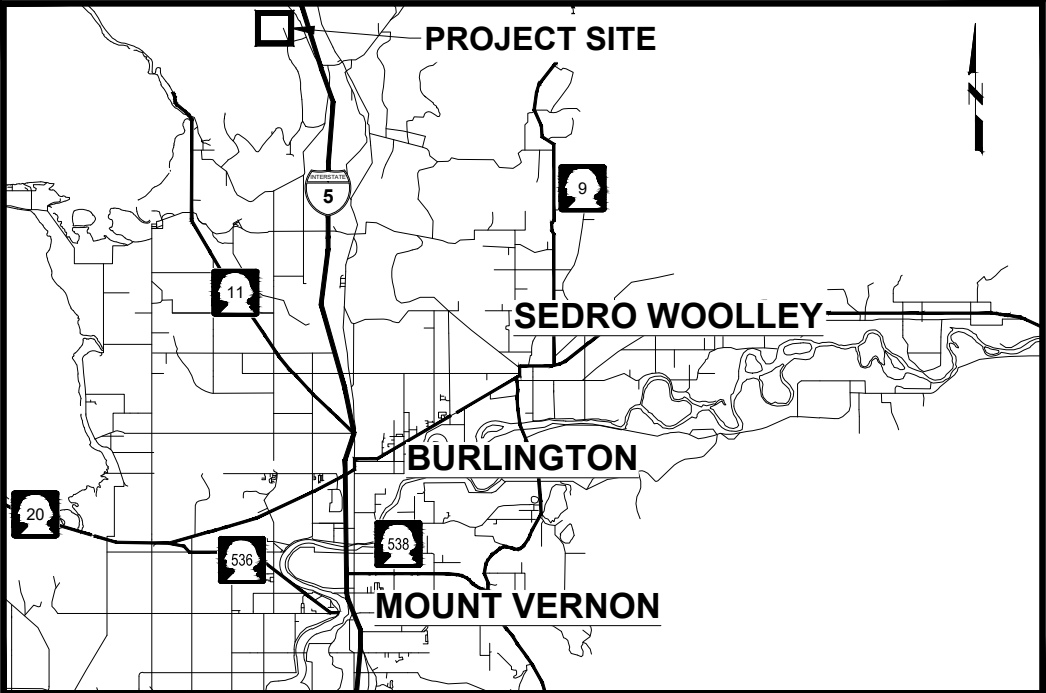
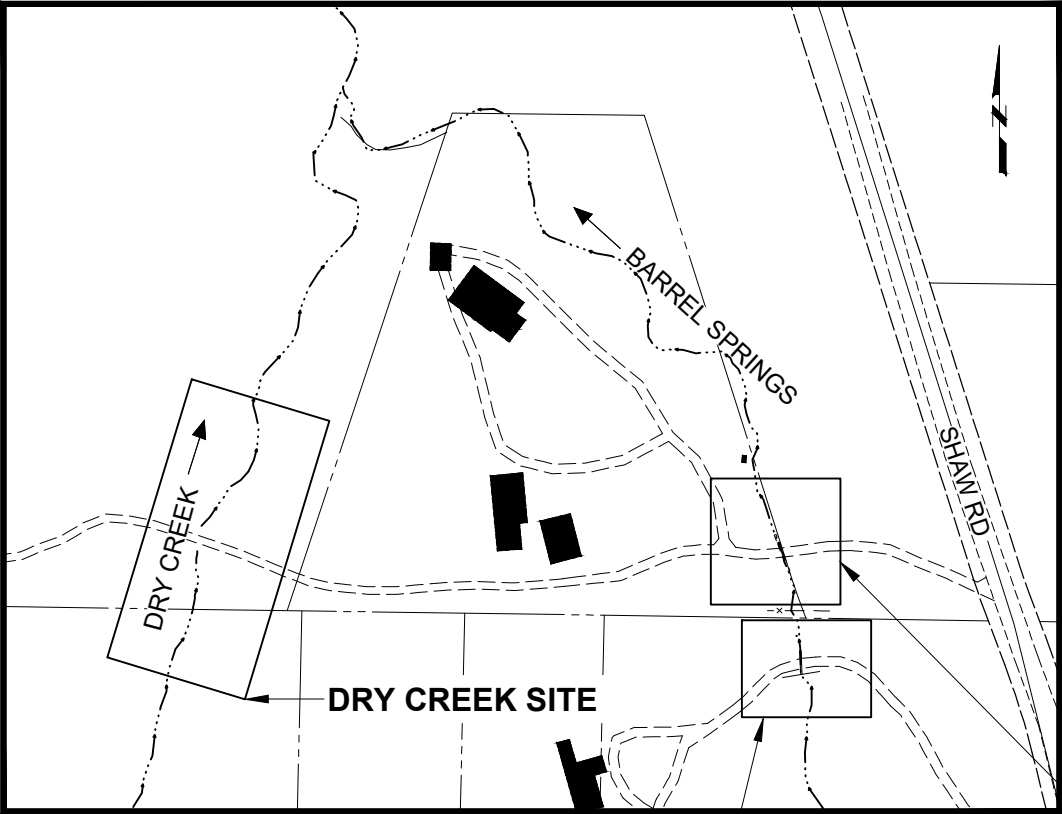


BARREL SPRINGS & DRY CREEK RESTORATION

WA402222



VICINITY MAP NTS



SITE MAP NTS

BARREL SPRINGS NORTH

BARREL SPRINGS SOUTH



SKAGIT COUNTY OFFICIALS

- BOARD OF COMMISSIONERS
- LISA JANICKI, CHAIR
- RON WESEN, COMMISSIONER
- PETER BROWNING, COMMISSIONER

APPROVED FOR CONSTRUCTION

*[Signature]*

THOMAS M. WELLER, P.E., ACTING COUNTY ENGINEER

04/03/2025  
DATE

SUMMARY OF QUANTITIES

| BASE BID     |           |       |      |                                                                       |
|--------------|-----------|-------|------|-----------------------------------------------------------------------|
| ITEM NO      | WSDOT REF | QTY   | UNIT | ITEM DESCRIPTION                                                      |
| BB-1         | 1-09.7    | 1     | LS   | MOBILIZATION                                                          |
| BB-2         | 1-05.4    | 1     | LS   | CONTRACTOR SURVEYING                                                  |
| BB-3         | 2-01      | 1     | LS   | CLEARING                                                              |
| BB-4         | 2-03      | 1,180 | CY   | CHANNEL EXCAVATION INCL. HAUL                                         |
| BB-5         | 2-05      | 5     | EA   | REMOVE AND SALVAGE WHOLE TREE                                         |
| BB-6         | 2-05      | 4,000 | DOL  | FORCE ACCOUNT STOCKPILE UNUSED TREE                                   |
| BB-7         | 2-09      | 410   | CY   | STRUCTURE EXCAVATION CLASS A INCL. HAUL                               |
| BB-8         | 2-09      | 265   | CY   | STRUCTURE EXCAVATION CLASS A                                          |
| BB-9         | 2-09      | 1     | LS   | SHORING OR EXTRA EXCAVATION CL. A                                     |
| BB-10        | 4-04      | 95    | TN   | CRUSHED SURFACING BASE COURSE                                         |
| BB-11        | 4-04      | 30    | TN   | CRUSHED SURFACING TOP COURSE                                          |
| BB-12        | 2-03      | 210   | CY   | EMBANKMENT COMPACTION                                                 |
| BB-13        | 6-20      | 1     | LS   | CONTRACTOR DESIGNED BURIED STRUCTURE NO. 1                            |
| BB-14        | 6-23      | 1     | LS   | CONTRACTOR DESIGNED PREFABRICATED BRIDGE 26-FEET LONG BY 14-FEET WIDE |
| BB-15        | 8-01      | 110   | SY   | STABILIZED CONSTRUCTION ENTRANCE                                      |
| BB-16        | 8-01      | 160   | SY   | EROSION CONTROL BLANKET                                               |
| BB-17        | 8-01      | 1     | LS   | EROSION CONTROL AND WATER POLLUTION PREVENTION                        |
| BB-18        | 8-02      | 0.1   | AC   | SEEDING AND MULCHING                                                  |
| BB-19        | 8-15      | 35    | TN   | QUARRY SPALLS                                                         |
| BB-20        | 8-19      | 1     | LS   | TEMPORARY ACCESS AND STAGING                                          |
| BB-21        | 8-30      | 60    | TN   | STREAMBED COBBLES 6 IN.                                               |
| BB-22        | 8-30      | 285   | TN   | STREAMBED SEDIMENT                                                    |
| BB-23        | 8-30      | 125   | TN   | STREAMBED SAND                                                        |
| BB-24        | 8-27      | 1     | EA   | ELJ - HABITAT STRUCTURE                                               |
| BB-25        | 8-31      | 1     | LS   | TEMPORARY WATER DIVERSION                                             |
| BB-26        | 8-31      | 1     | LS   | DEWATERING                                                            |
| BB-27        | 1-05.18   | 1     | LS   | RECORD DRAWINGS                                                       |
| BB-28        | 1-07.15   | 1     | LS   | SPCC PLAN                                                             |
| ALTERNATE A1 |           |       |      |                                                                       |
| ITEM NO      | WSDOT REF | QTY   | UNIT | ITEM DESCRIPTION                                                      |
| A1-1         | 6-23      | 1     | LS   | CONTRACTOR DESIGNED PREFABRICATED BRIDGE 40-FEET LONG BY 12-FEET WIDE |
| A1-2         | 8-30      | 150   | TN   | ROCK FOR EROSION AND SCOUR PROTECTION CLASS A                         |
| A1-3         | 8-30      | 150   | TN   | STREAMBED BOULDERS TYPE 2                                             |
| A1-4         | 8-30      | 150   | TN   | STREAMBED BOULDERS TYPE 1                                             |
| A1-5         | 8-30      | 375   | TN   | STREAMBED COBBLES 10 IN.                                              |
| A1-6         | 8-27      | 3     | EA   | ELJ - LOG RIFFLE                                                      |

PLAN SHEET INDEX

| Sheet Number | Sheet Title                       |
|--------------|-----------------------------------|
| 1            | COVER SHEET                       |
| 2            | GENERAL NOTES AND LEGEND          |
| 3            | EARTHWORK PAY ITEMS               |
| 4            | DRY CREEK                         |
| 5            | SUBSET COVER SHEET                |
| 6            | EXISTING CONDITIONS               |
| 7            | ACCESS, STAGING, AND TESC         |
| 8            | CHANNEL PLAN AND PROFILE          |
| 9            | CHANNEL SECTIONS                  |
| 10           | ROAD PLAN AND PROFILE             |
| 11           | ROAD DETAILS                      |
| 12           | LOG RIFFLE DETAIL                 |
| 13           | SEQUENCING 1                      |
| 14           | SEQUENCING 2                      |
| 15           | SITE RESTORATION                  |
| 16           | BARREL SPRINGS OVERVIEW           |
| 17           | BARREL SPRINGS                    |
| 18           | BARREL SPRINGS - SITE PREP        |
| 19           | BARREL SPRINGS - WATER MANAGEMENT |
| 20           | BARREL SPRINGS NORTH              |
| 21           | SUBSET COVER SHEET                |
| 22           | CULVERT PLAN AND PROFILE          |
| 23           | CHANNEL PLAN AND PROFILE          |
| 24           | CHANNEL SECTIONS                  |
| 25           | ROAD PLAN AND PROFILE             |
| 26           | ROAD SECTIONS                     |
| 27           | SITE RESTORATION                  |
| 28           | BARREL SPRINGS SOUTH              |
| 29           | SUBSET COVER SHEET                |
| 30           | ROAD PLAN AND PROFILE             |
| 31           | CHANNEL PLAN AND PROFILE          |
| 32           | TYPICAL SECTIONS AND DETAILS      |
| 33           | TESC DETAILS                      |
| 34           | TESC DETAILS                      |
| 35           | TESC DETAILS 2                    |



Know what's below  
Call before you dig.  
Determina lo que está bajo tierra  
Llama antes de excavar.



Natural Systems Design  
+ Coastal Geologic Services

SURVEY NOTES:

HORIZONTAL DATUM: NAD83 WASHINGTON  
STATE PLANE NORTH ZONE  
VERTICAL DATUM: NAVD88

SKAGIT COUNTY  
PUBLIC WORKS  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |



ENGINEER OF RECORD  
THOMAS M. WELLER, P.E.  
WASHINGTON  
PROFESSIONAL  
54993

|                                            |                  |              |
|--------------------------------------------|------------------|--------------|
| PROJECT NO.: WA402222                      | DRAWN BY: LAV    | APPROVED BY: |
| FED. AID NO.: ---                          | DESIGNED BY: NJT | CHECKED BY:  |
| PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON | S12 T36N R9E     |              |

BARREL SPRINGS & DRY CREEK  
RESTORATION

COVER SHEET

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
1 OF 30

## GENERAL NOTES

1. THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF SKAGIT COUNTY PUBLIC WORKS (SCPW), HEREAFTER REFERRED TO AS "OWNER", AND THEIR AUTHORIZED AGENTS.
2. NATURAL SYSTEMS DESIGN (NSD), HEREAFTER REFERRED TO AS "ENGINEER" IS RESPONSIBLE FOR THE PREPARATION OF THESE ORIGINAL PLANS AND ASSOCIATED SPECIFICATIONS; AND WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGE, OR USE, OF THESE PLANS WHICH INCLUDES ALTERATION, DELETION, OR EDITING OF THIS DOCUMENT WITHOUT EXPLICIT WRITTEN PERMISSION FROM THE ENGINEER. ANY OTHER UNAUTHORIZED USE OF THIS DOCUMENT IS PROHIBITED.
3. THE LOCATION OF ALL FEATURES SHOWN IS APPROXIMATE. FINAL LOCATIONS SHALL BE FLAGGED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

### PERMIT NOTES

1. THE CONTRACTOR SHALL CONDUCT THE ACTIVITIES SHOWN IN THESE PLANS IN A MANNER THAT MINIMIZES THE ADVERSE IMPACT ON WATER QUALITY, FISH AND WILDLIFE, AND THE NATURAL ENVIRONMENT.
2. ALL WORK SHALL BE IN COMPLIANCE WITH PERMIT CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE COPIES OF ALL PERMITS ON THE JOB SITE, UNDERSTAND AND COMPLY WITH ALL PERMIT CONDITIONS.
3. IF AT ANY TIME FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), OPERATIONS SHALL CEASE AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY.
4. AVOID AND MINIMIZE ADVERSE IMPACTS TO WATERS OF THE UNITED STATES, INCLUDING MINIMIZING THE NUMBER, DURATION, AND EXTENT OF WORK BELOW ORDINARY HIGH WATER AND EQUIPMENT CROSSINGS OF WETTED CHANNELS.
5. IF, DURING CONSTRUCTION, ARCHAEOLOGICAL REMAINS ARE ENCOUNTERED, CONSTRUCTION IN THE VICINITY SHALL BE HALTED, AND THE STATE OFFICE OF HISTORIC PRESERVATION AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY.

## SURVEY NOTES

1. EXISTING CONDITIONS SURFACE FOR THIS PROJECT CONSISTS OF TOPOGRAPHIC SURVEY DATA COLLECTED BY NSD IN 2021 SUPPLEMENTED WITH A 2017 LIDAR SURFACE OBTAINED FROM THE WASHINGTON DEPARTMENT OF NATURAL RESOURCES LIDAR PORTAL. THE VERTICAL DATUM IS NAVD88 (FT). THE HORIZONTAL DATUM IS WASHINGTON STATE PLANE NORTH, NAD83 (FT).
2. GATES, FENCELINES, AND UTILITIES WERE NOT SURVEYED. CONTRACTOR TO VERIFY IN FIELD.
3. PARCEL DATA SHOWN ON THESE PLANS ARE DERIVED FROM DATA AVAILABLE FROM THE SKAGIT COUNTY ASSESSORS DATABASE AND ARE APPROXIMATE.

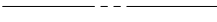
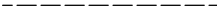
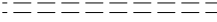
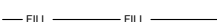
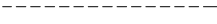
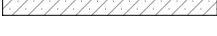
### CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
2. CONSTRUCTION HOURS SHALL BE WEEKDAYS BETWEEN 7:00 A.M. AND 6:30 P.M. UNLESS PRIOR APPROVAL IS RECEIVED FROM THE OWNER.
3. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER PRIOR TO PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, VEGETATION, AND IMPROVEMENTS NOT INDICATED FOR REMOVAL.
5. THE CONTRACTOR SHALL KEEP THE JOB SITE CLEAN AND HAZARD FREE.
6. THE CONTRACTOR SHALL DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH GENERATED BY THE WORK. UPON COMPLETION OF WORK, CONTRACTOR SHALL REMOVE ALL MATERIAL AND EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY.
7. NO TREES OR VEGETATION SHALL BE REMOVED UNLESS NOTED ON THE PLANS OR SPECIFIED ON-SITE BY THE OWNER OR THE ENGINEER. NO GRADING SHALL TAKE PLACE WITHIN THE DRIP LINE OF TREES NOT TO BE REMOVED UNLESS OTHERWISE APPROVED.
8. THE CONTRACTOR SHALL MAINTAIN A SET OF PLANS ON THE JOB SHOWING "AS-CONSTRUCTED" CHANGES MADE TO DATE. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUPPLY TO OWNER A SET OF PLANS, MARKED UP TO THE SATISFACTION OF THE OWNER, REFLECTING THE AS-CONSTRUCTED MODIFICATIONS.

## ELJ NOTES

1. ALL LOGS SHALL BE DOUGLAS FIR OR WESTERN RED CEDAR.
2. ALL PILES SHALL BE ROUND, UNTREATED TIMBER PILES AND SHALL BE DOUGLAS FIR. PILES SHALL BE FREE FROM DEFECTS, CRACKS, AND SPLITTING AT THE TIME OF DRIVING.
3. LOGS SHALL HAVE SPECIFIED DIAMETERS AS MEASURED AT DBH, DEFINED AS 4.5 FEET ABOVE GROUND WHEN TREE WAS STANDING.
4. EXISTING WOODY MATERIAL AT THE STRUCTURE LOCATION SHALL BE MOVED OR PROTECTED FROM CONSTRUCTION ACTIVITIES AND THEN INCORPORATED INTO THE STRUCTURE AS DIRECTED BY THE CONTRACTING OFFICER.
5. PILE EMBEDMENT DEPTH FOR EACH ELJ SHALL BE MEASURED RELATIVE TO THE CHANNEL THALWEG. EXCAVATION DEPTHS AND QUANTITIES IN THE STRUCTURE SCHEDULE ARE BASED ON TOPOGRAPHIC DATA COLLECTED BY NSD IN 2021 AND SUPPLEMENTED BY 2017 LIDAR, AND EXISTING GRADE ELEVATIONS AND ASSOCIATED EXCAVATION DEPTHS MAY BE OFF BY SEVERAL FEET. ACTUAL EXCAVATION DEPTHS SHALL BE PROVIDED BY THE ENGINEER WHEN THE STRUCTURE LOCATION IS STAKED PRIOR TO CONSTRUCTION.
6. KEY LOGS, FRAMING LOGS, AND PILES SHALL HAVE AN ALUMINUM TAG AFFIXED PER RCW 77.85.050(5E). ALUMINUM TAGS SHALL BE A MINIMUM OF 1 ¼ INCHES IN DIAMETER. AT CONSTRUCTION COMPLETION, A RECORD OF THE TAG NUMBERS BROKEN DOWN BY STRUCTURE ID SHALL BE PROVIDED TO THE OWNER.

