" MINIMUM BEYOND PLATE ON ALL SIDES).
    - THERE ARE 7 TIE ROD WASHER PLATES IN TOTAL.
- REFINISH ALL VISIBLE BIN WALL SURFACES WITH AT LEAST ONE COAT. COMPLETE ALL BIN WALL REPAIRS AND REHABILITATION, INCLUDING APPLYING FIRST COAT OF COLD GALVANIZING COMPOUND, BEFORE APPLYING THE FINAL COAT OVER THE ENTIRE BIN WALL.

### D. CONCRETE ARCH REPAIR AND REHABILITATION

- DEMOLITION OF EXISTING CONCRETE SHALL BE DONE USING HAND TOOLS OR HAND-HELD POWER TOOLS ONLY. SAWCUT ALONG THE PERIMETER OF AREAS TO BE DEMOLISHED, IN STRAIGHT LINES, PRIOR TO COMMENCING BREAKING WORK. BREAK OUT WITH CARE TO ENSURE NO AREAS OUTSIDE THE SAWCUTS ARE DAMAGED.
- EXCAVATION OF WEATHERED ROCK SHALL BE DONE USING HAND-HELD POWER TOOLS, TO THE POINT WHERE ROCK CANNOT BE EASILY REMOVED BY THIS METHOD.
- SOME EXCAVATION AND CONSTRUCTION IS REQUIRED BELOW THE ORDINARY HIGH WATER LEVEL OF BEAR CREEK. PROVIDE PUMPS, CREEK DIVERSION AND/OR COFFER DAMS AS NECESSARY TO DIVERT WATER AWAY FROM THE WORK.
- FOUNDATION EXCAVATION SHALL BE TO BEDROCK, TIGHTLY COMPACTED COBBLES, OR DENSE, UNYIELDING NATIVE SOILS. ANY SOFT, WEAK OR LOOSE SOILS BEYOND THE EXCAVATION LIMITS SHOWN ON THE DRAWINGS SHALL BE EXCAVATED AND REPLACED WITH MASS IN-FILL CONCRETE, OR OTHER MATERIAL, AT THE DIRECTION OF THE ENGINEER.
- EXCAVATION BELOW THE TYPICAL ROAD RECONSTRUCTION DEPTH, WHERE INDICATED ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER, SHALL BE DONE BY ANY METHOD PERMITTED BY THE SPECIFICATIONS, INCLUDING VACUUM EXCAVATION AND HAND EXCAVATION. EXCAVATION WITHIN OR AROUND THE BIN WALL CELLS SHALL BE DONE BY METHODS WHICH DO NOT RESULT IN DAMAGE OR DISTURBANCE OF THE BIN WALL MEMBERS. ANY DAMAGE DONE TO THE BIN WALL STRUCTURE BY THE CONTRACTOR'S EQUIPMENT OR EXCAVATION METHODS SHALL BE REPAIRED BY REGALVANIZING THE DAMAGED METAL BIN WALL MEMBER. THE CONTRACTOR SHALL SHORE AND SUPPORT WITHIN THE BIN WALL TO PREVENT UNDERMINING OF ADJACENT BIN WALL CELL. IF UNDERMINING OCCURS, THE CONTRACTOR IS RESPONSIBLE AT HIS OWN EXPENSE TO EXCAVATE ADJACENT UNDERMINED AREA, PLACE FLOWABLE BACKFILL AND BACKFILL.
- PROBE BELOW THE BIN WALL CELL EXCAVATION TO DETECT VOIDS. FILL VOIDS WITH FLOWABLE BACKFILL UP TO THE BASE OF THE BIN WALL REAR STRINGER.
- BACKFILL WITHIN BIN WALL CELL WITH EXCAVATED MATERIAL OR BASE COURSE, GRADING D1, IN 8-INCH LAYERS, COMPACTED TO 95% OF OPTIMUM DENSITY. AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL EXPENSE TO CBJ, FLOWABLE BACKFILL MAY BE USED AS BIN WALL CELL BACKFILL, PLACED IN LIFTS NO GREATER THAN 4 FEET HIGH.
- THE TOTAL VOLUME OF CONCRETE TO BE PLACED, BASED ON NEAT LINE DIMENSIONS, PER THE PLANS, IS LESS THAN 8 CUBIC YARDS.

### E. EPOXY DOWELS

- ALL DOWELS SHALL BE #5 REBAR, STRAIGHT, OR BENT, SPACED AS SHOWN IN THE DRAWINGS.
- DOWELS SHALL BE MINIMUM 18 INCHES LONG WITH A MINIMUM 6-INCH EMBEDMENT INTO SOUND ROCK OR CONCRETE.
- DRILL 3/4-INCH DIAMETER HOLES, BRUSH CLEAN, FLUSH, INJECT EPOXY RESIN, INSERT DOWEL AND CURE PER MANUFACTURER'S INSTRUCTIONS.