### GENERAL LEGEND

|                                                                                       |                                                |
|---------------------------------------------------------------------------------------|------------------------------------------------|
|    | PROPERTY LINE                                  |
|    | RIGHT OF WAY LINE                              |
|    | EX. DRIVEWAY                                   |
|    | EXISTING CENTERLINE                            |
|    | PROPOSED CENTERLINE                            |
|    | LIMIT OF EXCAVATION                            |
|    | LIMIT OF FILL                                  |
|    | LIMIT OF GRADING                               |
|    | EXISTING MAJOR CONTOUR                         |
|    | EXISTING MINOR CONTOUR                         |
|    | PROPOSED MAJOR CONTOUR                         |
|    | PROPOSED MINOR CONTOUR                         |
|    | EXISTING OHW                                   |
|    | EXISTING FENCE                                 |
|    | EXISTING GRADE (SECTION)                       |
|    | FINISHED GRADE (SECTION)                       |
|    | BARREL SPRINGS STREAMBED MIX                   |
|    | DRY CREEK STREAMBED MIX                        |
|    | SLASH INCORPORATED IN STREAMBED AGGREGATES     |
|    | COMPACTED NATIVE BACKFILL                      |
|    | PERMEABLE BALLAST                              |
|  | CRUSHED SURFACING BASE COURSE                  |
|  | ROCK FOR EROSION AND SCOUR PROTECTION, CLASS A |
|  | EXISTING WETLAND                               |
|  | ELJ - LOG RIFFLE                               |
|  | ELJ - HABITAT STRUCTURE                        |



Natural Systems Design  
+ Coastal Geologic Services

PROJECT NO.: WA40ZZZZ

PROJECT NO.: WA40ZZZZ

2010 RELEASE UNDER E.O. 14176

| DECISION BY THE | CRIMINAL JUSTICE SYSTEM |
|-----------------|-------------------------|
|-----------------|-------------------------|

CHECKED BY:

|             |              |
|-------------|--------------|
| CHECKED BY: | APPROVED BY: |
|-------------|--------------|

PROJECT LOCATED NEAR:  
ALGER, WASHINGTON

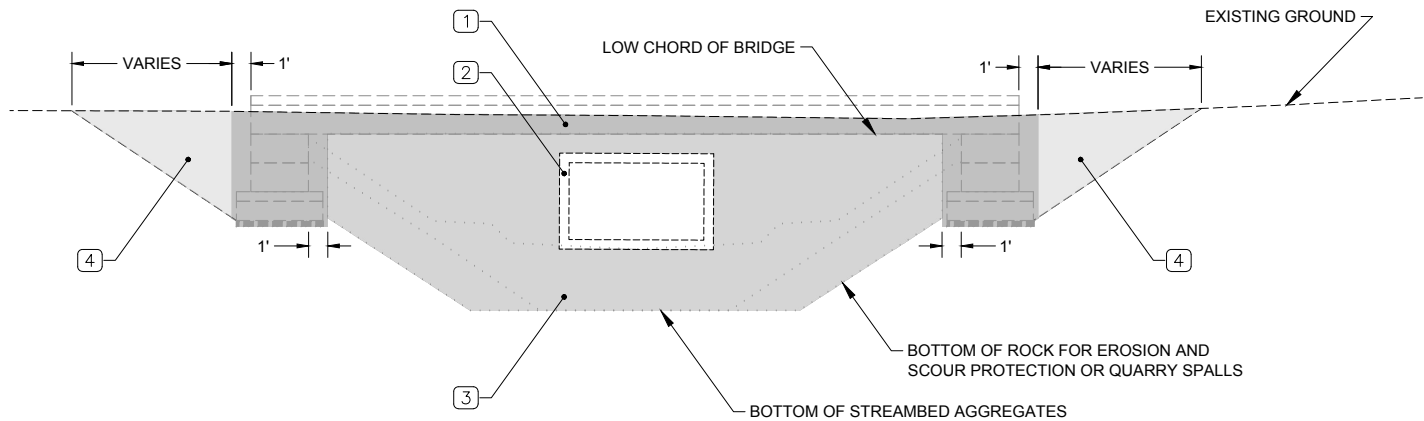
# BARREL SPRINGS & DRY CREEK RESTORATION

## GENERAL NOTES AND LEGEND

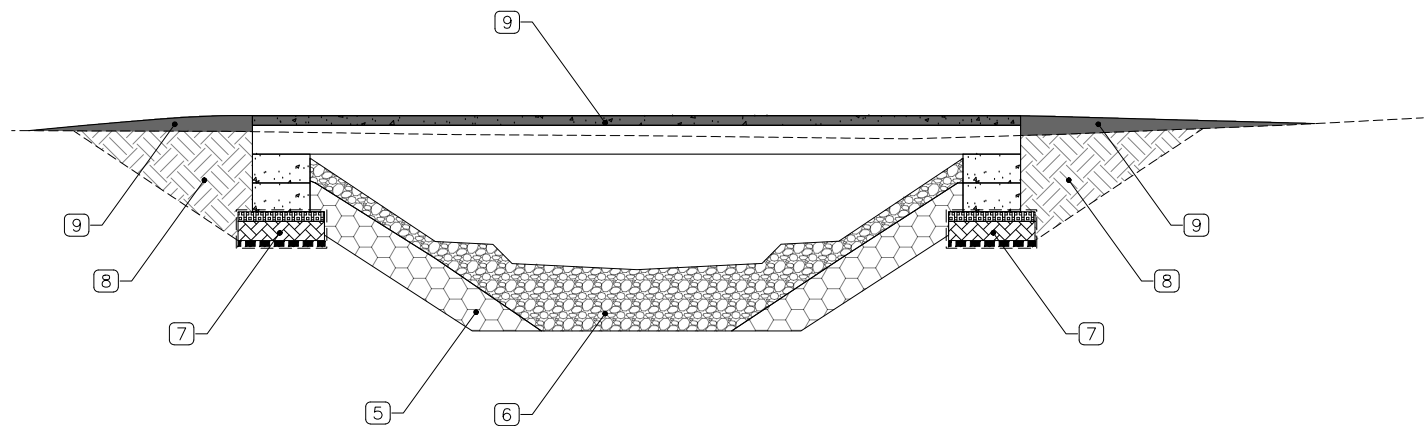
1 INCH SCALE BAR  
ADJUST SCALE ACCORDING

SHE

2 OF 3



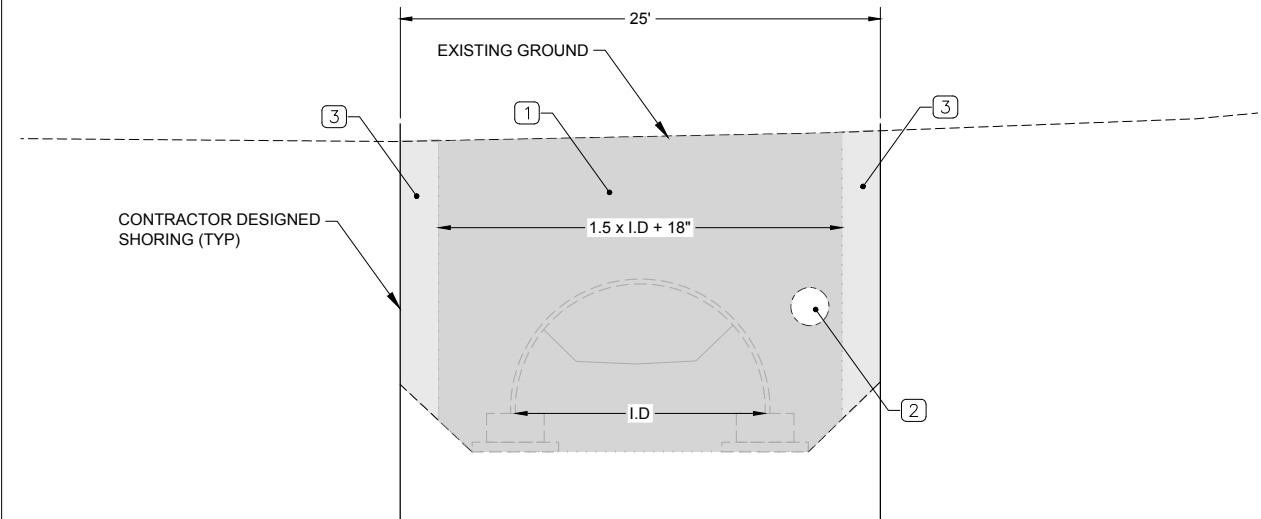
**CONTRACTOR DESIGNED PREFABRICATED BRIDGE EXCAVATION PAY ITEMS**  
NOT TO SCALE



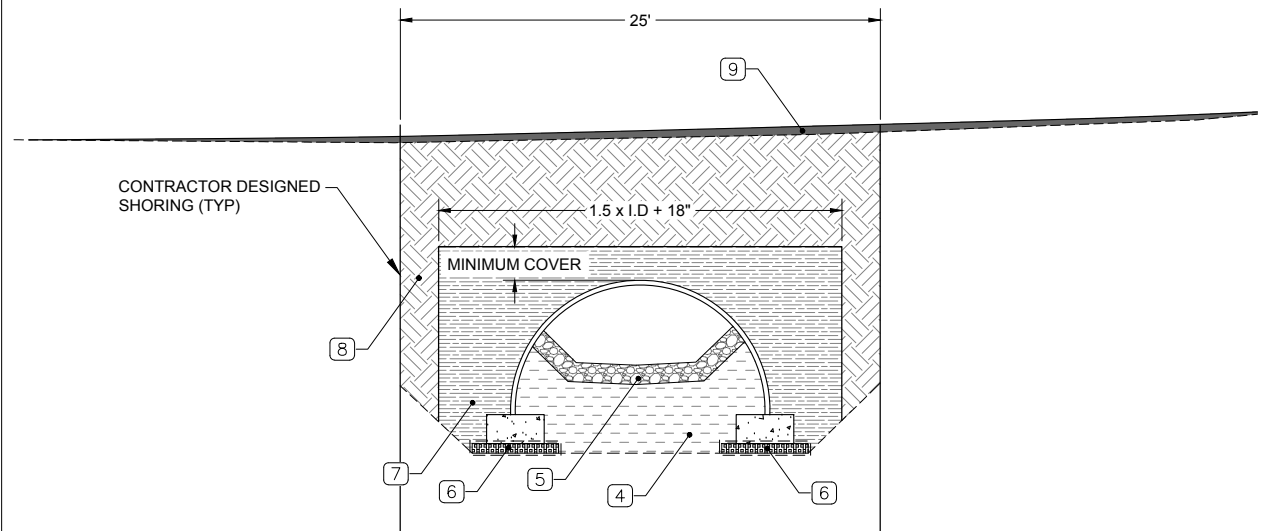
**CONTRACTOR DESIGNED PREFABRICATED BRIDGE FILL PAY ITEMS**  
NOT TO SCALE

**PREFABRICATED BRIDGE EARTHWORK BID ITEM NOTES:**

- 1 STRUCTURE EXCAVATION - LIMITS SHOWN CORRESPOND TO THOSE IDENTIFIED IN STANDARD SPECIFICATIONS.
- 2 REMOVAL OF STRUCTURES AND OBSTRUCTIONS.
- 3 CHANNEL EXCAVATION - LOWER LIMITS ARE STREAMBED OR SCOUR PROTECTION FOUNDATION ELEVATIONS PER THESE PLANS.
- 4 SHORING OR EXTRA EXCAVATION - LIMITS DETERMINED BASED ON CONTRACTOR MEANS AND METHODS.
- 5 ROCK FOR EROSION AND SCOUR PROTECTION OR QUARRY SPALLS - LIMITS SHOWN ON THESE PLANS.
- 6 STREAMBED AGGREGATES - MATERIALS FOR GENERATING REQUIRED MIXES ARE INCLUDED AS SEPARATE BID ITEMS.
- 7 SUBGRADE IMPROVEMENTS - GEOTEXTILE FABRIC, PERMEABLE BALLAST, CRUSHED SURFACING BASE COURSE, AND ANY OTHER MATERIALS REQUIRED PER APPROVED WORKING DRAWINGS ARE MADE INCIDENTAL TO STRUCTURE COST.
- 8 EMBANKMENT COMPACTION, METHOD B - BACKFILL FOR STRUCTURE EXCAVATION, EXTRA EXCAVATION OR SHORING WITH NATIVE MATERIAL, AND EMBANKMENT CONSTRUCTION.
- 9 CRUSHED SURFACING FOR DRIVEWAY AND BRIDGE DECK ARE SEPARATE FROM STRUCTURE COST; INCLUDED IN STANDALONE CSBC OR CSTC BID ITEMS.



**CONTRACTOR DESIGNED BURIED STRUCTURE EXCAVATION PAY ITEMS**  
NOT TO SCALE



**CONTRACTOR DESIGNED BURIED STRUCTURE FILL PAY ITEMS**  
NOT TO SCALE

**BURIED STRUCTURE EARTHWORK BID ITEM NOTES:**

- 1 STRUCTURE EXCAVATION - LIMITS SHOWN CORRESPOND TO THOSE IDENTIFIED IN STANDARD SPECIFICATIONS.
- 2 REMOVAL OF STRUCTURES AND OBSTRUCTIONS.
- 3 SHORING OR EXTRA EXCAVATION - LIMITS DETERMINED BASED ON CONTRACTOR MEANS AND METHODS.
- 4 GRADING AND FILL TO PREPARE CHANNEL BED WITHIN LIMITS OF BURIED STRUCTURE - INCIDENTAL TO CHANNEL EXCAVATION OR OTHER BID ITEMS.
- 5 STREAMBED AGGREGATES - MATERIALS FOR GENERATING REQUIRED MIXES ARE INCLUDED AS SEPARATE BID ITEMS.
- 6 SUBGRADE IMPROVEMENTS - GEOTEXTILE FABRIC, PERMEABLE BALLAST, CRUSHED SURFACING BASE COURSE, AND ANY OTHER MATERIALS REQUIRED PER APPROVED WORKING DRAWINGS ARE MADE INCIDENTAL TO STRUCTURE COST.
- 7 GRAVEL BACKFILL FOR PIPE ZONE BEDDING - LIMITS DETERMINED BASED ON APPROVED WORKING DRAWINGS; COST IS INCIDENTAL TO BURIED STRUCTURE BID ITEM.
- 8 EMBANKMENT COMPACTION, METHOD B - BACKFILL FOR STRUCTURE EXCAVATION, EXTRA EXCAVATION OR SHORING WITH NATIVE MATERIAL, AND EMBANKMENT CONSTRUCTION.
- 9 CRUSHED SURFACING FOR DRIVEWAY IS SEPARATE FROM STRUCTURE COST; INCLUDED IN STANDALONE CSBC OR CSTC BID ITEMS.
10. CHANNEL EXCAVATION - NOT SHOWN - ONLY APPLICABLE OUTSIDE LIMITS OF STRUCTURE EXCAVATION (EXCAVATION TO PREPARE CHANNEL BED UPSTREAM AND DOWNSTREAM OF BURIED STRUCTURE).

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |

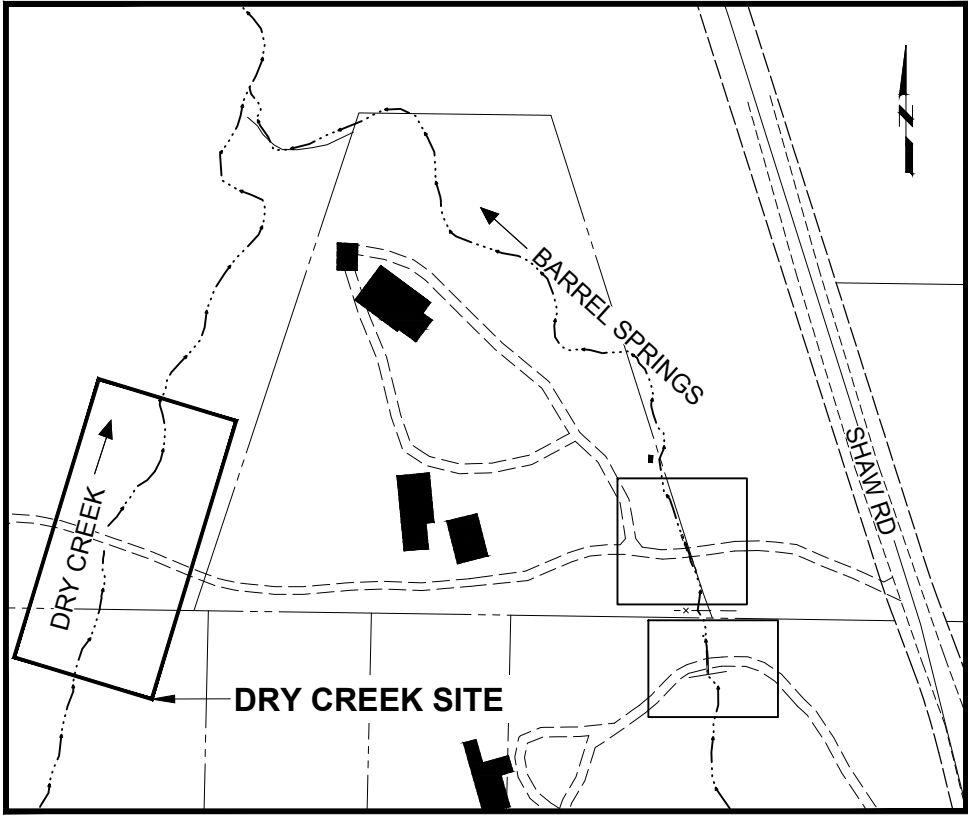


PROJECT NO.: WA40222  
FED. AID NO.: ----  
DESIGNED BY: NJT  
CHECKED BY: NJT  
DRAWN BY: NJT  
APPROVED BY: NJT  
PROJECT LOCATED NEAR:  
ALGER, WASHINGTON  
S12 T36N R3E

**BARREL SPRINGS & DRY CREEK  
RESTORATION**  
EARTHWORK PAY ITEMS

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
**3 OF 30**

# DRY CREEK CULVERT REPLACEMENT



SITE MAP NTS

| DRY CREEK<br>CHANNEL ALIGNMENT TABLE |         |        |                      |           |               |             |                             |                             |
|--------------------------------------|---------|--------|----------------------|-----------|---------------|-------------|-----------------------------|-----------------------------|
| NO.                                  | RADIUS  | LENGTH | LINE/CHORD DIRECTION | DELTA     | START STATION | END STATION | START COORDINATE            | END COORDINATES             |
| L15                                  |         | 18.06' | N12°57'42.23"E       |           | 14+62.74      | 14+44.68    | N=597961.28<br>E=1267711.06 | N=597978.87<br>E=1267715.11 |
| C14                                  | 20.00'  | 1.97'  | N15°47'11.99"E       | 5°39'00"  | 14+44.68      | 14+42.71    | N=597978.87<br>E=1267715.11 | N=597980.77<br>E=1267715.65 |
| L14                                  |         | 10.38' | N18°36'41.75"E       |           | 14+42.71      | 14+32.33    | N=597990.77<br>E=1267715.65 | N=597990.61<br>E=1267718.96 |
| C13                                  | 20.00'  | 6.46'  | N27°51'34.95"E       | 18°29'46" | 14+32.33      | 14+25.87    | N=597990.61<br>E=1267718.96 | N=597996.29<br>E=1267721.97 |
| L13                                  |         | 6.95'  | N37°06'28.15"E       |           | 14+25.87      | 14+18.93    | N=597996.29<br>E=1267721.97 | N=598001.83<br>E=1267726.16 |
| C12                                  | 20.00'  | 6.63'  | N27°36'33.16"E       | 18°59'50" | 14+18.93      | 14+12.29    | N=598001.83<br>E=1267726.16 | N=598007.68<br>E=1267729.22 |
| L12                                  |         | 27.34' | N18°06'38.17"E       |           | 14+12.29      | 13+84.96    | N=598007.68<br>E=1267729.22 | N=598033.66<br>E=1267737.71 |
| C11                                  | 20.00'  | 3.91'  | N12°30'21.53"E       | 11°12'33" | 13+84.96      | 13+81.04    | N=598033.66<br>E=1267737.71 | N=598037.48<br>E=1267738.56 |
| L11                                  |         | 6.21'  | N6°54'04.90"E        |           | 13+81.04      | 13+74.83    | N=598037.48<br>E=1267738.56 | N=598043.65<br>E=1267739.31 |
| C10                                  | 13.22'  | 6.90'  | N8°03'18.31"W        | 29°54'46" | 13+74.83      | 13+67.93    | N=598043.65<br>E=1267739.31 | N=598050.40<br>E=1267738.35 |
| L10                                  |         | 3.67'  | N23°00'41.52"W       |           | 13+67.93      | 13+64.26    | N=598050.40<br>E=1267738.35 | N=598053.78<br>E=1267736.92 |
| C9                                   | 14.98'  | 8.70'  | N6°22'01.09"W        | 33°17'21" | 13+64.26      | 13+55.56    | N=598053.78<br>E=1267736.92 | N=598062.31<br>E=1267735.96 |
| L9                                   |         | 3.86'  | N10°16'39.34"E       |           | 13+55.56      | 13+51.70    | N=598062.31<br>E=1267735.96 | N=598066.10<br>E=1267736.65 |
| C8                                   | 20.00'  | 5.24'  | N17°46'47.61"E       | 15°00'17" | 13+51.70      | 13+46.46    | N=598066.10<br>E=1267736.65 | N=598071.08<br>E=1267738.25 |
| L8                                   |         | 2.27'  | N25°16'55.88"E       |           | 13+46.46      | 13+44.20    | N=598071.08<br>E=1267738.25 | N=598073.13<br>E=1267739.21 |
| C7                                   | 18.77'  | 9.10'  | N11°23'58.49"E       | 27°45'55" | 13+44.20      | 13+35.10    | N=598073.13<br>E=1267739.21 | N=598081.95<br>E=1267740.99 |
| L7                                   |         | 5.68'  | N2°28'58.90"W        |           | 13+35.10      | 13+29.42    | N=598081.95<br>E=1267740.99 | N=598087.63<br>E=1267740.75 |
| C6                                   | 15.49'  | 5.79'  | N8°13'41.17"E        | 21°25'20" | 13+29.42      | 13+23.63    | N=598087.63<br>E=1267740.75 | N=598093.32<br>E=1267741.57 |
| L6                                   |         | 20.67' | N18°56'21.24"E       |           | 13+23.63      | 13+02.96    | N=598093.32<br>E=1267741.57 | N=598112.87<br>E=1267748.28 |
| C5                                   | 100.00' | 23.48' | N25°39'52.19"E       | 13°27'02" | 13+02.96      | 12+79.49    | N=598112.87<br>E=1267748.28 | N=598133.98<br>E=1267758.42 |
| L5                                   |         | 20.20' | N32°23'23.14"E       |           | 12+79.49      | 12+59.29    | N=598133.98<br>E=1267758.42 | N=598151.04<br>E=1267769.25 |
| C4                                   | 56.57'  | 20.40' | N42°43'16.93"E       | 20°39'48" | 12+59.29      | 12+38.89    | N=598151.04<br>E=1267769.25 | N=598165.95<br>E=1267783.01 |
| L4                                   |         | 6.61'  | N53°03'10.71"E       |           | 12+38.89      | 12+32.28    | N=598165.95<br>E=1267783.01 | N=598169.92<br>E=1267788.29 |
| C3                                   | 31.92'  | 16.97' | N37°49'28.32"E       | 30°27'25" | 12+32.28      | 12+15.31    | N=598169.92<br>E=1267788.29 | N=598183.17<br>E=1267798.58 |
| L3                                   |         | 7.11'  | N22°35'45.93"E       |           | 12+15.31      | 12+08.20    | N=598183.17<br>E=1267798.58 | N=598189.73<br>E=1267801.31 |
| C2                                   | 20.00'  | 6.54'  | N13°13'44.68"E       | 18°44'02" | 12+08.20      | 12+01.66    | N=598189.73<br>E=1267801.31 | N=598196.07<br>E=1267802.80 |
| L2                                   |         | 20.71' | N3°51'43.44"E        |           | 12+01.66      | 11+80.95    | N=598196.07<br>E=1267802.80 | N=598216.73<br>E=1267804.19 |
| C1                                   | 20.00'  | 4.25'  | N2°13'19.68"W        | 12°10'06" | 11+80.95      | 11+76.70    | N=598216.73<br>E=1267804.19 | N=598220.97<br>E=1267804.03 |
| L1                                   |         | 21.58' | N8°18'22.80"W        |           | 11+76.70      | 11+55.12    | N=598220.97<br>E=1267804.03 | N=598242.32<br>E=1267800.91 |

| PLAN SHEET INDEX -<br>DRY CREEK |                           |
|---------------------------------|---------------------------|
| SHEET                           | TITLE                     |
| 4                               | SUBSET COVER SHEET        |
| 5                               | EXISTING CONDITIONS       |
| 6                               | ACCESS, STAGING, AND TESC |
| 7                               | CHANNEL PLAN AND PROFILE  |
| 8                               | CHANNEL SECTIONS          |
| 9                               | ROAD PLAN AND PROFILE     |
| 10                              | ROAD DETAILS              |
| 11                              | LOG RIFFLE DETAIL         |
| 12                              | SEQUENCING 1              |
| 13                              | SEQUENCING 2              |
| 14                              | SITE RESTORATION          |

Natural Systems Design

+ Coastal Geologic Services

1 INCH SCALE BAR

ADJUST SCALE ACCORDINGLY

SHEET

4 OF 30

SKAGIT COUNTY  
PUBLIC WORKS

1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

ENGINEER OF RECORD

1/1/25

PROJECT NO.: WA40222

FED. AID NO.: ---

DESIGNED BY: NJT

CHECKED BY:

DRAWN BY: LAV

APPROVED BY:

PROJECT LOCATED NEAR:  
ALGER, WASHINGTON

S12 T36N R9E

BARREL SPRINGS & DRY CREEK  
RESTORATION

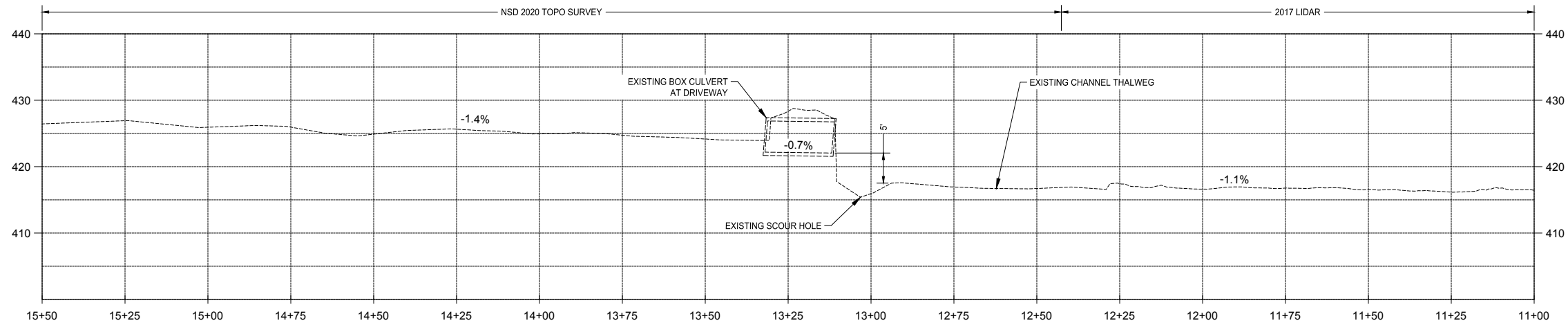
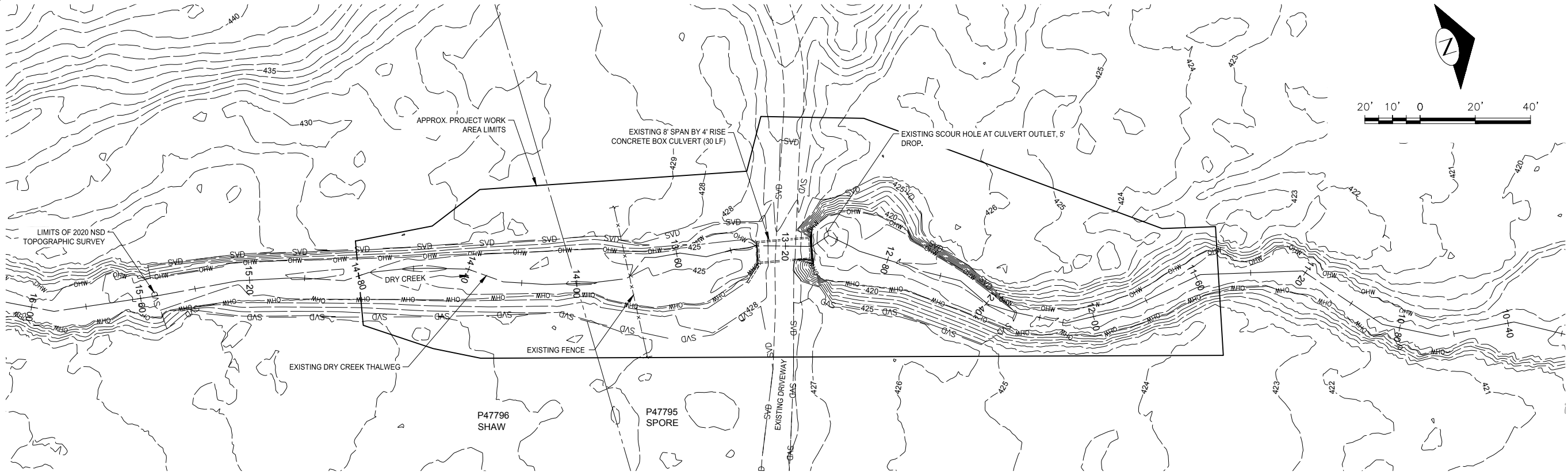
SUBSET COVER SHEET  
DRY CREEK

1 INCH SCALE BAR

ADJUST SCALE ACCORDINGLY

SHEET

4 OF 30



### DRY CREEK PROFILE

SCALE: 1"=20' HORIZ., 1"=10' VERT.

#### NOTES:

1. EXSTING SURFACE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY DATA COLLECTED IN 2020 BY NSD AND 2017 LIDAR DATA OBTAINED FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES LIDAR PORTAL. CONDITIONS AT TIME OF CONSTRUCTION MAY VARY FROM THOSE SHOWN ON THIS SHEET.
2. EXISTING TREES NOT SHOWN.
3. EXISTING PARCEL BOUNDARY DATA OBTAINED FROM SKAGIT COUNTY ASSESSORS DATA AND ARE CONSIDER APPROXIMATE.
4. CONTRACTOR SHALL VERIFY PRESENCE OR ABSENCE OF UTILITIES WITHIN ROADWAY PRIOR TO ANY GROUND DISTURBING ACTIVITIES.



Natural Systems Design  
+ Coastal Geologic Services

BARREL SPRINGS & DRY CREEK  
RESTORATION

EXISTING CONDITIONS

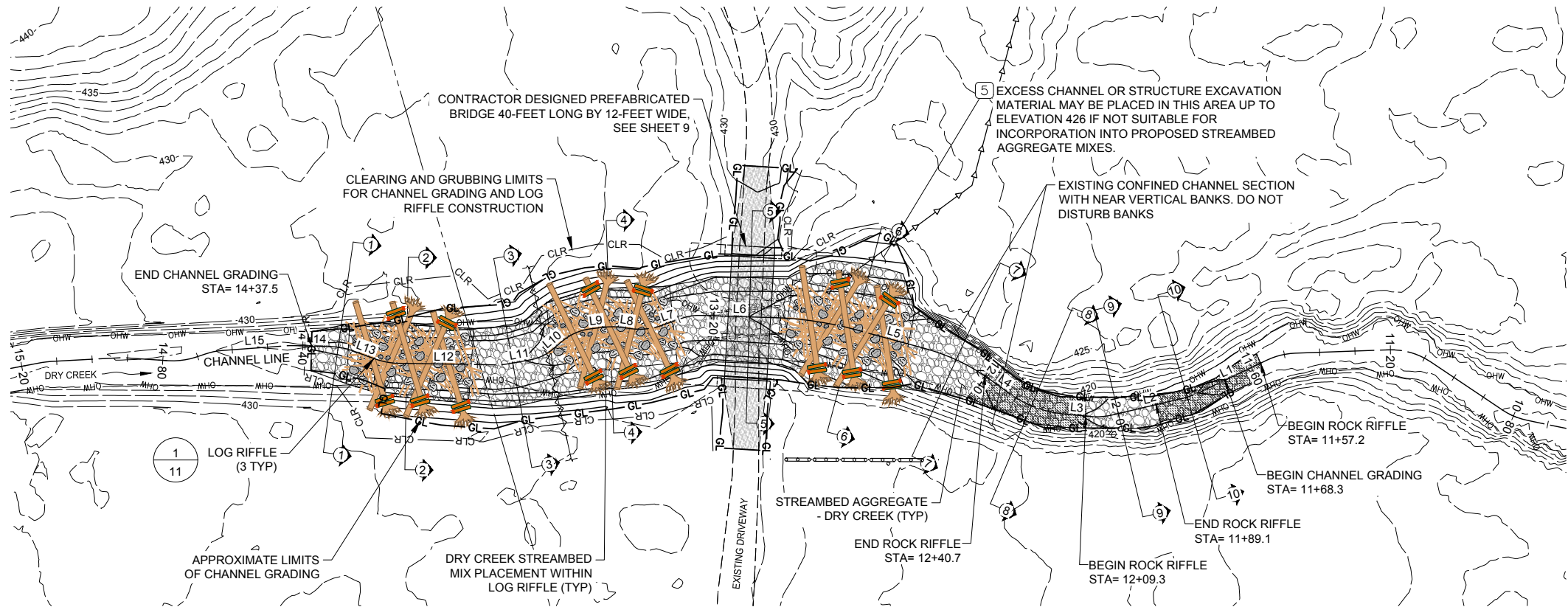
PROJECT NO.: WA40222  
FED. AID NO.: ----  
DESIGNED BY: NJT  
CHECKED BY:  
DRAWN BY: LAV  
APPROVED BY:  
PROJECT LOCATED NEAR:  
ALGER, WASHINGTON  
S12 T36N R3E



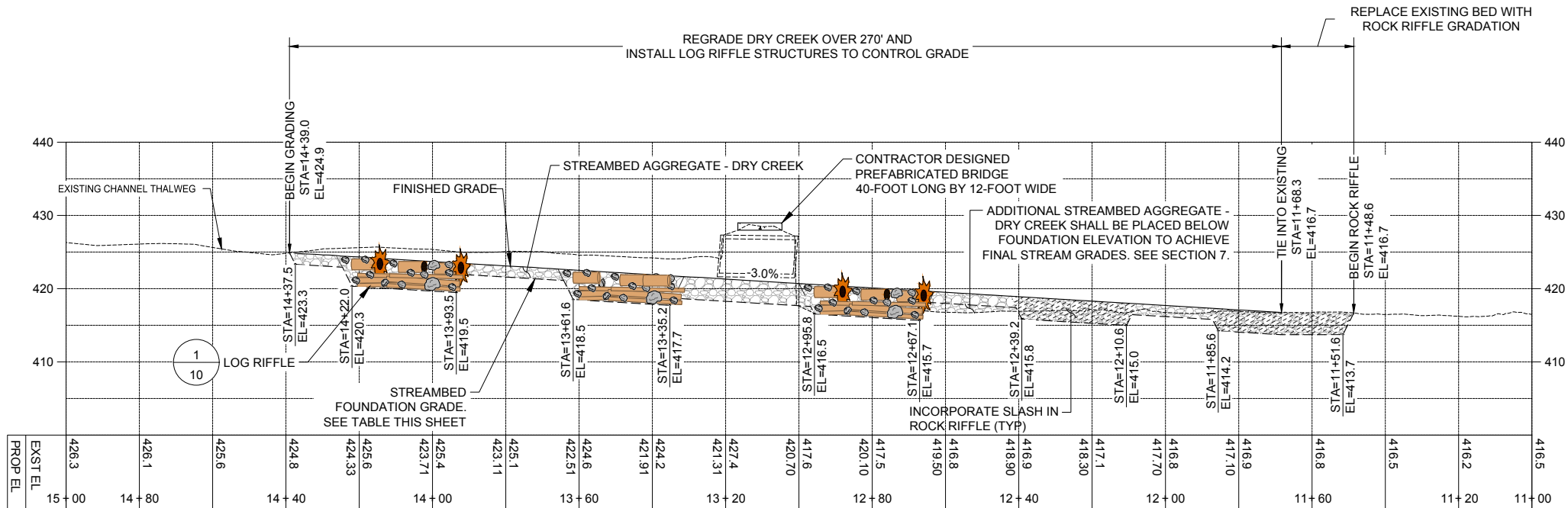
| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |

SKAGIT COUNTY  
PUBLIC WORKS  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



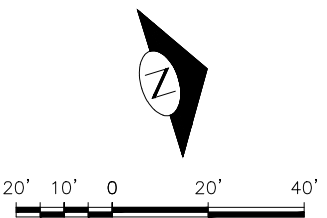


DRY CREEK CHANNEL PLAN



DRY CREEK CHANNEL PROFILE

SCALE: 1"=10' HORIZ., 1"=5' VERT.