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BEAR CREEK CROSSING  
CONSTRUCTION NOTES

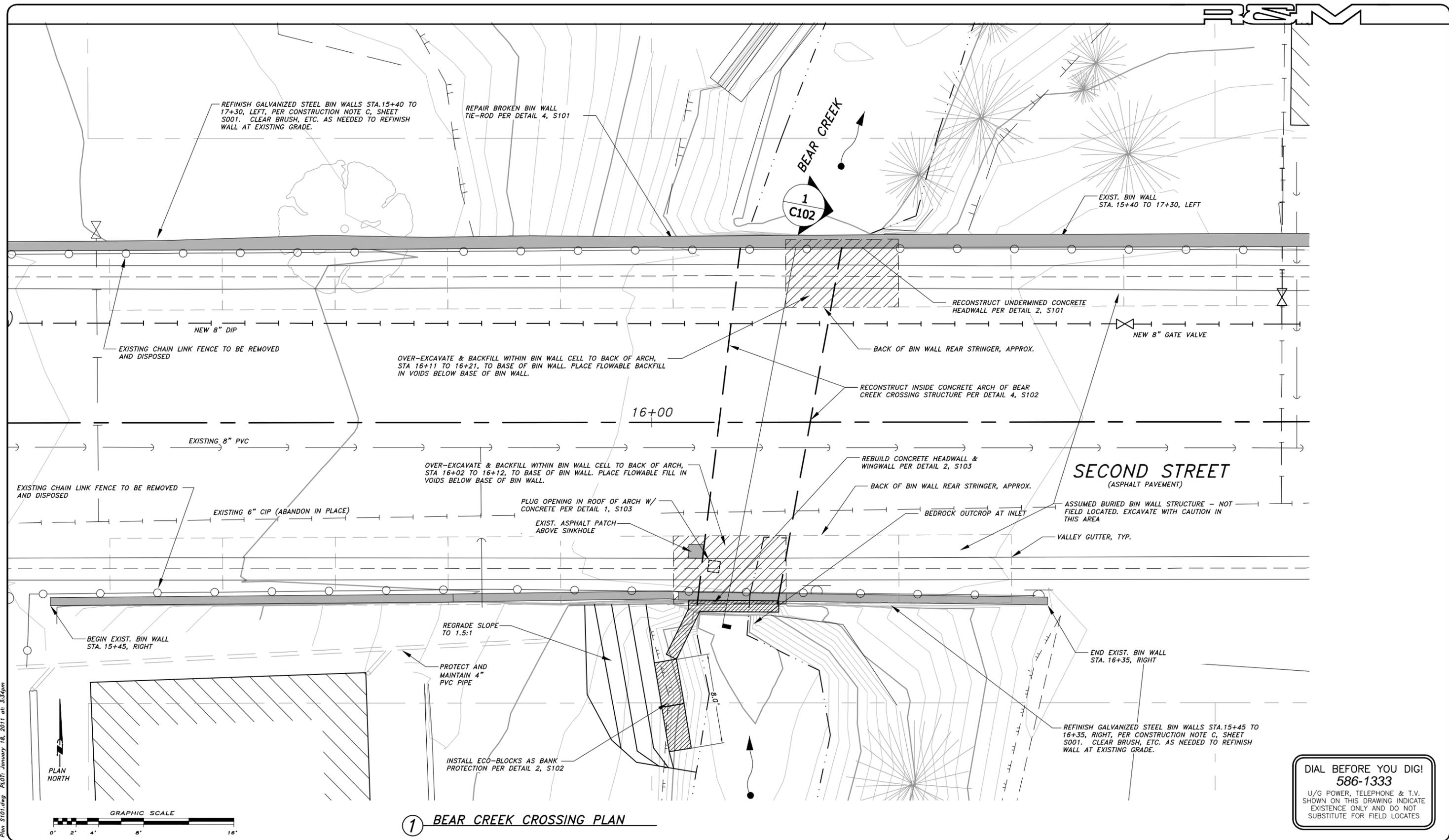


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JUNEAU, AK. 99801      Fax 907-780-4611  
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**SECOND STREET  
DOUGLAS RECONSTRUCTION**  
CBJ CONTRACT No. E11-152  
CITY & BOROUGH OF JUNEAU, ALASKA

DATE: JANUARY 18, 2011 R & M NO. 101375-3
SHEET <b>S001</b>



1 BEAR CREEK CROSSING PLAN

**DIAL BEFORE YOU DIG!**  
**586-1333**  
 U/G POWER, TELEPHONE & T.V. SHOWN ON THIS DRAWING INDICATE EXISTENCE ONLY AND DO NOT SUBSTITUTE FOR FIELD LOCATES