- NOTES
- FOR DRY CREEK CHANNEL SECTIONS AND TYPICAL CHANNEL DETAILS SEE SHEET 8
  - STREAMBED FOUNDATION SHALL BE DEFINED AS A HORIZONTAL SURFACE EXTENDING FROM TOE TO TOE OF THE PROPOSED CHANNEL BANKS AT THE ELEVATION SHOWN ON THE PROFILE AND TABLE ON THIS SHEET.
  - CONTRACTOR SHALL MINIMIZE EXCAVATION INTO EXISTING BANKS TO THE MAXIMUM EXTENT FEASIBLE WHEN ESTABLISHING THE STREAMBED FOUNDATION GRADE.
  - CONTRACTOR SHALL REUSE ALL EXCAVATED DRY CREEK CHANNEL SUBSTRATE AS EITHER A COMPONENT OF THE PROPOSED STREAMBED AGGREGATE, A MEANS OF FILLING VOID SPACES IN THE ROCK RIFFLE AGGREGATE MIX AND LOG RIFFLE STRUCTURES, OR EXPORTED TO THE BARREL SPRINGS WORK AREAS FOR USE IN THE STREAMBED AGGREGATE - BARREL SPRINGS.
  - CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO PLACING EXCESS MATERIAL IN THIS AREA AND SHALL CLEARLY STAKE OR FLAG LIMITS OF EXCESS MATERIAL PLACEMENT AND ANTICIPATED TOP ELEVATION.
  - FOR DRY CREEK CHANNEL ALIGNMENT TABLE SEE SHEET 4.

DRY CREEK CHANNEL PROFILE TABLE

| STATION  | STREAMBED FOUNDATION ELEVATION | FINISHED GRADE ELEVATION AT THALWEG |
|----------|--------------------------------|-------------------------------------|
| 14+39.02 | 424.87                         | 425.39                              |
| 14+37.45 | 423.32                         | 425.34                              |
| 14+24.57 | 422.93                         | 424.96                              |
| 14+21.96 | 420.32                         | 424.88                              |
| 13+93.48 | 419.47                         | 424.02                              |
| 13+91.02 | 421.92                         | 423.95                              |
| 13+64.21 | 421.12                         | 423.15                              |
| 13+61.61 | 418.51                         | 423.07                              |
| 13+35.23 | 417.72                         | 422.28                              |
| 13+32.78 | 420.17                         | 422.20                              |
| 12+98.39 | 419.14                         | 421.17                              |
| 12+95.78 | 416.53                         | 421.09                              |
| 12+67.08 | 415.67                         | 420.23                              |
| 12+64.63 | 418.12                         | 420.16                              |
| 12+40.74 | 417.41                         | 419.44                              |
| 12+39.17 | 415.84                         | 419.40                              |
| 12+10.62 | 414.99                         | 418.54                              |
| 12+09.15 | 416.46                         | 418.49                              |
| 11+87.14 | 415.81                         | 417.31                              |
| 11+85.59 | 414.23                         | 417.27                              |
| 11+68.32 | 413.72                         | 416.75                              |
| 11+51.57 | 413.72                         | 416.8                               |
| 11+48.59 | 416.69                         | 416.69                              |



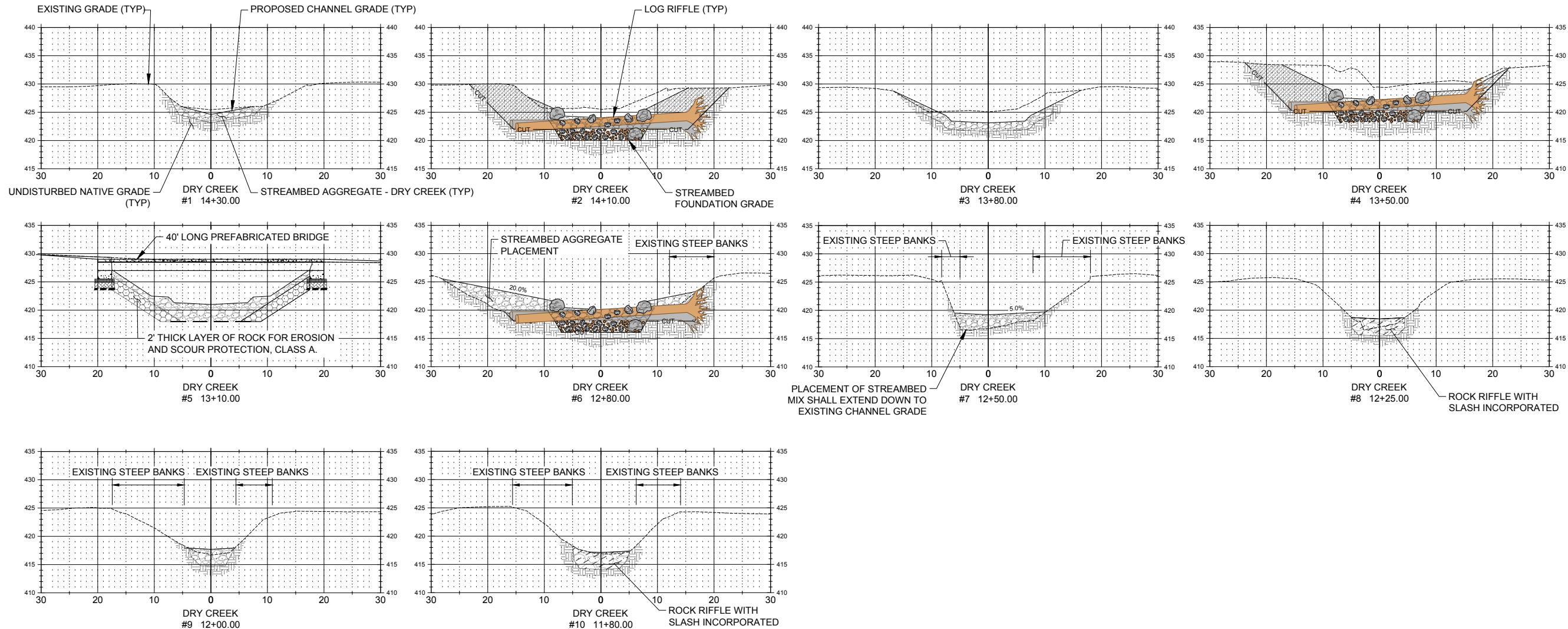
Natural Systems Design  
+ Coastal Geologic Services

SKAGIT COUNTY  
PUBLIC WORKS  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

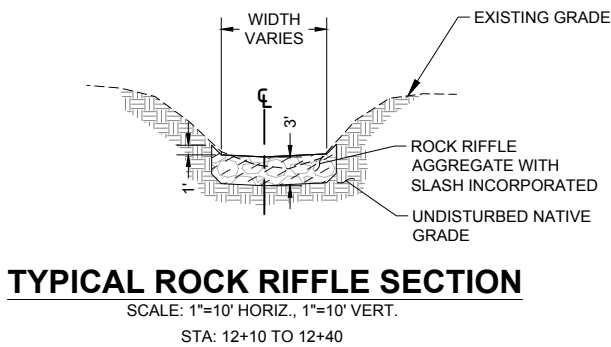
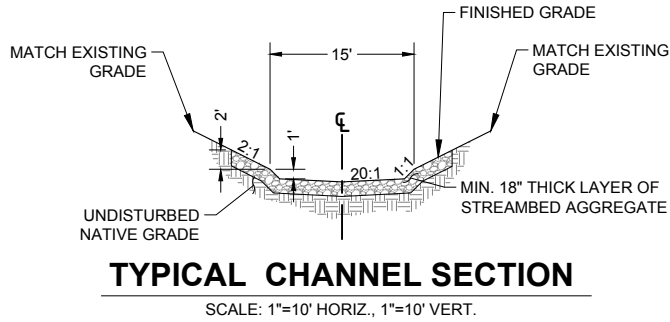
| DATE | REVISIONS | NO. |
|------|-----------|-----|
|      |           |     |

|                       |                    |                                                            |              |
|-----------------------|--------------------|------------------------------------------------------------|--------------|
| PROJECT NO.: WA402222 | FED. AID NO.: ---- | DRAWN BY: LAV                                              | APPROVED BY: |
| DESIGNED BY: NJT      | CHECKED BY:        | PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON<br>S12 T36N R3E |              |

BARREL SPRINGS & DRY CREEK  
RESTORATION  
CHANNEL PLAN AND PROFILE  
DRY CREEK



| STREAMBED AGGREGATE - DRY CREEK MIX |            |               |
|-------------------------------------|------------|---------------|
| MATERIAL                            | PERCENTAGE | SPECIFICATION |
| STREAMBED BOULDERS TYPE 2           | 15%        | 9-03.11(3)    |
| STREAMBED BOULDERS TYPE 1           | 15%        | 9-03.11(3)    |
| 10" STREAMBED COBBLES               | 40%        | 9-03.11(2)    |
| STREAMBED SEDIMENT                  | 30%        | 9-03.11(1)    |



Natural Systems Design  
+ Coastal Geologic Services

SKAGIT COUNTY

PUBLIC WORKS

1800 CONTINENTAL PLACE

MOUNT VERNON, WA 98273-5625

(360) 416-1400

PROJECT NO.: WA40222

FED. AID NO.: ----

DESIGNED BY: NJT

CHECKED BY:

DRAWN BY: LAV

APPROVED BY:

PROJECT LOCATED NEAR:

ALGER, WASHINGTON

S12 T36N R3E

ENGINEER OF RECORD

BARREL SPRINGS & DRY CREEK RESTORATION

CHANNEL SECTIONS

DRY CREEK

1 INCH SCALE BAR

ADJUST SCALE ACCORDINGLY

SHEET

8 OF 30

SKAGITCOUNTY - 2024 Version - Sheet Template

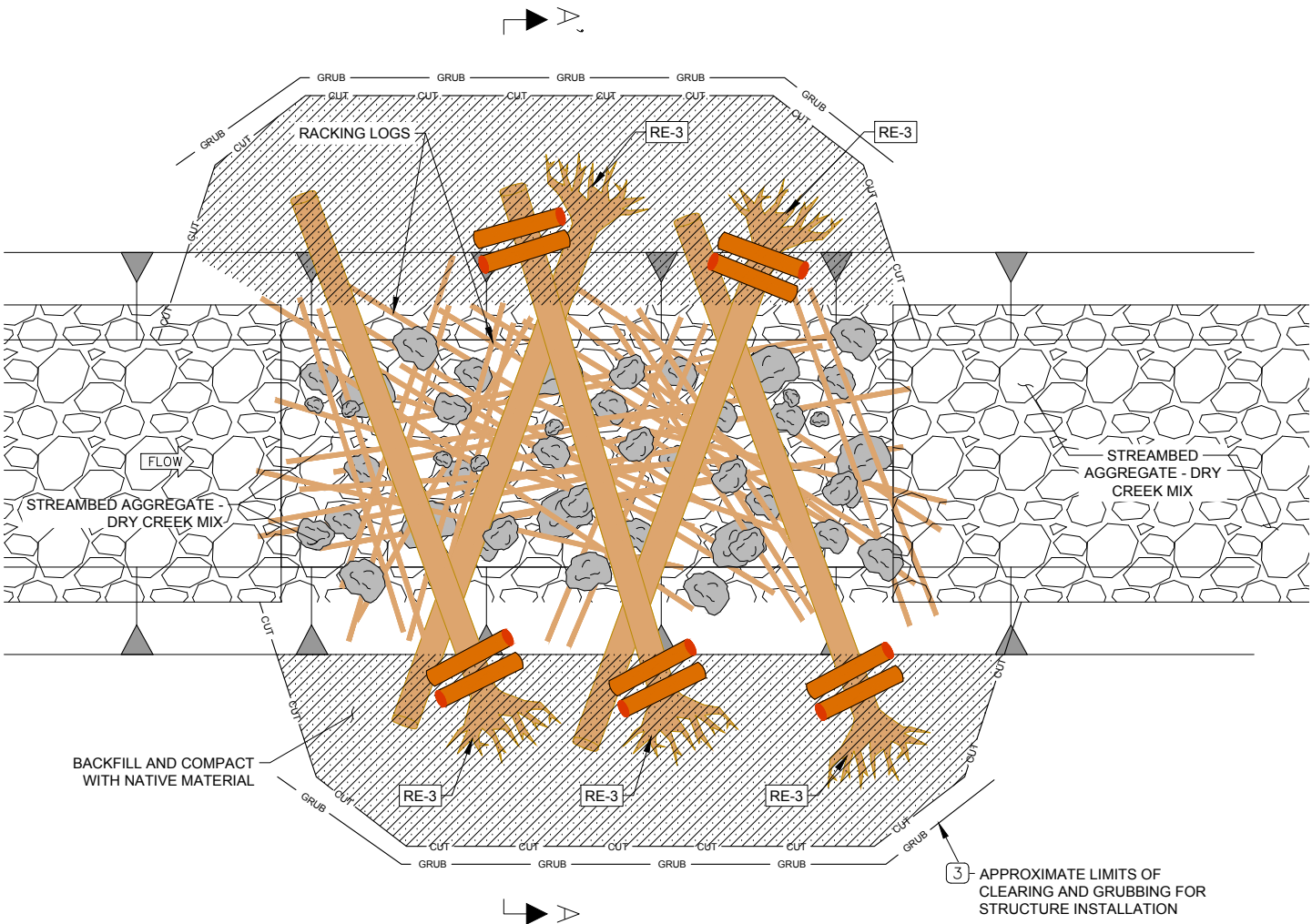
Page 294



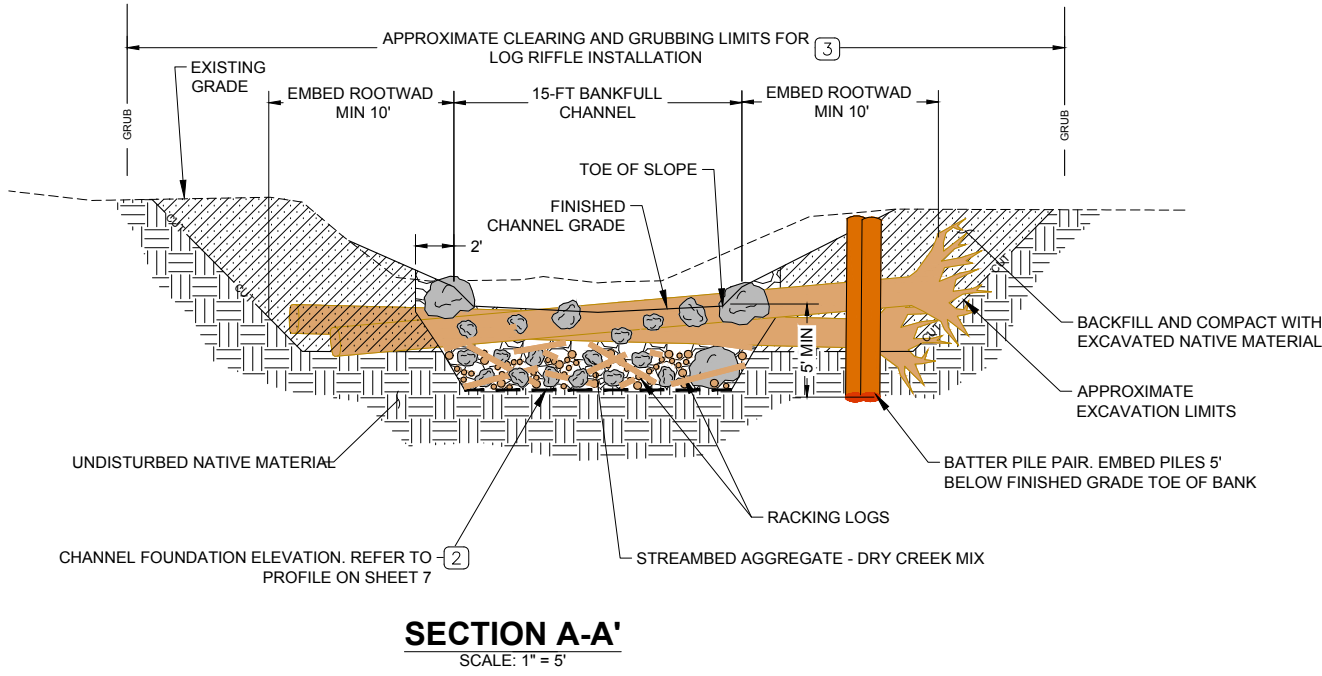


1. FINAL DIMENSIONS AND ELEVATION OF BRIDGE FOOTING PAD SHALL BE BASED UPON FOOTING DIMENSIONS PROVIDED IN FINAL SHOP DRAWINGS PROVIDED BY BRIDGE MANUFACTURER.
2. IF UNSUITABLE SUBGRADE MATERIALS ARE ENCOUNTERED DURING THE EXCAVATION FOR THE PLACEMENT OF THE BRIDGE FOOTING PADS, THE ENGINEER MAY REQUIRE THE OVER-EXCAVATION OF AN ADDITIONAL 2 FEET OF SUBGRADE AND PLACEMENT AND COMPACTION OF PERMEABLE BALLAST. SUBGRADE IMPROVEMENTS BEYOND THOSE SHOWN ON THIS SHEET OR THE FINAL SHOP DRAWINGS (WHICHEVER REQUIRES THE MOST OVEREXCAVATION) SHALL BE PAID FOR ACCORDING TO SECTION 1-04.4 OF THE STANDARD SPECIFICATIONS.





LOG RIFFLE DETAIL 1 11  
SCALE: 1" = 5'



SECTION A-A' SCALE: 1" = 5'

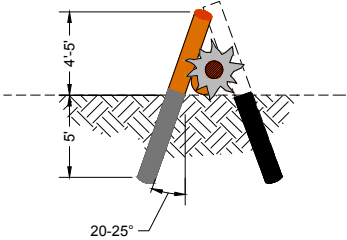
LOG RIFFLE CONSTRUCTION NOTES:

- LOG RIFFLE STRUCTURES ARE INTENDED TO EXTEND VERTICALLY FROM THE STREAMBED FOUNDATION ELEVATION TO THE PROPOSED CHANNEL GRADE AND CONSIST OF A COMPACTED MIX OF RACKING LOGS, ROCK RIFFLE AGGREGATE MIX, AND 18" DIA. BY 30' LONG ROOTWAD LOGS (RE-3).
- CONTRACTOR SHALL ESTABLISH THE STREAMBED FOUNDATION GRADE PER THE PROFILE SHOWN ON SHEET 7 AND OBTAIN APPROVAL FOR STREAMBED FOUNDATION ELEVATION FROM ENGINEER PRIOR TO CONSTRUCTION OF LOG RIFFLE STRUCTURES.
- CONTRACTOR SHALL LIMIT CLEARING AND GRUBBING FOR LOG RIFFLE STRUCTURE TO THE EXTENT PRACTICAL. FIELD FITTING OF STRUCTURE LOCATIONS AND LAYOUT IS ANTICIPATED TO PRESERVE KEY MATURE TREES ALONG EXISTING STREAMBANKS.
- CONSTRUCTION OF LOG RIFFLE STRUCTURES WILL INVOLVE EXCAVATION OF NATIVE STREAMBED MATERIAL AND CONTRACTOR SHALL ANTICIPATE ENCOUNTERING GROUNDWATER DURING EXCAVATION WORK.
- EXCAVATED NATIVE STREAMBED MATERIAL SHALL BE SALVAGED AN INCORPORATED INTO PLACEMENT OF ROCK RIFFLE AGGREGATE TO AID IN FILLING VOID SPACE OF THE COARSER ROCK RIFFLE AGGREGATE.
- RE-3 LOGS SHALL BE KEYED INTO THE EXISTING BANKS AND SECURED VIA BATTER PILE PAIRS AS SHOW ON THESE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- THE INTENT OF THE TOP LAYER OF RE-3 LOGS IS TO BE FLUSH WITH THE PROPOSED CHANNEL GRADE AND TO SLOPE TOWARD THE CENTER OF THE CHANNEL SIMILAR TO THE DESIGN CHANNEL GRADES. TOP LAYER OF RE-3 LOGS SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINSHED CHANNEL GRADE.
- FOR DETAILED CONSTRUCTION SEQUENCING OF LOG RIFFLES REFER TO SHEETS 12 AND 13.

| LOG RIFFLE LOG SCHEDULE PER STRUCTURE |           |             |               |          |                                                   |
|---------------------------------------|-----------|-------------|---------------|----------|---------------------------------------------------|
| LOG                                   | DIA. (IN) | LENGTH (FT) | ROOTWAD (Y/N) | QUANTITY | NOTES                                             |
| RE-3                                  | 18        | 30          | OPTIONAL      | 5        | ROOTWAD OPTIONAL                                  |
| BATTER PILE                           | 12        | 10-15       | N             | 10       | TO BE USED IN BATTER PILE PAIR                    |
| RACKING                               | 3-9       | 10-25       | N             | 45-60    | TO BE USED IN THE CONSTRUCTION OF RACKING BUNDLES |
| SLASH                                 | 1-3       | 3           | N/A           | 5        | CUBIC YARDS PER STRUCTURE                         |

NOTES:

- RE-3 AND BATTER PILE LOG SPECIES SHALL BE DOUGLAS FIR OR WESTERN RED CEDAR
- RACKING LOG SPECIES SHALL BE ANY NATIVE CONIFEROUS TREE



BATTER PILE PAIR NOTES:

- BATTER PILES TO BE ANGLED BY AS DIRECTED BY ENGINEER.
- LOCATIONS AND ORIENTATION OF BATTER PILES TO BE DIRECTED BY ENGINEER.
- TRIM PILE TOPS FOLLOWING INSTALLATION TO PREVENT PONDING OF WATER ON TOPS.

BATTER PILE PAIR DETAIL 3 11  
NTS



Natural Systems Design  
+ Coastal Geologic Services

SKAGIT COUNTY  
PUBLIC WORKS

1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

ENGINEER OF RECORD  
JON THULS  
WASHINGTON  
REGISTERED PROFESSIONAL  
54165

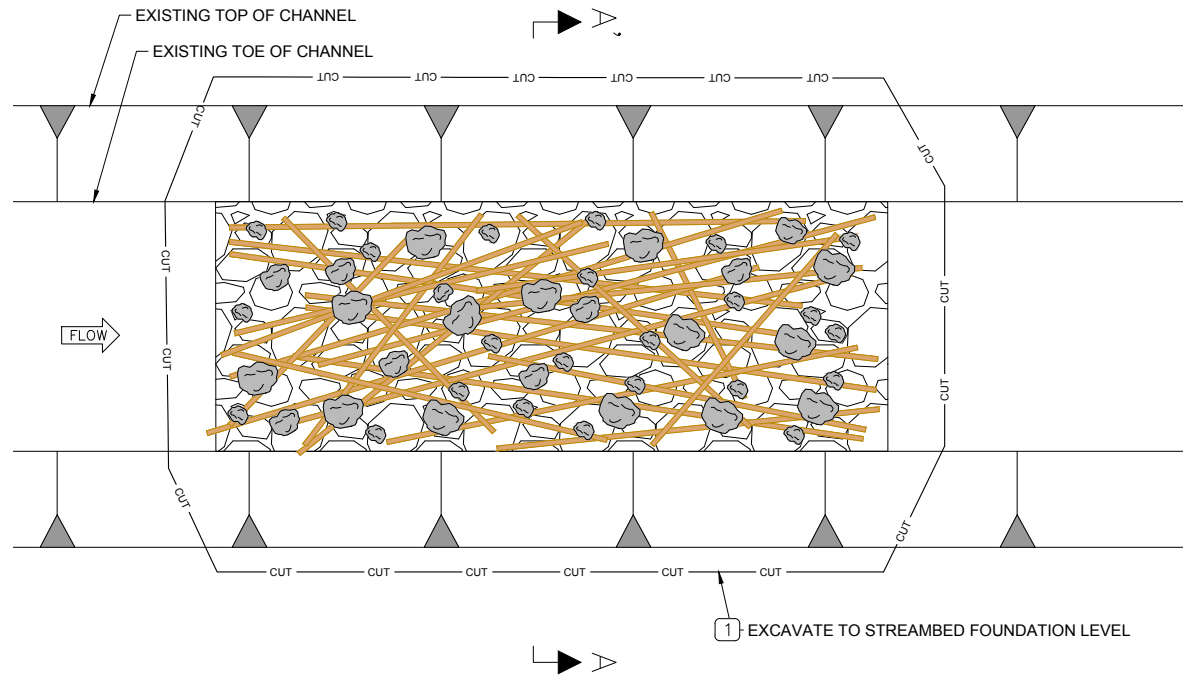
PROJECT NO.: WA40222  
FED. AID NO.: ----  
DESIGNED BY: NJT  
CHECKED BY:  
DRAWN BY: LAV  
APPROVED BY:  
PROJECT LOCATED NEAR:  
ALGER, WASHINGTON

BARREL SPRINGS & DRY CREEK  
RESTORATION

LOG RIFFLE DETAIL  
DRY CREEK

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

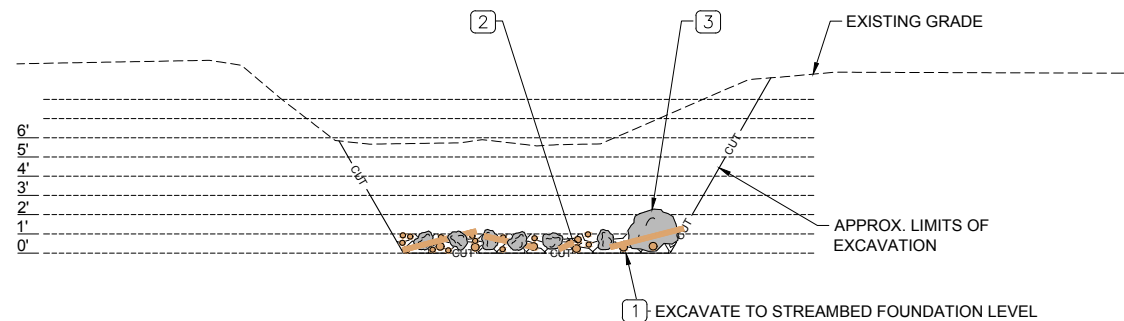
SHEET  
11 OF 30



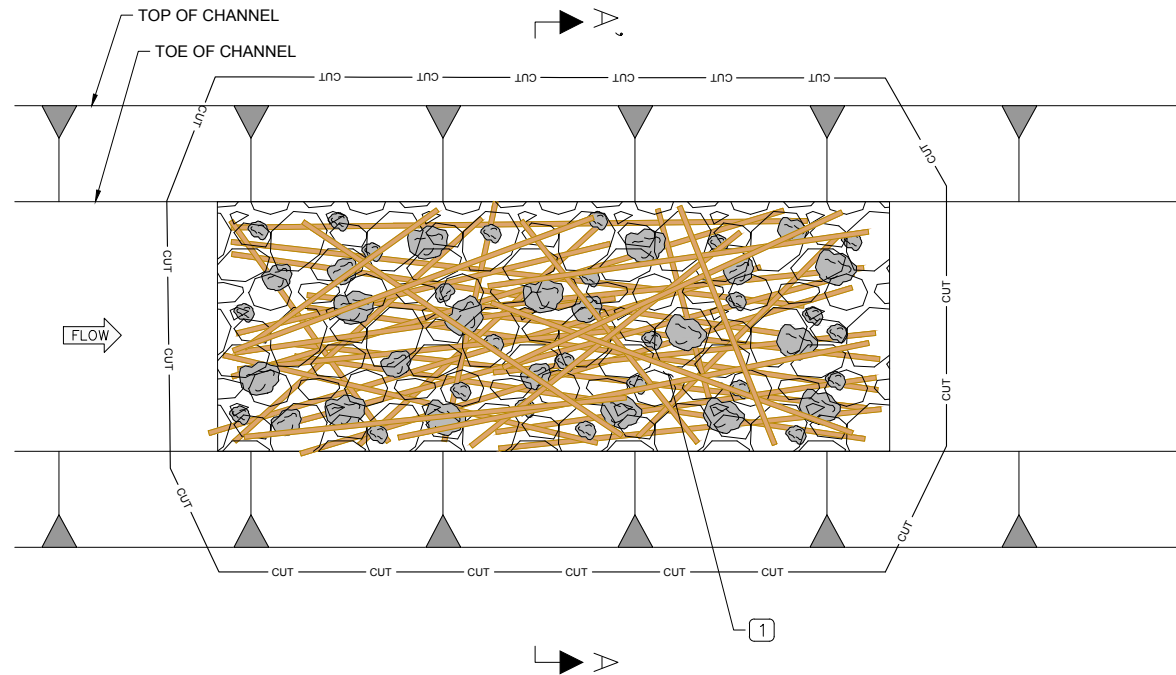
**SEQUENCING 1**  
SCALE: 1" = 5'

LOG RIFFLE CONSTRUCTION SEQUENCE 1

- 1 EXCAVATE CHANNEL TO STREAMBED FOUNDATION ELEVATION AS SHOWN ON DESIGN PROFILE, SHEET 7.
- 2 PLACE 8-10 TYPE ONE AND TWO STREAMBED BOULDERS THROUGHOUT STRUCTURE FOOTPRINT. PLACE 15-20 RACKING LOGS BETWEEN BOULDERS. PLACE DRY CREEK STREAMBED MIX THROUGHOUT STRUCTURE FOOTPRINT UP TO 1-FOOT IN DEPTH. BACKFILL AND COMPACT WITH FINER FRACTION OF DRY CREEK STREAMBED MIX TO FILL VOID SPACE. COMPACT WITH BACK OF EXCAVATOR BUCKET OR SIMILAR MEANS. WASH IN DRY CREEK STREAMBED MIX TO ENSURE NO SUBSURFACE FLOW.
- 3 TYPE ONE AND TWO STREAMBED BOULDERS FROM DRY CREEK STREAMBED MIX MAY EXTEND ABOVE THE 1-FOOT THICKNESS.



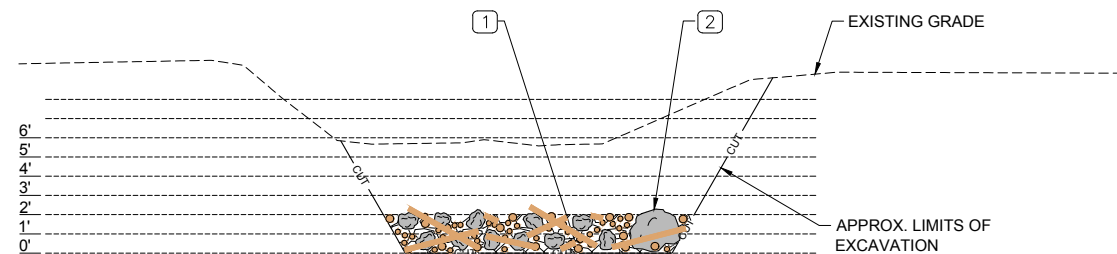
**SECTION A-A' - SEQUENCE 1**  
SCALE: 1" = 5'



**SEQUENCING 2**  
SCALE: 1" = 5'

LOG RIFFLE CONSTRUCTION SEQUENCE 2

- 1 CONTINUE PLACEMENT OF APPROX. 15 RACKING LOGS AND DRY CREEK STREAMBED MIX UP TO 2-FOOT THICKNESS. BACKFILL AND COMPACT WITH FINER FRACTION OF DRY CREEK STREAMBED MIX TO FILL VOID SPACE. COMPACT WITH BACK OF EXCAVATOR BUCKET OR SIMILAR MEANS. WASH IN DRY CREEK STREAMBED MIX TO ENSURE NO SUBSURFACE FLOW.
- 2 TYPE ONE AND TWO STREAMBED BOULDERS FROM DRY CREEK STREAMBED MIX MAY EXTEND ABOVE THE 2-FOOT THICKNESS.



**SECTION A-A' - SEQUENCE 2**  
SCALE: 1" = 5'



Natural Systems Design  
+ Coastal Geologic Services

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

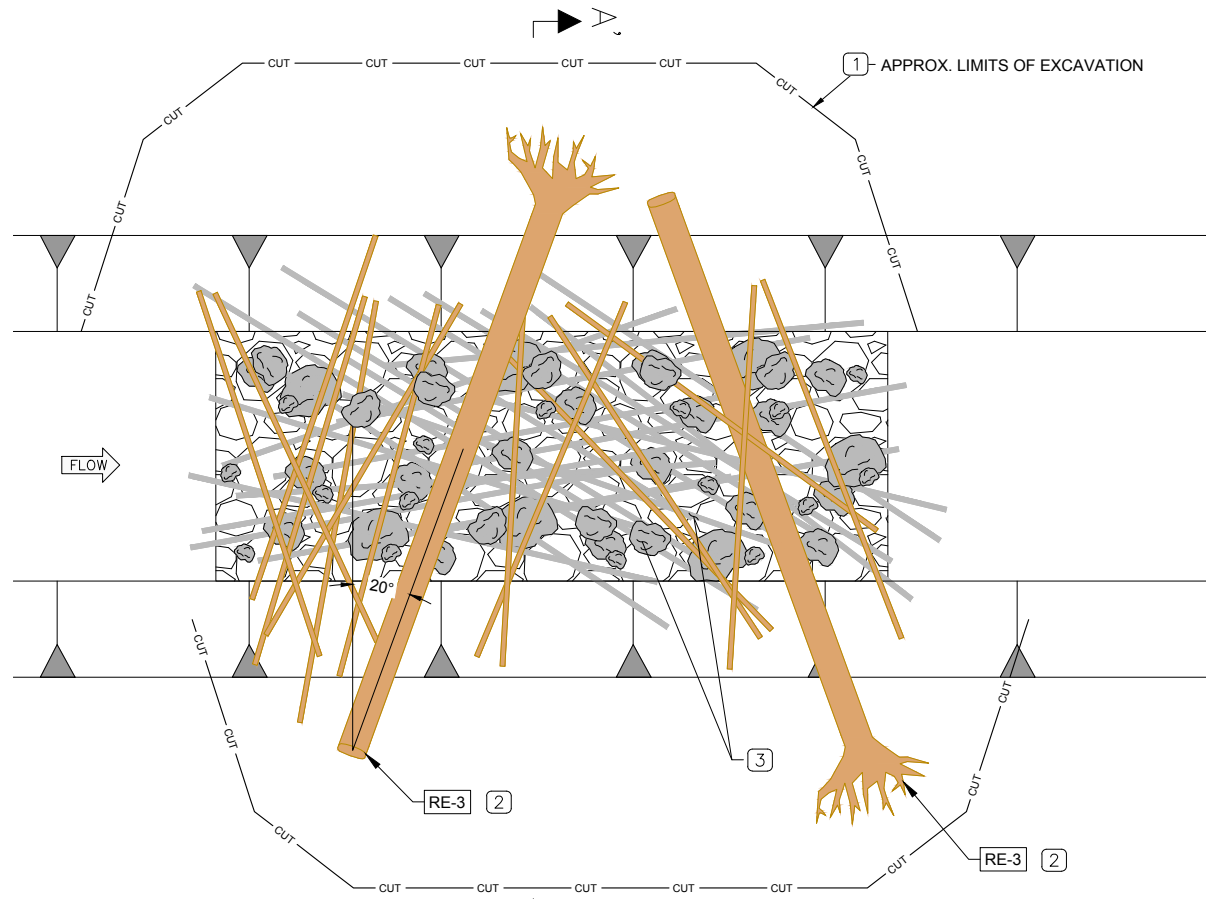


|                                                                                   |                                                                                          |     |           |      |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----|-----------|------|
| PROJECT NO.: WA40222<br>FED. AID NO.: ----<br>DESIGNED BY: NJT<br>CHECKED BY: LAV | DRAWN BY: LAV<br>APPROVED BY: PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON<br>S12 T36N R3E | NO. | REVISIONS | DATE |
|                                                                                   |                                                                                          |     |           |      |
|                                                                                   |                                                                                          |     |           |      |