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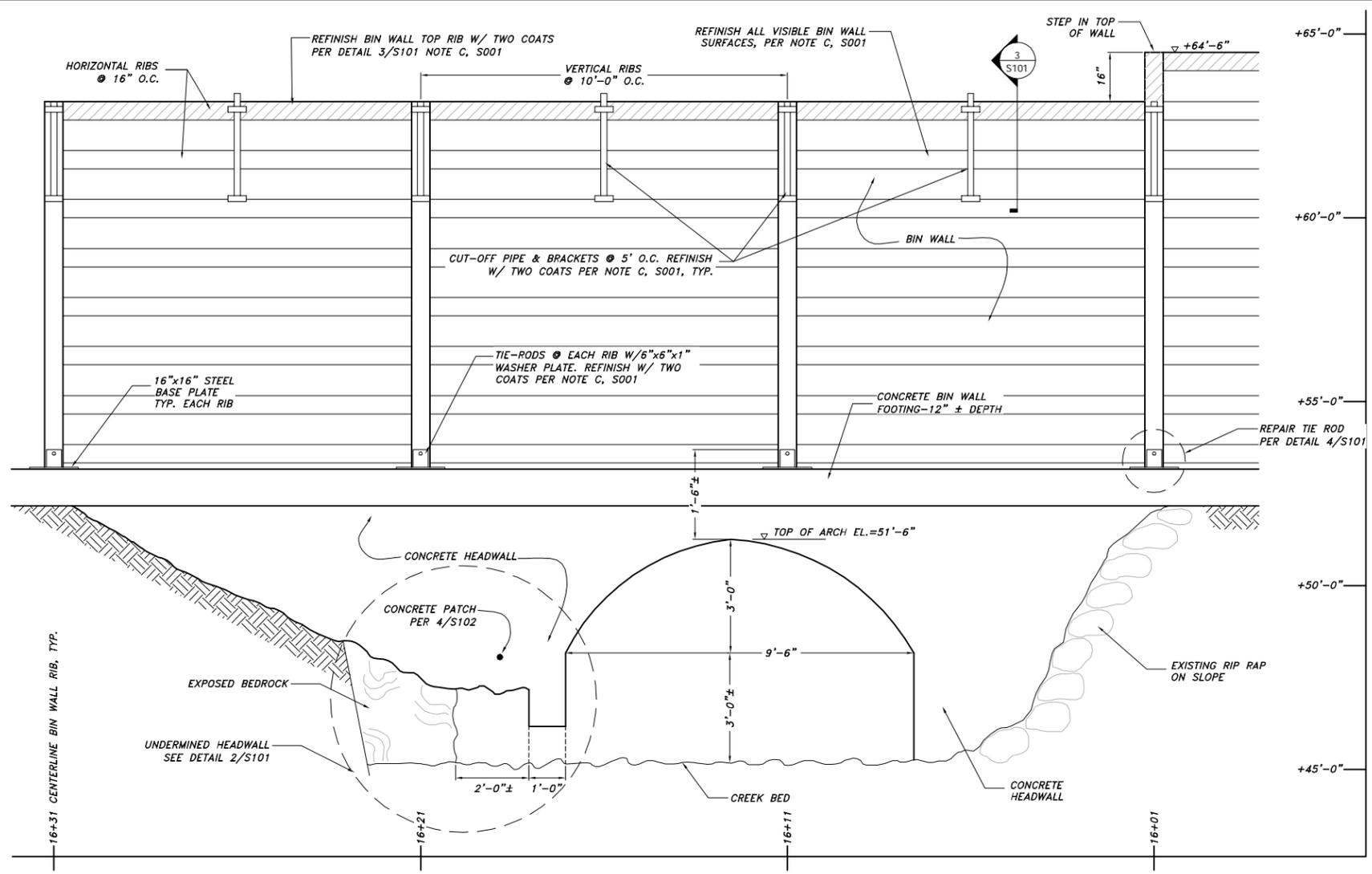
## BEAR CREEK CROSSING PLAN



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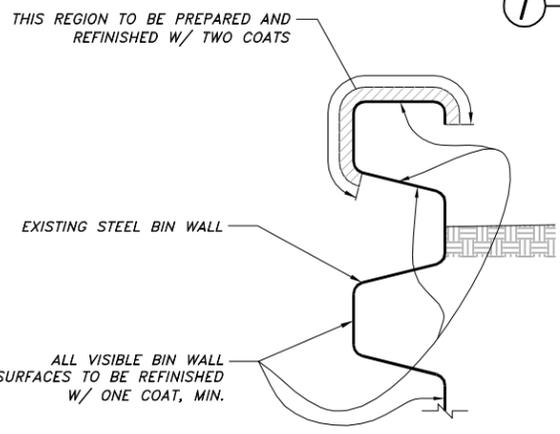
**SECOND STREET DOUGLAS RECONSTRUCTION**  
 CBJ CONTRACT No. E11-152  
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DATE: JANUARY 18, 2011  
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S100

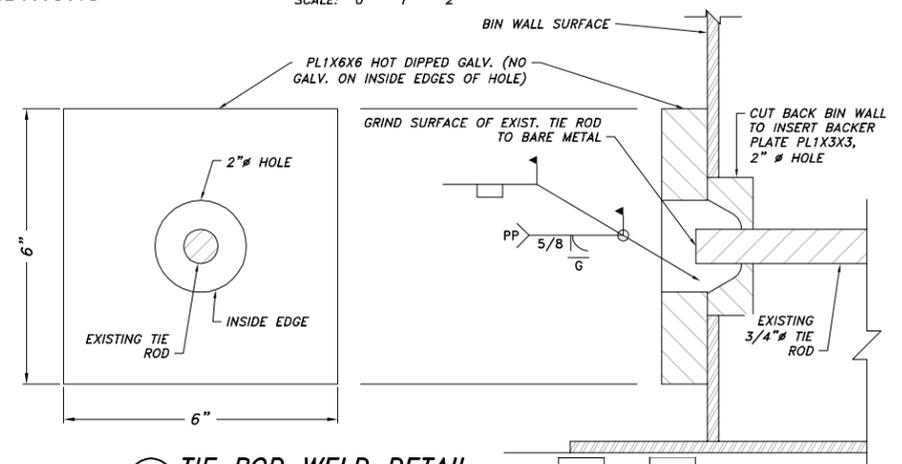


1 DOWNSTREAM HEADWALL ELEVATION EXISTING CONDITIONS

SCALE: 0 1' 2'