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

SEQUENCING 1  
DRY CREEK

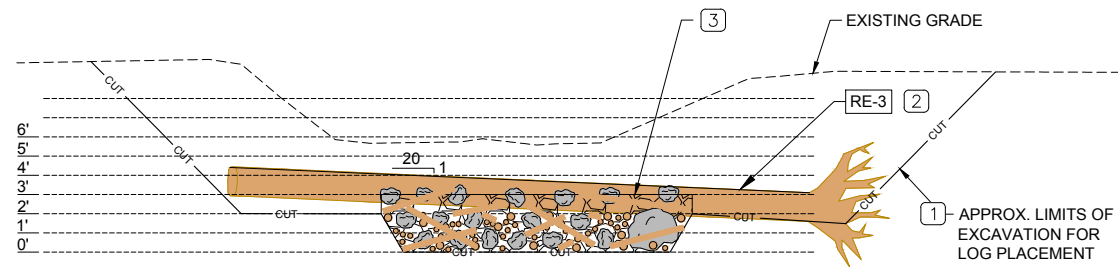
1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
**12 OF 30**



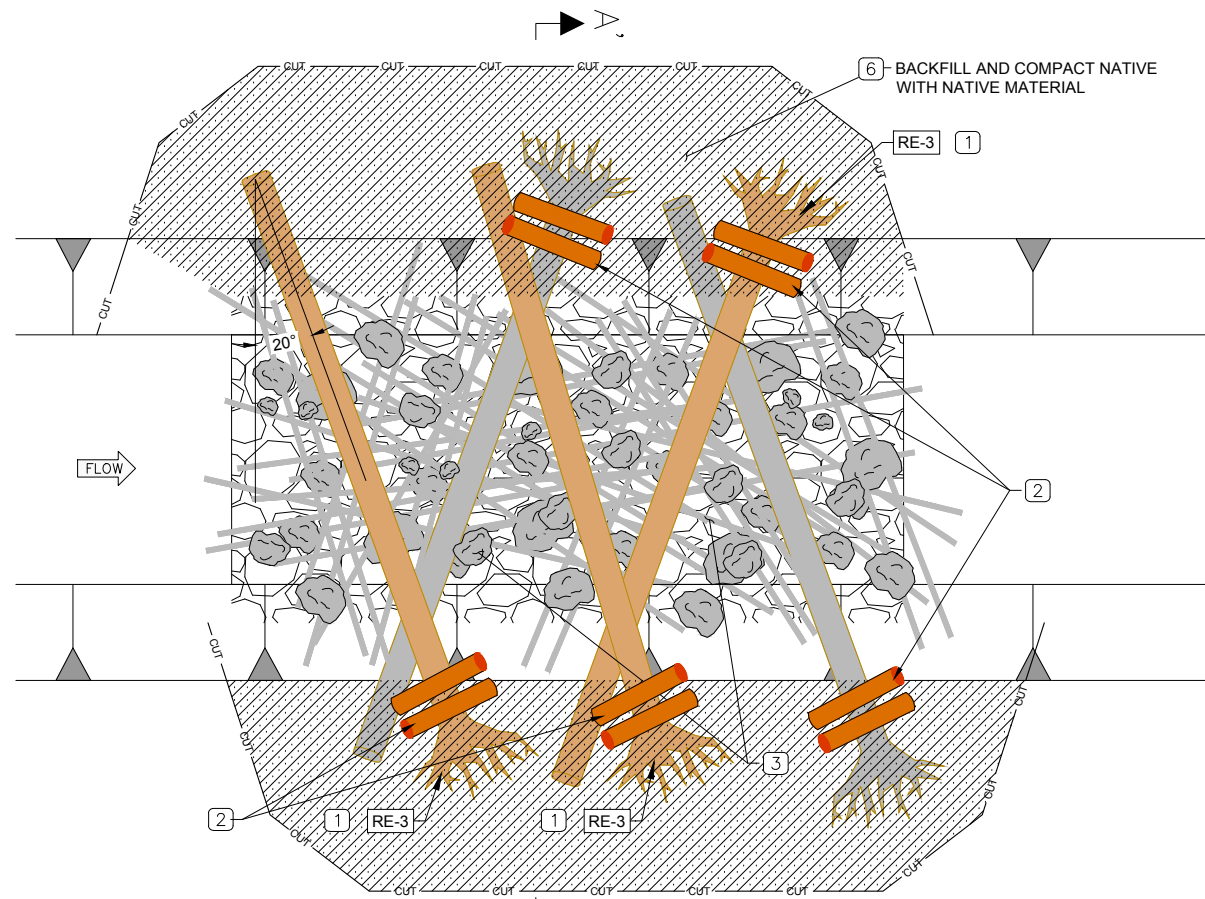
**SEQUENCING 3**  
SCALE: 1" = 5'

LOG RIFFLE CONSTRUCTION SEQUENCE 3

- 1 EXCAVATE BANKS AS NEEDED TO KEY IN RE-3 LOGS.
- 2 PLACE RE-3 LOGS AT APPROX. 20° ANGLE ACROSS CHANNEL AND AT A MINIMUM CROSS SLOPE OF 20 H: 1 V.
- 3 PLACE 10-15 RACKING LOGS AND DRY CREEK STREAMBED MIX THROUGHOUT STRUCTURE FOOTPRINT UP TO 1-FOOT IN DEPTH. BACKFILL AND COMPACT WITH FINER FRACTION OF MIX TO FILL VOID SPACE. COMPACT WITH BACK OF EXCAVATOR BUCKET OR SIMILAR MEANS. WASH IN DRY CREEK STREAMBED MIX TO ENSURE NO SUBSURFACE FLOW.



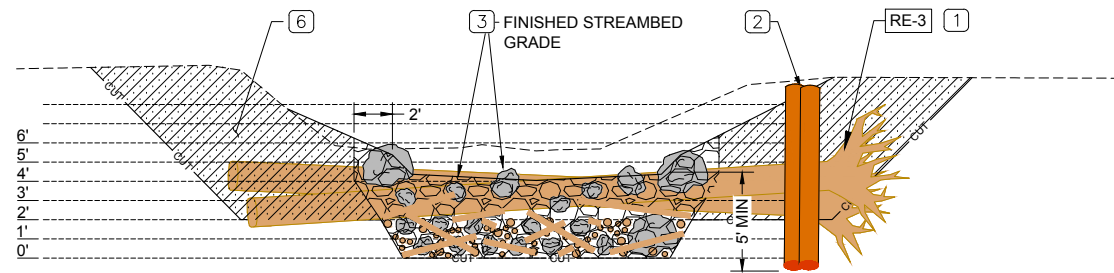
**SECTION A-A' - SEQUENCE 3**  
SCALE: 1" = 5'



**SEQUENCING 4**  
SCALE: 1" = 5'

LOG RIFFLE CONSTRUCTION SEQUENCE 4

- 1 PLACE TOP RE-3 LOGS AT APPROX. 20° ANGLE ACROSS CHANNEL AND DIRECTLY IN CONTACT WITH LOWER RE-3 LOGS AND AT A MINIMUM CROSS SLOPE OF 20 H: 1 V SLOPE.
- 2 INSTALL BATTER PILE PAIRS, 5 TOTAL PAIRS.
- 3 PLACE DRY CREEK STREAMBED MIX TO FINAL STREAM CHANNEL GRADE. RE-3 LOGS SHALL BE FLUSH WITH TOP OF STREAM CHANNEL BED AND SHALL NOT PROTRUDE MORE THAN 4" ABOVE CHANNEL GRADE. TYPE ONE AND TWO STREAMBED BOULDERS MAY EXTEND UP TO 50% OF DIAMETER ABOVE FINISHED CHANNEL GRADE TO GRADE A VARIABLE CHANNEL SURFACE AND PROVIDE HYDRAULIC ROUGHNESS. WASH IN DRY CREEK STREAMBED MIX TO ENSURE NO SUBSURFACE FLOW.
4. EXTEND DRY CREEK STREAMBED PLACEMENT 2-FEET LATERALLY BEYOND TO TOP OF THE PROPOSED CHANNEL BANKS.
5. BACKFILL AND COMPACT WITH FINER FRACTION OF DRY CREEK STREAMBED MIX AND/OR STREAMBED SAND TO FILL VOID SPACE. COMPACT WITH BACK OF EXCAVATOR BUCKET OR SIMILAR MEANS.
- 6 BACKFILL NATIVE MATERIAL AND COMPACT ABOVE RE-3 LOG ENDS TO ACHIEVE FINAL DESIGN GRADES AND RESTORE EXISTING DISTURBED BANKS.



**SECTION A-A' - SEQUENCE 4**  
SCALE: 1" = 5'



Natural Systems Design  
+ Coastal Geologic Services

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



PROJECT NO.: WA402222  
FED. AID NO.: ----  
DESIGNED BY: NJT  
CHECKED BY:  
DRAWN BY: LAV  
APPROVED BY:  
PROJECT LOCATED NEAR:  
ALGER, WASHINGTON  
S12 T36N R3E

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

SEQUENCING 2  
DRY CREEK

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
**13 OF 30**



**SITE RESTORATION LEGEND**



UPLAND SEED MIX

DECOMPACT STAGING AREA BY  
SCARIFYING TO 12-INCH DEPTH AND  
RESEED WITH UPLAND SEED MIX.  
1,900 SQUARE FEET

| UPLAND SEED MIX: 120 PLS/acre |                     |                  |
|-------------------------------|---------------------|------------------|
| COMMON NAME                   | SCIENTIFIC NAME     | Percent of total |
| Blue Wildrye                  | Elymus glaucus      | 50%              |
| Native red fescue             | Festuca rubra rubra | 30%              |
| California Brome              | Bromus carinatus    | 10%              |
| Spike bentgrass               | Agrostis exarata    | 10%              |

- NOTES:
- SEEDING LIMITS SHOWN ON THIS SHEET ILLUSTRATE EXPECTED LIMITS OF DISTURBANCE. LIMITS SHALL BE ADJUSTED AT NO COST TO THE CONTRACTING AGENCY TO MATCH ACTUAL LIMITS OF DISTURBANCE.
  - SEED AND MULCH FROM THE FINISHED TOP OF BANK Laterally TO LIMITS OF DISTURBANCE.
  - FOLLOWING THE APPLICATION OF SEED, CERTIFIED WEED-FREE STRAW MULCH SHALL BE APPLIED AT A RATE OF 2,500 POUNDS PER ACRE.



Natural Systems Design  
+ Coastal Geologic Services

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |

|                       |                    |                  |                   |             |              |
|-----------------------|--------------------|------------------|-------------------|-------------|--------------|
| PROJECT NO.: WA40222  | FED. AID NO.: ---- | DESIGNED BY: NJT | DRAWN BY: LAV     | CHECKED BY: | APPROVED BY: |
| PROJECT LOCATED NEAR: |                    |                  | ALGER, WASHINGTON |             |              |
| S12 T36N R3E          |                    |                  |                   |             |              |

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

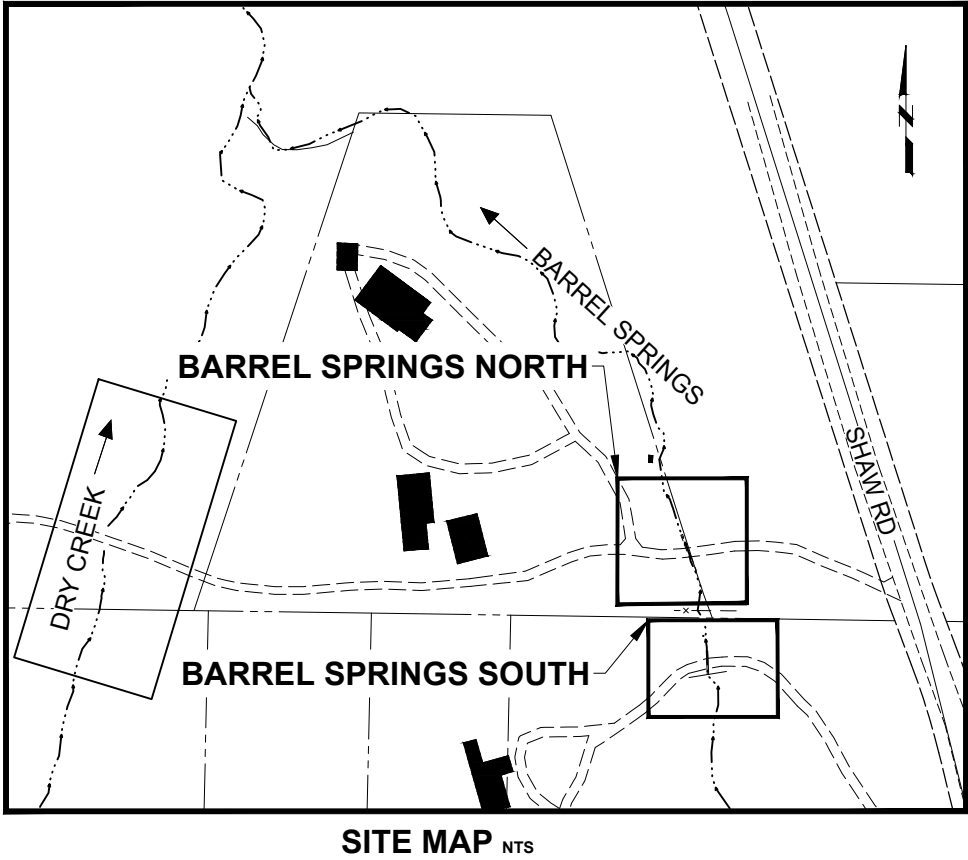
SITE RESTORATION  
DRY CREEK

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
**14 OF 30**

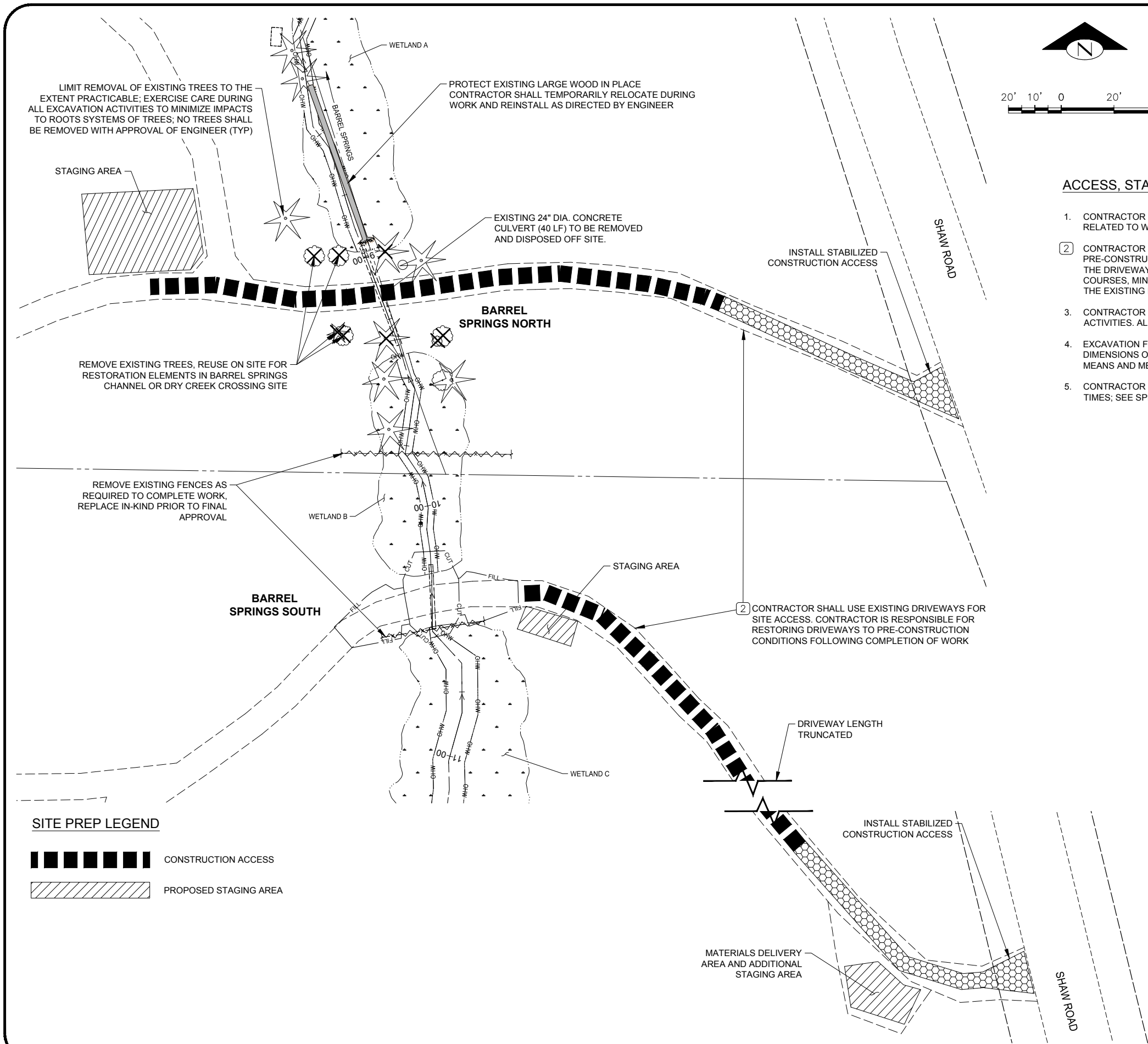
# BARREL SPRINGS RESTORATION

| PLAN SHEET INDEX        |                                   |
|-------------------------|-----------------------------------|
| SHEET                   | TITLE                             |
| BARREL SPRINGS OVERVIEW |                                   |
| 15                      | BARREL SPRINGS                    |
| 16                      | BARREL SPRINGS - SITE PREP        |
| 17                      | BARREL SPRINGS - WATER MANAGEMENT |
| BARREL SPRINGS NORTH    |                                   |
| 18                      | SUBSET COVER SHEET                |
| 19                      | CULVERT PLAN AND PROFILE          |
| 20                      | CHANNEL PLAN AND PROFILE          |
| 21                      | CHANNEL SECTIONS                  |
| 22                      | ROAD PLAN AND PROFILE             |
| 23                      | ROAD SECTIONS                     |
| 24                      | SITE RESTORATION                  |
| BARREL SPRINGS SOUTH    |                                   |
| 25                      | SUBSET COVER SHEET                |
| 26                      | ROAD PLAN AND PROFILE             |
| 27                      | CHANNEL PLAN AND PROFILE          |
| 28                      | TYPICAL SECTIONS AND DETAILS      |