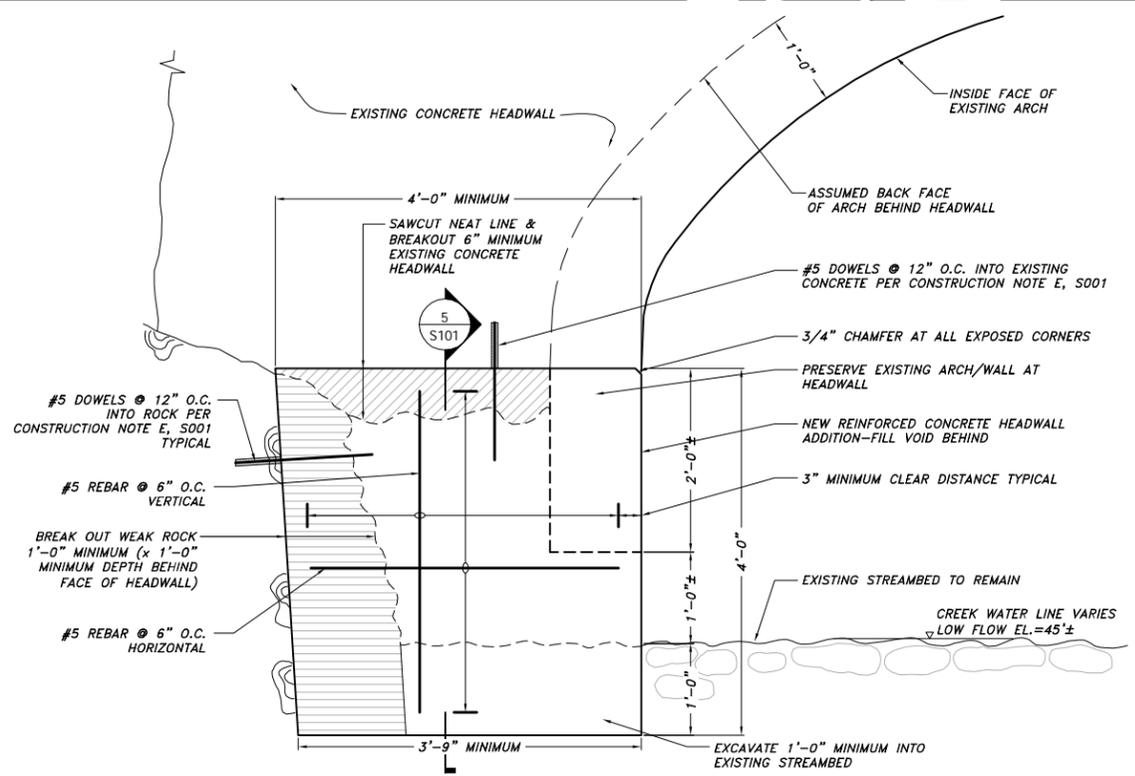


3 TOP OF BIN WALL PAINT DETAIL



4 TIE ROD WELD DETAIL

SCALE: 0 1" 2" 3"

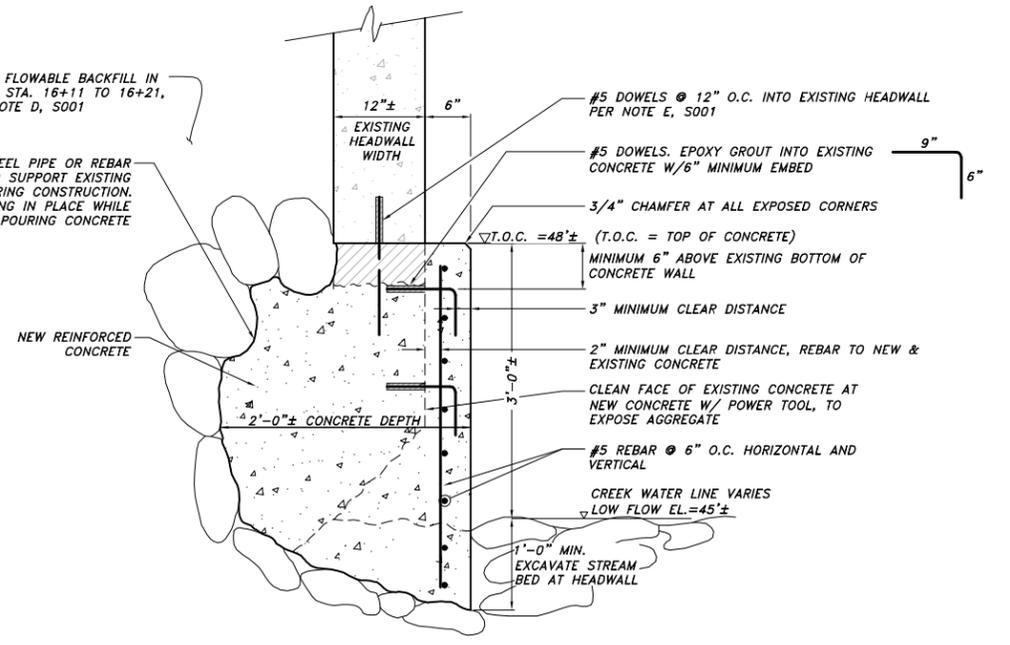


2 DOWNSTREAM HEADWALL DETAIL

SCALE: 0 6" 1'

HEADWALL NOTES:  
1) DOWEL EMBEDMENT DEPTH 6"  
2) 3" CLEAR TO ALL REBAR UNLESS OTHERWISE NOTED.

PLACE FLOWABLE BACKFILL IN VOIDS, STA. 16+11 TO 16+21, PER NOTE D, S001  
PROVIDE STEEL PIPE OR REBAR SHORING TO SUPPORT EXISTING BACKFILL DURING CONSTRUCTION. LEAVE SHORING IN PLACE WHILE POURING CONCRETE



5 SECTION

SCALE: 0 6" 1'

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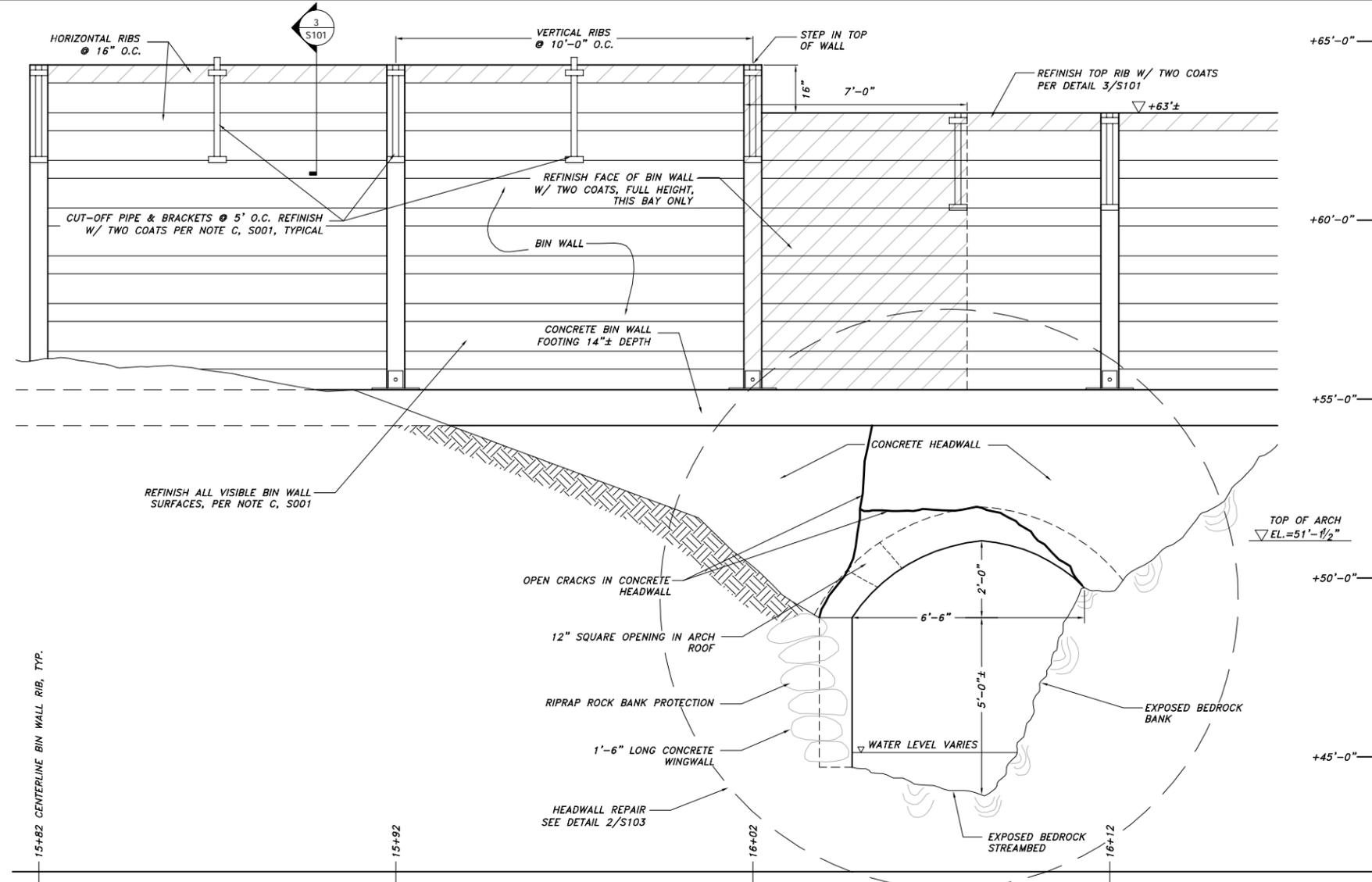
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**BEAR CREEK CROSSING  
CONSTRUCTION DETAILS**