Natural Systems Design  
+ Coastal Geologic Services

|                                              |  |                                                                                            |  |                                            |  |                     |  |                                            |  |              |  |
|----------------------------------------------|--|--------------------------------------------------------------------------------------------|--|--------------------------------------------|--|---------------------|--|--------------------------------------------|--|--------------|--|
| PROJECT NO.: WA40222                         |  | FED. AID NO.: ---                                                                          |  | DESIGNED BY: NJT                           |  | CHECKED BY:         |  | DRAWN BY: LAV                              |  | APPROVED BY: |  |
| BARREL SPRINGS & DRY CREEK RESTORATION       |  | BARREL SPRINGS<br>BARREL SPRINGS OVERVIEW                                                  |  | PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON |  | S12 T36N R3E        |  | PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON |  | S12 T36N R3E |  |
| 1 INCH SCALE BAR<br>ADJUST SCALE ACCORDINGLY |  | SHEET<br>15 OF 30                                                                          |  | REVISIONS                                  |  | NO.                 |  | DATE                                       |  | DATE         |  |
| ENGINEER OF RECORD                           |  | COUNTY ENGINEER                                                                            |  | PROFESSIONAL ENGINEER                      |  | NICHOLAS J. ONTARIO |  | WASHINGTON STATE                           |  | 6093         |  |
| SKAGIT COUNTY PUBLIC WORKS                   |  | 1800 CONTINENTAL PLACE<br>MOUNT VERNON, WA 98273-5625<br>(360) 416-1400 FAX (360) 416-1405 |  |                                            |  |                     |  |                                            |  |              |  |



ACCESS, STAGING AND SITE PREP NOTES

- 1. CONTRACTOR SHALL BE AWARE OF AND CONFORM TO ALL PERMIT CONDITIONS RELATED TO WORK WITHIN ORDINARY HIGH WATER AND EXISTING WETLANDS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THE DRIVEWAY SURFACE TO A PRE-CONSTRUCTION OR BETTER CONDITION. POTENTIAL RESTORATION ACTIONS FOR THE DRIVEWAY MAY INCLUDE PLACEMENT OF CRUSHED SURFACING BASE AND TOP COURSES, MINOR GRADING, AND COMPACTIONS. COSTS ASSOCIATED WITH RESTORING THE EXISTING DRIVEWAY SHALL BE INCIDENTAL TO THE OVERALL PROJECT COSTS.
- 3. CONTRACTOR IS ANTICIPATED TO REMOVE FIVE (5) MATURE TREES DURING SITE ACTIVITIES. ALL REMAINING TREES ON SITE SHALL BE PROTECTED IN PLACE.
- 4. EXCAVATION FOR GRADING LIMITS IS APPROXIMATE AND WILL DEPEND ON FINAL DIMENSIONS OF CONTRACTOR PROVIDED BURIED STRUCTURES AND FOOTINGS, AND MEANS AND METHODS OF CONTRACTOR FOR STRUCTURE EXCAVATION.
- 5. CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS TO PRIVATE RESIDENCE AT ALL TIMES; SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

SITE PREP LEGEND

- CONSTRUCTION ACCESS
- PROPOSED STAGING AREA



Natural Systems Design  
+ Coastal Geologic Services

SKAGIT COUNTY  
PUBLIC WORKS

1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

|  |  |  |  |  |           |
|--|--|--|--|--|-----------|
|  |  |  |  |  | DATE      |
|  |  |  |  |  | REVISIONS |
|  |  |  |  |  | NO.       |



ENGINEER OF RECORD  
JON TRUOG  
WASHINGTON  
54165  
PROFESSIONAL

|                                            |                    |                  |               |              |              |
|--------------------------------------------|--------------------|------------------|---------------|--------------|--------------|
| PROJECT NO.: WA40222                       | FED. AID NO.: ---- | DESIGNED BY: NJT | DRAWN BY: LAV | CHECKED BY:  | APPROVED BY: |
| PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON |                    |                  |               | S12 T36N R3E |              |

BARREL SPRINGS & DRY CREEK  
RESTORATION

BARREL SPRINGS - SITE PREP  
BARREL SPRINGS  
OVERVIEW

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
16 OF 30

WATER MANAGEMENT LEGEND

- BN

BN

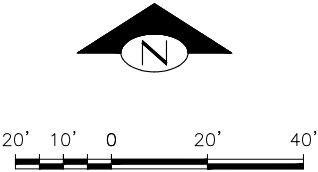
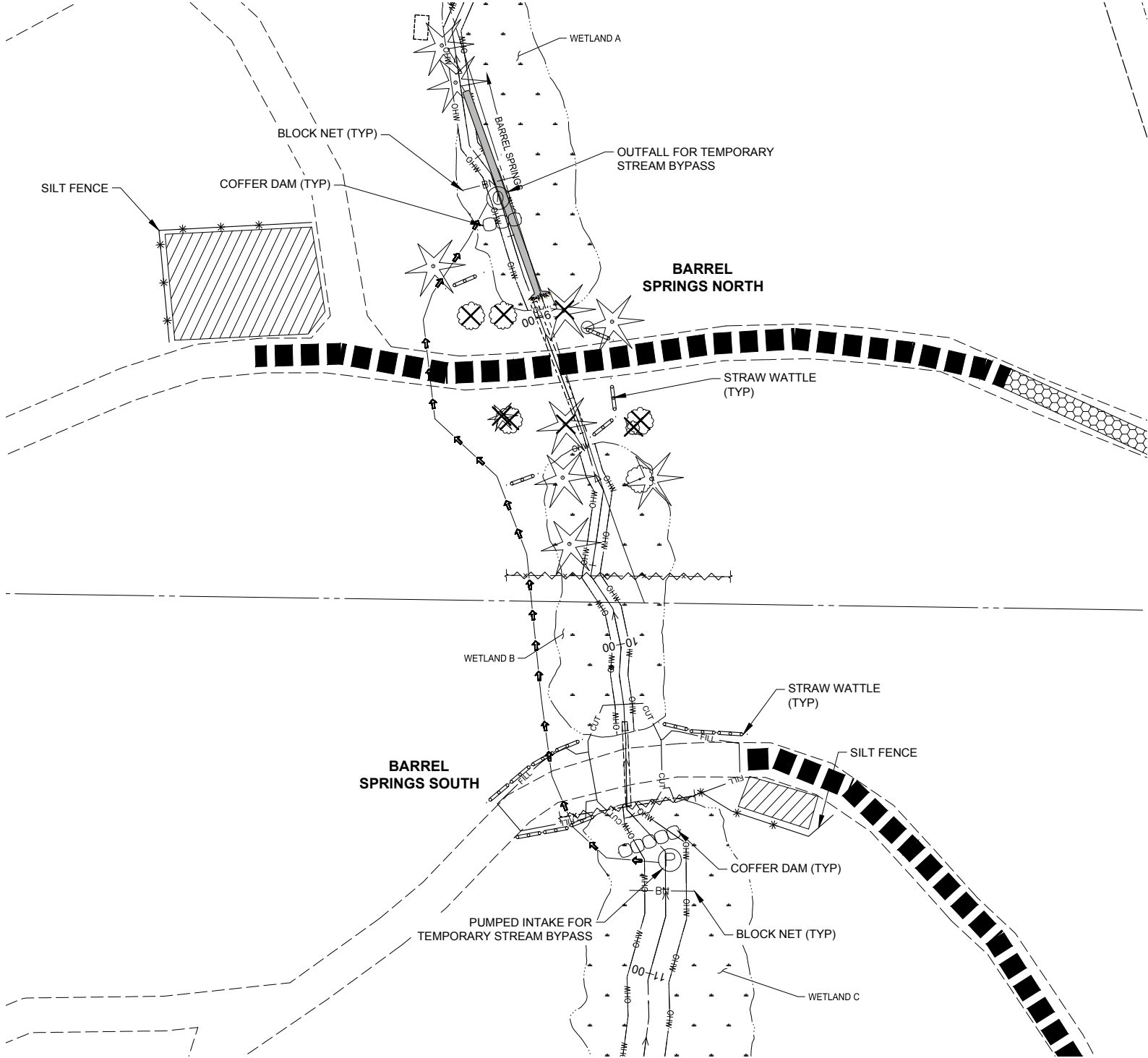
BLOCK NETS
- \*

\*

SILT FENCE
- STRAW WATTLE
- →

BYPASS LINE DISCHARGE
- BULK BAG COFFERDAM
- TEMPORARY BYPASS OUTLET
- P

TEMPORARY BYPASS INTAKE



WATER MANAGEMENT AND TESC NOTES

1. CONTRACTOR SHALL BE AWARE OF AND CONFORM TO ALL PERMIT CONDITIONS RELATED TO WORK WITHIN ORDINARY HIGH WATER AND EXISTING WETLANDS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, IMPLEMENTING AND MAINTAINING TEMPORARY EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPS) AND A TEMPORARY STREAM BYPASS SYSTEM CAPABLE OF CONVEYING ANTICIPATED STREAM DISCHARGE AROUND THE ACTIVE WORK AREA.
3. THE TEMPORARY EROSION CONTROL AND WATER MANAGEMENT BMPS SHOWN ON THIS SHEET ARE THE MINIMUM ELEMENTS ANTICIPATED TO BE REQUIRED DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR UNDERSTANDING AND ADHERING TO ALL PERMIT CONDITIONS AND REMAIN AWARE OF ANTECEDENT DISCHARGE CONDITIONS AT THE SITE.
4. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM BYPASS PLAN MEETING THE REQUIREMENTS OF THE PROJECT SPECIAL PROVISIONS.



Natural Systems Design  
+ Coastal Geologic Services

SKAGIT COUNTY  
PUBLIC WORKS

1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



|                       |                    |                  |                   |             |              |
|-----------------------|--------------------|------------------|-------------------|-------------|--------------|
| PROJECT NO.: WA40222  | FED. AID NO.: ---- | DESIGNED BY: NJT | DRAWN BY: LAV     | CHECKED BY: | APPROVED BY: |
| PROJECT LOCATED NEAR: |                    |                  | ALGER, WASHINGTON |             |              |
| S12 T36N R3E          |                    |                  |                   |             |              |

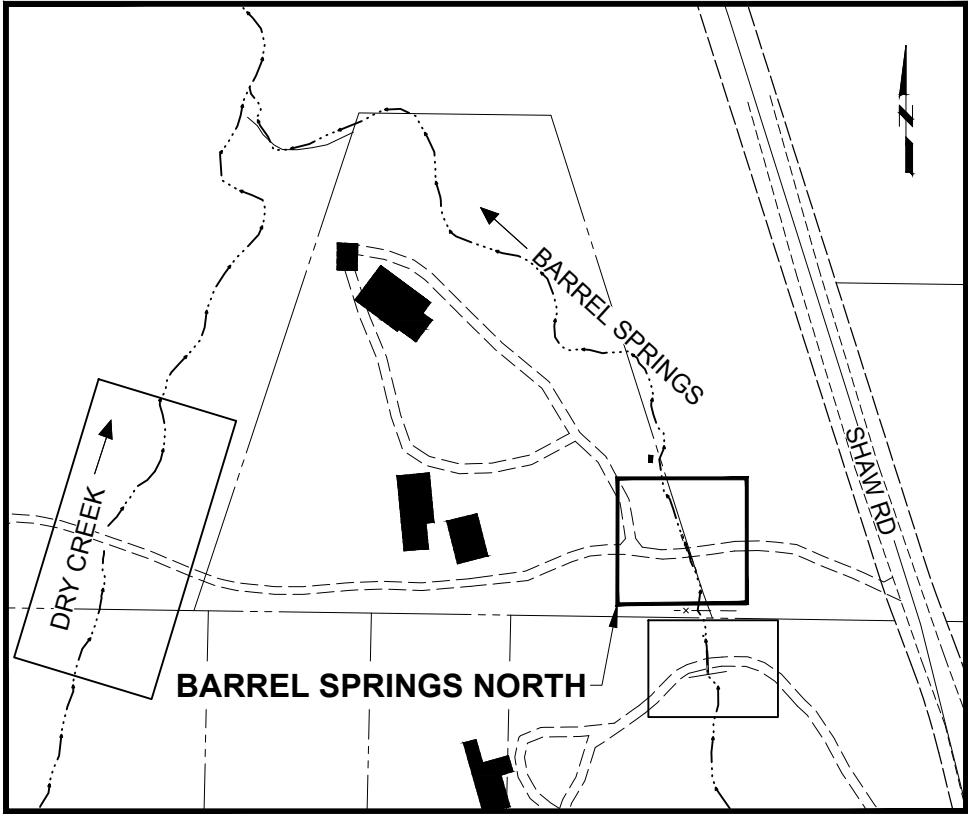
BARREL SPRINGS & DRY CREEK  
RESTORATION

BARREL SPRINGS - WATER MANAGEMENT  
BARREL SPRINGS  
OVERVIEW

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
17 OF 30

# BARREL SPRINGS NORTH RESTORATION



SITE MAP NTS

| BARREL SPRINGS NORTH ROAD ALIGNMENT TABLE |         |        |                      |           |               |             |                             |                             |
|-------------------------------------------|---------|--------|----------------------|-----------|---------------|-------------|-----------------------------|-----------------------------|
| NO.                                       | RADIUS  | LENGTH | LINE/CHORD DIRECTION | DELTA     | START STATION | END STATION | START COORDINATE            | END COORDINATES             |
| L51                                       |         | 22.61' | S83°05'41.36"E       |           | 5+00          | 5+22.61     | N=598096.16<br>E=1268291.85 | N=598093.44<br>E=1268314.30 |
| C51                                       | 100.00' | 23.00' | S89°41'01.95"E       | 13°10'41" | 5+22.61       | 5+45.61     | N=598093.44<br>E=1268314.30 | N=598093.32<br>E=1268337.25 |
| L52                                       |         | 64.38' | N83°43'37.46"E       |           | 5+45.61       | 6+09.99     | N=598093.32<br>E=1268337.25 | N=598100.35<br>E=1268401.24 |
| C52                                       | 100.00' | 8.21'  | N86°04'47.19"E       | 4°42'19"  | 6+09.99       | 6+18.20     | N=598100.35<br>E=1268401.24 | N=598100.91<br>E=1268409.43 |
| L53                                       |         | 14.65' | N88°25'56.92"E       |           | 6+18.20       | 6+32.85     | N=598100.91<br>E=1268409.43 | N=598101.31<br>E=1268424.08 |

| PLAN SHEET INDEX - BARREL SPRINGS NORTH |                          |
|-----------------------------------------|--------------------------|
| SHEET                                   | TITLE                    |
| 18                                      | SUBSET COVER SHEET       |
| 19                                      | CULVERT PLAN AND PROFILE |
| 20                                      | CHANNEL PLAN AND PROFILE |
| 21                                      | CHANNEL SECTIONS         |
| 22                                      | ROAD PLAN AND PROFILE    |
| 23                                      | ROAD SECTIONS            |
| 24                                      | SITE RESTORATION         |

| BARREL SPRINGS NORTH CHANNEL ALIGNMENT TABLE |        |        |                      |           |               |             |                             |                             |
|----------------------------------------------|--------|--------|----------------------|-----------|---------------|-------------|-----------------------------|-----------------------------|
| NO.                                          | RADIUS | LENGTH | LINE/CHORD DIRECTION | DELTA     | START STATION | END STATION | START COORDINATE            | END COORDINATES             |
| L54                                          |        | 10.50' | N7°47'02.26"E        |           | 9+74.01       | 9+63.51     | N=598043.58<br>E=1268362.46 | N=598053.98<br>E=1268363.88 |
| C53                                          | 31.97' | 21.44' | N11°25'34.22"W       | 38°25'13" | 9+63.51       | 9+42.07     | N=598053.98<br>E=1268363.88 | N=598074.60<br>E=1268359.71 |
| L55                                          |        | 43.06' | N30°38'10.71"W       |           | 9+42.07       | 8+99.01     | N=598074.60<br>E=1268359.71 | N=598111.65<br>E=1268337.77 |
| C54                                          | 20.36' | 13.95' | N10°59'56.40"W       | 39°16'29" | 8+99.01       | 8+85.06     | N=598111.65<br>E=1268337.77 | N=598125.08<br>E=1268335.16 |
| L56                                          |        | 1.96'  | N8°38'17.92"E        |           | 8+85.06       | 8+83.10     | N=598125.08<br>E=1268335.16 | N=598127.02<br>E=1268335.45 |
| C55                                          | 19.53' | 8.91'  | N4°25'40.10"W        | 26°07'56" | 8+83.10       | 8+74.19     | N=598127.02<br>E=1268335.45 | N=598135.82<br>E=1268334.77 |
| L57                                          |        | 7.42'  | N17°29'38.13"W       |           | 8+74.19       | 8+66.77     | N=598135.82<br>E=1268334.77 | N=598142.90<br>E=1268332.54 |

| BARREL SPRINGS NORTH CULVERT ALIGNMENT TABLE |        |        |                      |       |               |             |                                 |                                 |
|----------------------------------------------|--------|--------|----------------------|-------|---------------|-------------|---------------------------------|---------------------------------|
| NO.                                          | RADIUS | LENGTH | LINE/CHORD DIRECTION | DELTA | START STATION | END STATION | START COORDINATE                | END COORDINATES                 |
| L58                                          |        | 85.00' | N29°56'43.63"W       |       | 0+00          | 0+85        | N=598056.1614<br>E=1268370.4920 | N=598129.8140<br>E=1268328.0621 |



Natural Systems Design  
+ Coastal Geologic Services

SKAGIT COUNTY  
PUBLIC WORKS  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400 FAX (360) 416-1405

ENGINEER OF RECORD  
COUNTY ENGINEER

NO. 54461  
DATE 6/4/05

PROJECT NO.: WA40222  
FED. AID NO.: ---  
DESIGNED BY: ---  
CHECKED BY: ---  
DRAWN BY: ---  
APPROVED BY: ---  
PROJECT LOCATED NEAR:  
ALGER, WASHINGTON