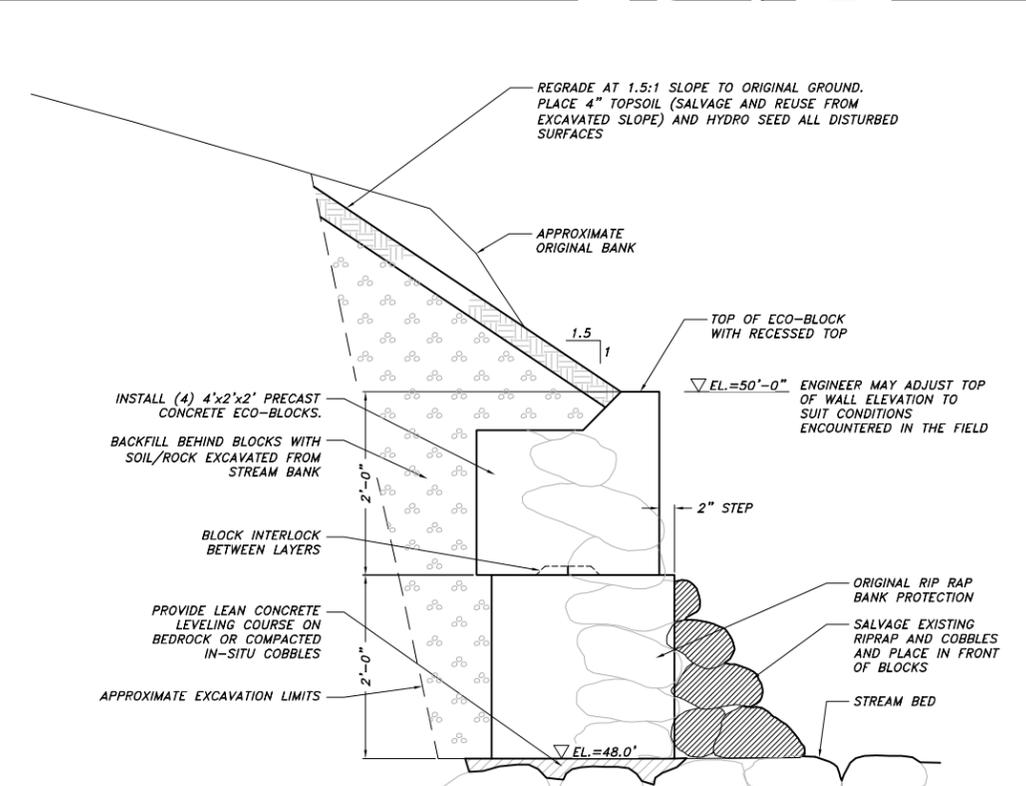


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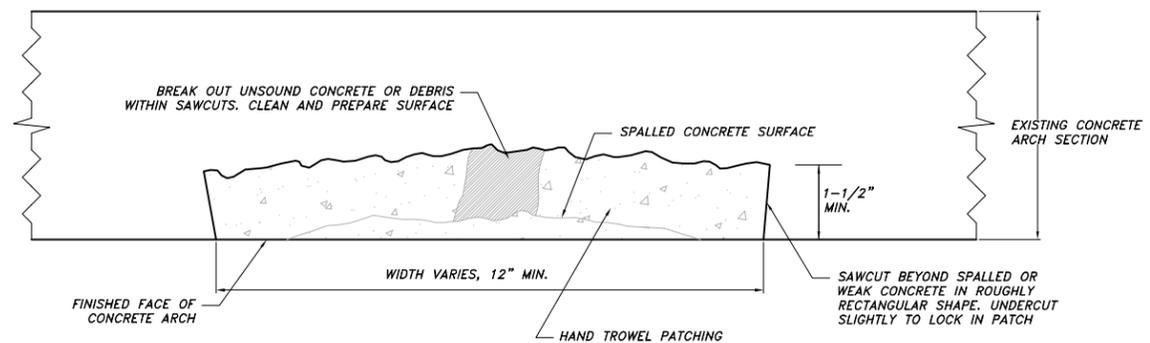
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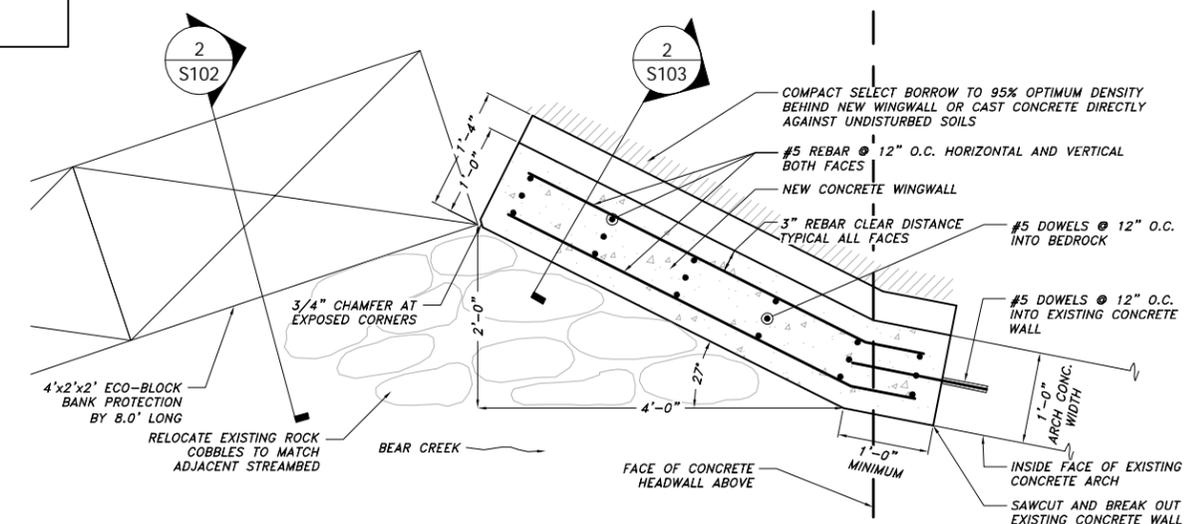
**1 UPSTREAM HEADWALL ELEVATION EXISTING CONDITIONS**  
SCALE: 0 1' 2'



**2 ECO-BLOCK WALL SECTION**  
SCALE: 0 6" 1'



**4 CONCRETE PATCH DETAIL**  
N.T.S.



**3 REINFORCED CONCRETE WINGWALL DETAIL**  
SCALE: 0 6" 1'

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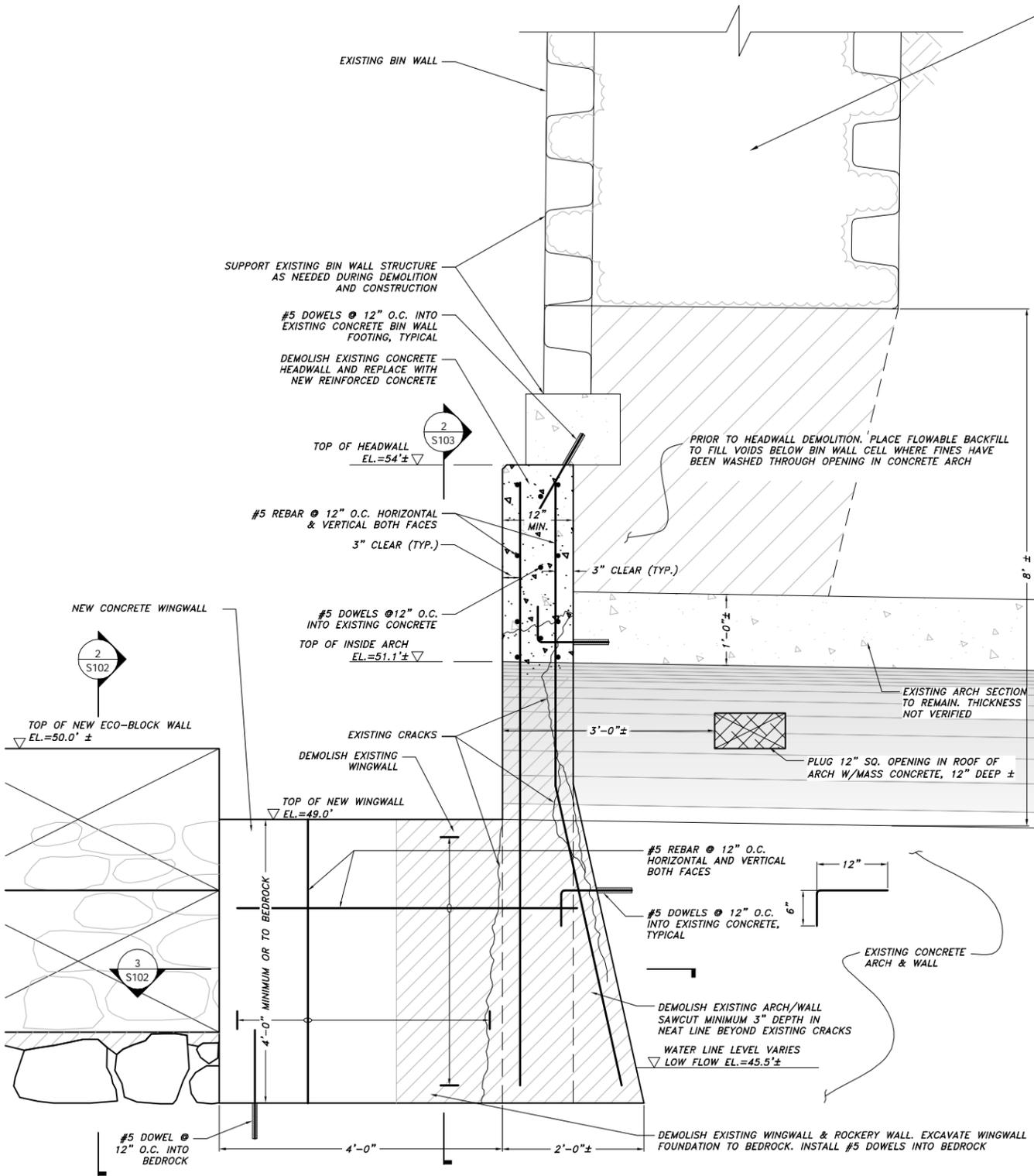
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**BEAR CREEK CROSSING  
CONSTRUCTION DETAILS**



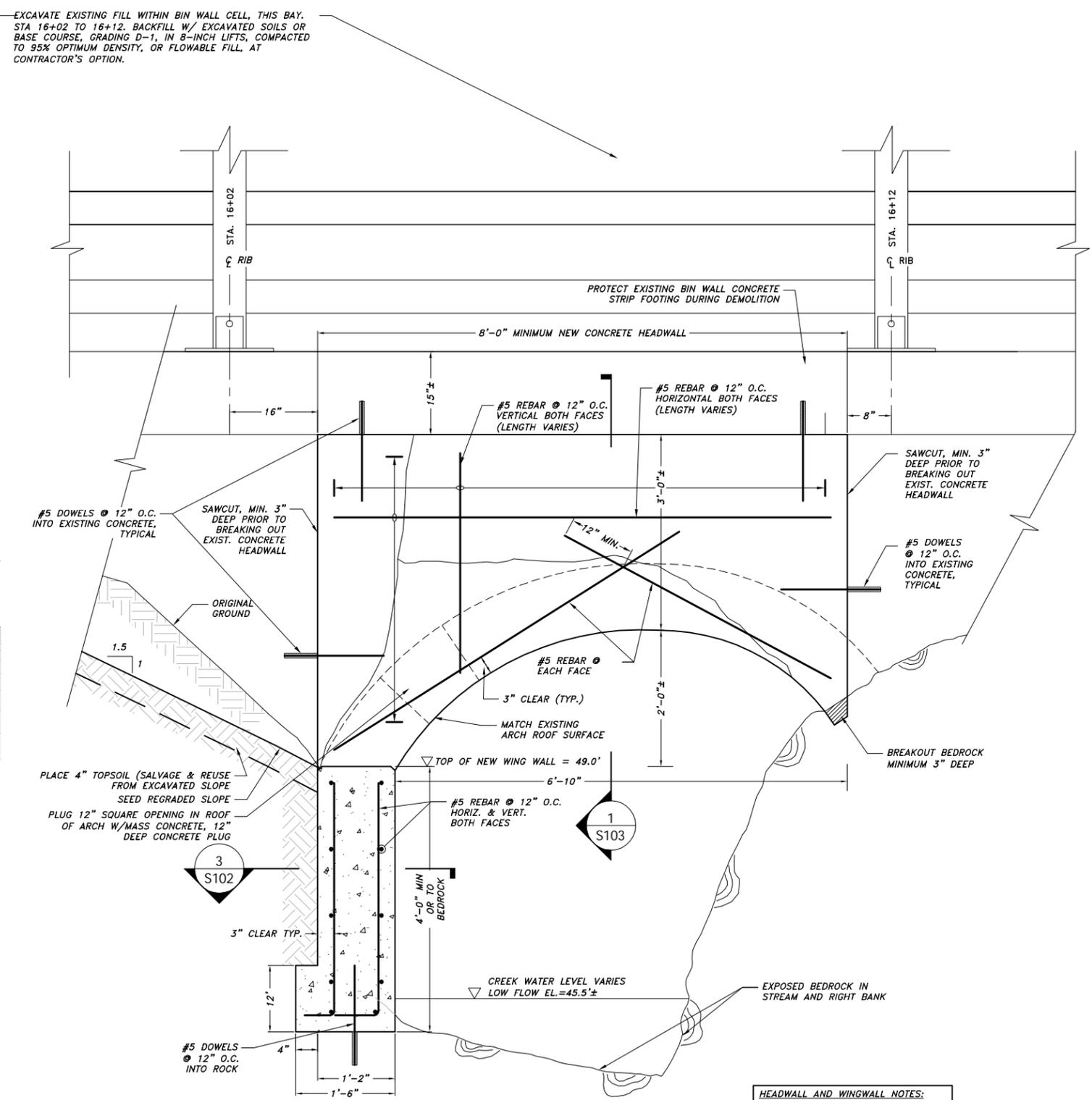
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1 UPSTREAM HEADWALL DETAIL

SCALE: 0 6" 1'



2 UPSTREAM HEADWALL DETAIL

SCALE: 0 6" 1'

HEADWALL AND WINGWALL NOTES:  
 1) DOWEL EMBEDMENT DEPTH 6".  
 2) 3" CLEAR TO ALL REBAR UNLESS OTHERWISE NOTED.

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## BEAR CREEK CROSSING CONSTRUCTION DETAILS



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① DOWNSTREAM ELEVATION



② UPSTREAM ELEVATION



③ TYPICAL BIN WALL

REFINISH TOP RIB W/  
TWO COATS, PER  
DETAIL 3/S101,  
TYPICAL

REMOVE PIPE &  
BRACKETS,  
REFINISH W/  
TWO COATS,  
TYPICAL.  
53 LOCATIONS TOTAL

REFINISH TOP RIB W/  
TWO COATS PER  
DETAIL 3/S101,  
TYPICAL



REMOVE PIPE &  
BRACKETS,  
REFINISH W/  
TWO COATS,  
TYPICAL. 53 LOCATIONS TOTAL

④ UPSTREAM BIN WALL

REFINISH 7" WIDE  
SECTION, FULL HEIGHT,  
W/ TWO COATS, THIS  
BAY ONLY

CONCRETE  
PATCH #2

CONCRETE  
PATCH #1

HEADWALL REPAIR PER  
DETAIL 2/S101



REFINISH TIE ROD PLATES  
W/ TWO COATS, TYPICAL

REPAIR BROKEN TIE  
ROD PER  
DETAIL  
4/S101

CONCRETE  
PATCH #3

⑤ DOWNSTREAM BIN WALL



HEADWALL REPAIR  
PER  
DETAIL 4/S101

⑥ UPSTREAM HEADWALL

ECO-BLOCK



⑦ UPSTREAM WINGWALL

NEW WINGWALL PER  
DETAIL 3/S102

DEMOLISH  
EXISTING  
CONCRETE



CONCRETE  
PATCH #5

CONCRETE  
PLUG

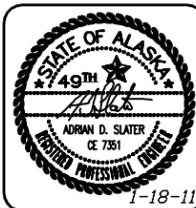
⑧ UPSTREAM HEADWALL AT ARCH SOFFIT

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**BEAR CREEK CROSSING  
PHOTOS OF IMPROVEMENTS**



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SHEET  
**S104**



CONCRETE PLUG IN 12" SQUARE OPENING

9 INSIDE ARCH - UPSTREAM END



CONCRETE PATCH #4

10 INSIDE ARCH - LOOKING DOWNSTREAM



CONCRETE PATCH #2

11 INSIDE ARCH - DOWNSTREAM END



CONCRETE PATCH #3

12 INSIDE ARCH - DOWNSTREAM END ROOF



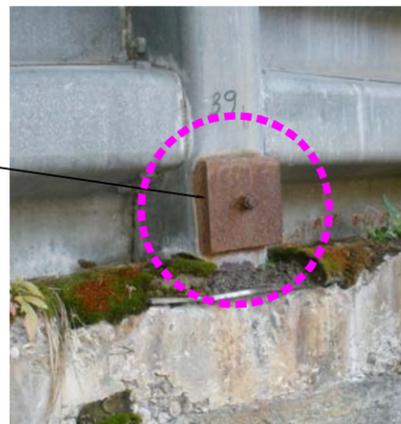
REMOVE PIPE & BRACKET AND REFINISH BIN WALL SURFACE W/ TWO COATS

13 TYPICAL RUSTED PIPE AND BRACKET



REFINISH TOP RIB W/ TWO COATS, FULL LENGTH, BOTH SIDES OF STREET, PER DETAIL 3, S101

14 TYPICAL TOP OF BIN WALL VIEW



REFINISH ALL PLATES W/ TWO COATS. 7 NO. PLATES TOTAL

15 TYPICAL TIE ROD PLATE



16 TIE ROD REPAIR PER DETAIL 4/S101, STA. 16+01 LEFT

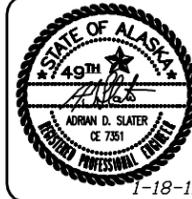


17 12" SQUARE OPENING - TO BE PLUGGED WITH CONCRETE

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PHOTOS OF IMPROVEMENTS**



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