BARREL SPRINGS & DRY CREEK RESTORATION

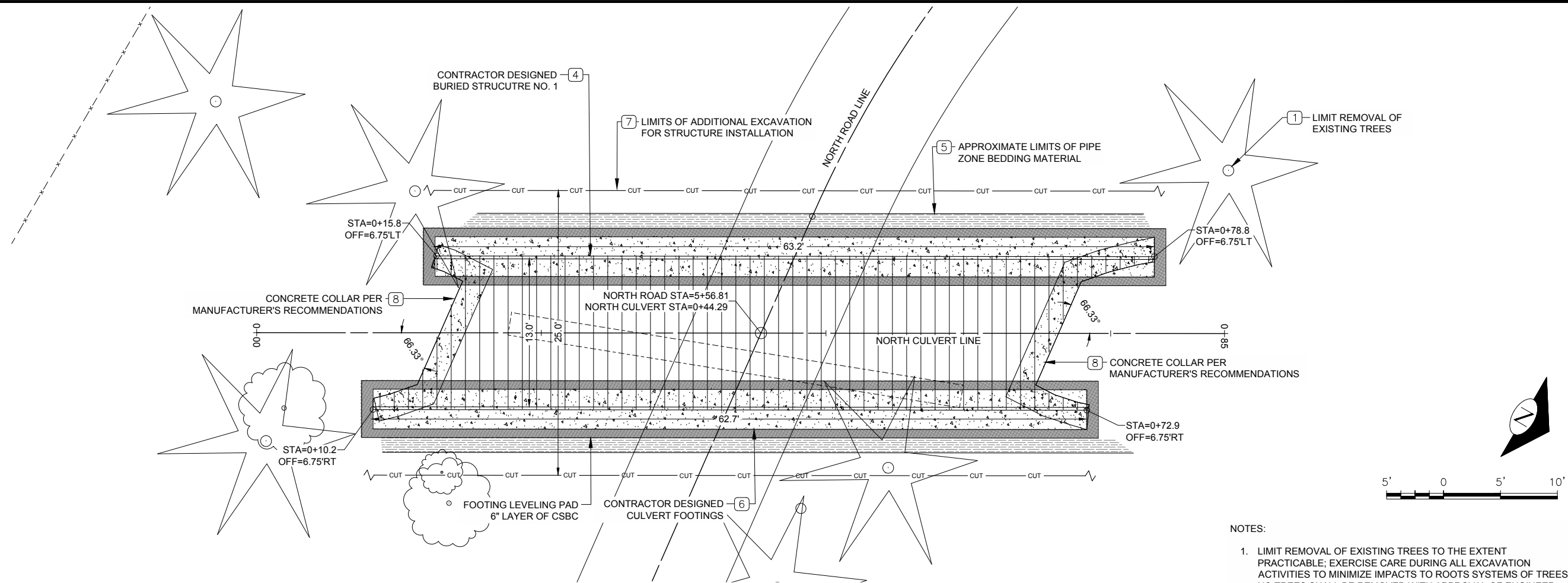
SUBSET COVER SHEET  
BARREL SPRINGS NORTH

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

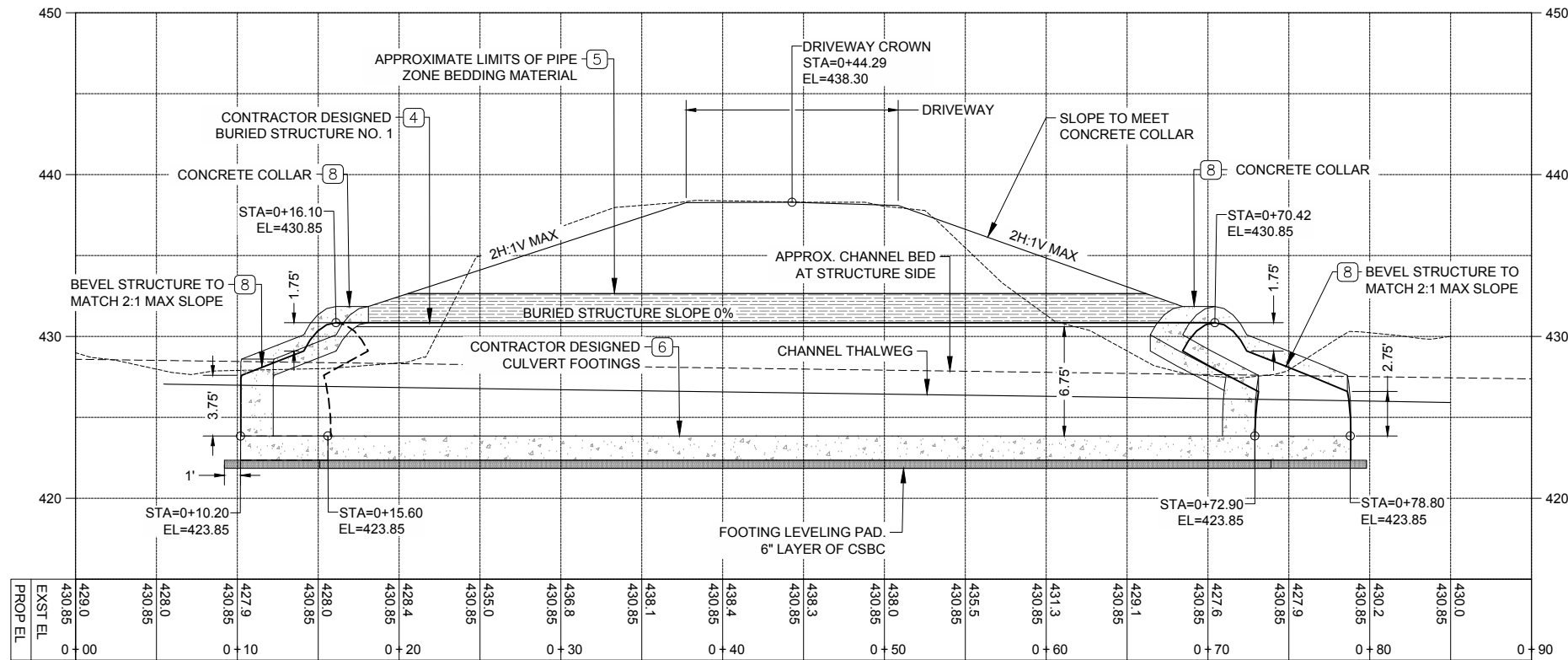
SHEET  
18 OF 30

SKAGITCOUNTY - 2024 Version - Coversheet Template

Page 304

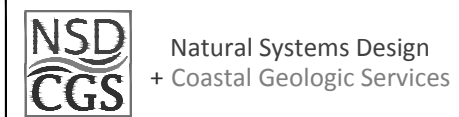


**BARREL SPRINGS NORTH - CULVERT PLAN**



**BARREL SPRINGS NORTH - CULVERT PROFILE**

- NOTES:
1. LIMIT REMOVAL OF EXISTING TREES TO THE EXTENT PRACTICABLE; EXERCISE CARE DURING ALL EXCAVATION ACTIVITIES TO MINIMIZE IMPACTS TO ROOTS SYSTEMS OF TREES; NO TREES SHALL BE REMOVED WITH APPROVAL OF ENGINEER.
  2. CONTRACTOR IS RESPONSIBLE FOR DESIGN, FABRICATION, DELIVERY AND INSTALLATION OF BURIED STRUCTURE, STRUCTURE FOOTINGS, AND ANY RELATED STRUCTURE ELEMENTS TO ACHIEVE THE FINISHED GRADE FOR THE ROAD AND CHANNEL ELEMENTS SHOWN ON THESE PLANS.
  3. BURIED STRUCTURE FOOTING AND CROWN ELEVATIONS SHOWN ARE APPROXIMATE. FINAL ELEVATIONS SHALL BE BASED UPON FINAL SHOP DRAWINGS FOR CONTRACTOR-DESIGNED BURIED STRUCTURE.
  4. CONTRACTOR DESIGNED BURIED STRUCTURE NO. 1 SHALL HAVE A 13' SPAN BY 6.75' RISE SINGLE RADIUS ARCH CULVERT. BURIED STRUCTURE SHALL MEET HL-93 LOADING REQUIREMENT.
  5. BURIED STRUCTURE BACKFILL MATERIALS, DIMENSIONS, AND COMPACTION REQUIREMENTS SHALL BE PER FINAL SHOP DRAWINGS AND PER MANUFACTURER'S INSTALLATION GUIDELINES.
  6. BURIED STRUCTURE MANUFACTURER SHALL DESIGN OR FABRICATE STRUCTURE FOOTINGS SUITABLE FOR MEETING A HL-93 LOADING REQUIREMENT.
  7. EXCAVATION LIMITS FOR STRUCTURE INSTALLATION SHALL BE LIMITED TO LATERAL EXTENTS ILLUSTRATED ON THIS SHEET; CONTRACTOR SHALL UTILIZE CONTRACTOR DESIGNED SHORING SYSTEM AS NECESSARY.
  8. END TREATMENTS SHALL BE DESIGNED BY THE CONTRACTOR AND MAY VARY FROM THOSE ILLUSTRATED ON THIS SHEET; UTILIZE A CONCRETE COLLAR AS NECESSARY TO ACCOMMODATE FOOTING LENGTH, CULVERT SKEW, AND EMBANKMENT GRADING SHOWN ON THESE PLANS.



**SKAGIT COUNTY  
PUBLIC WORKS**  
 1800 CONTINENTAL PLACE  
 MOUNT VERNON, WA 98273-5625  
 (360) 416-1400

DATE  
 REVISIONS  
 NO.

PROJECT NO.: WA402222  
 FED. AID NO.:  
 DESIGNED BY: NJT  
 CHECKED BY:

DRAWN BY: LAV  
 APPROVED BY:

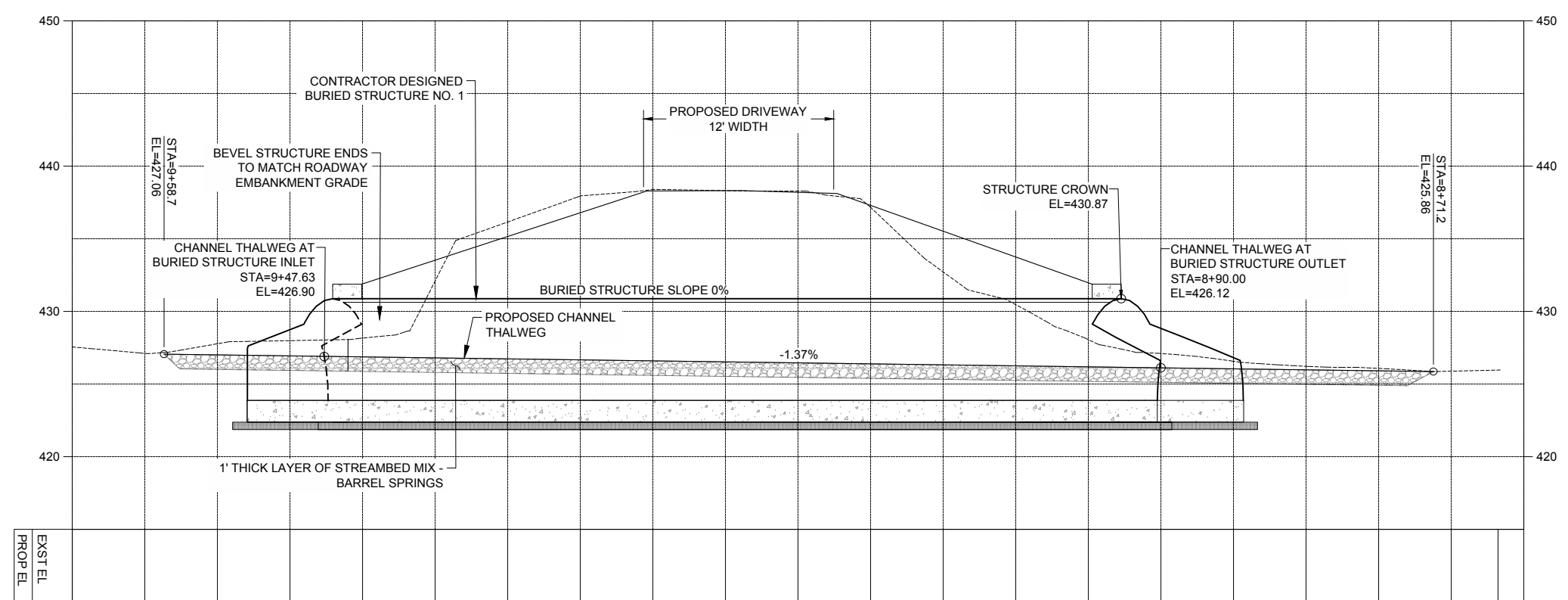
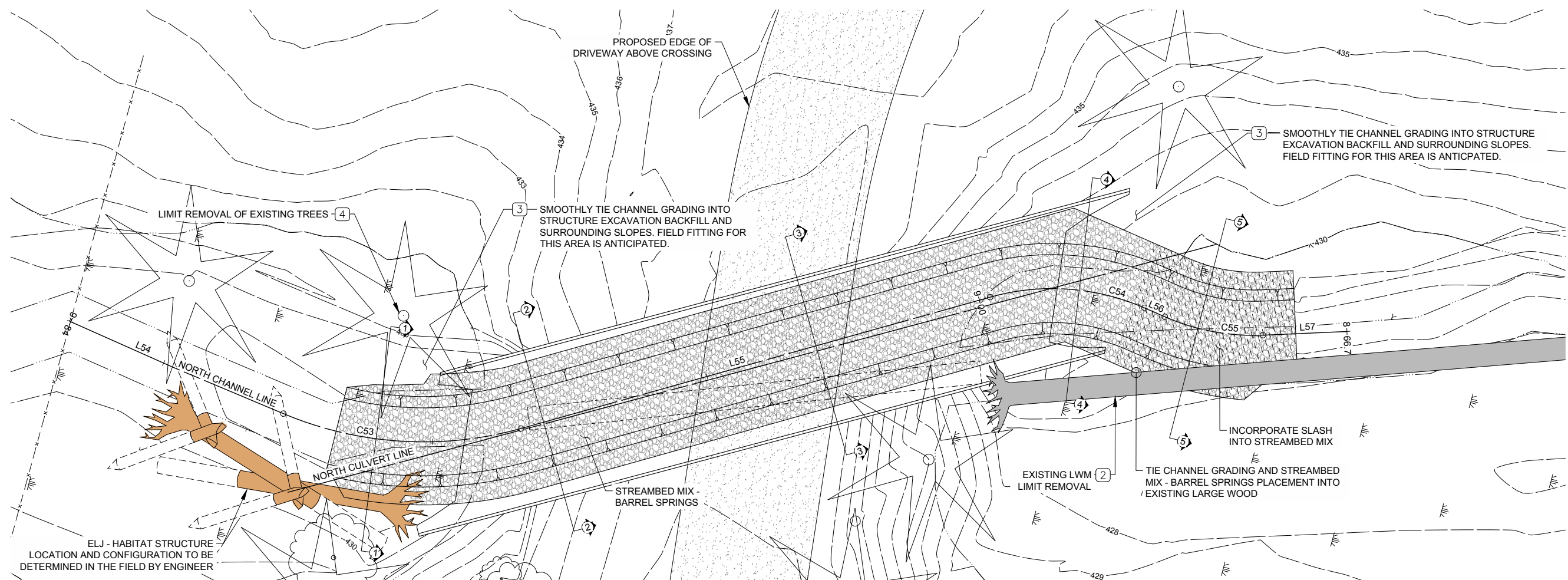
PROJECT LOCATED NEAR:  
 ALGER, WASHINGTON

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

CULVERT PLAN AND PROFILE  
 BARREL SPRINGS NORTH

1 INCH SCALE BAR  
 ADJUST SCALE ACCORDINGLY

SHEET  
**19 OF 30**



**BARREL SPRINGS NORTH - CHANNEL PROFILE**

**NOTES:**

1. CONTRACTOR SHALL TIE IN PROPOSED CHANNEL GRADING WITH EXISTING UPSTREAM AND DOWNSTREAM CHANNEL, SURROUNDING HILLSLOPES AND STRUCTURE EXCAVATION BACKFILL.
2. LIMIT REMOVAL OF EXISTING LARGE WOODY MATERIAL (LWM) TO PORTIONS NECESSARY FOR INSTALLATION OF STRUCTURE.
3. FOR STREAM CHANNEL SECTION VIEWS SEE SHEET 21.
4. LIMIT REMOVAL OF EXISTING TREES TO THE EXTENT PRACTICABLE; EXERCISE CARE DURING ALL EXCAVATION ACTIVITIES TO MINIMIZE IMPACTS TO ROOTS SYSTEMS OF TREES; NO TREES SHALL BE REMOVED WITH APPROVAL OF ENGINEER (TYP)



Natural Systems Design  
+ Coastal Geologic Services

**SKAGIT COUNTY  
PUBLIC WORKS**  
 1800 CONTINENTAL PLACE  
 MOUNT VERNON, WA 98273-5625  
 (360) 416-1400

| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |

PROJECT NO.: WA40222  
 FED. AID NO.:  
 DESIGNED BY: NJT  
 CHECKED BY:  
 DRAWN BY: LAV  
 APPROVED BY:

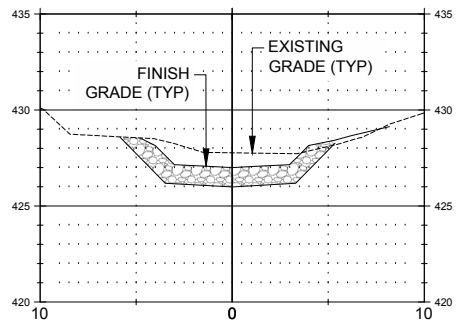
PROJECT LOCATED NEAR:  
 ALGER, WASHINGTON  
 S12 T36N R3E

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

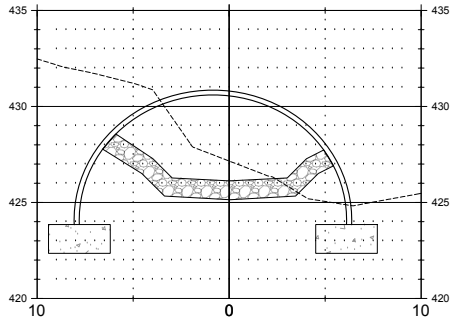
CHANNEL PLAN AND PROFILE  
 BARREL SPRINGS NORTH

1 INCH SCALE BAR  
 ADJUST SCALE ACCORDINGLY

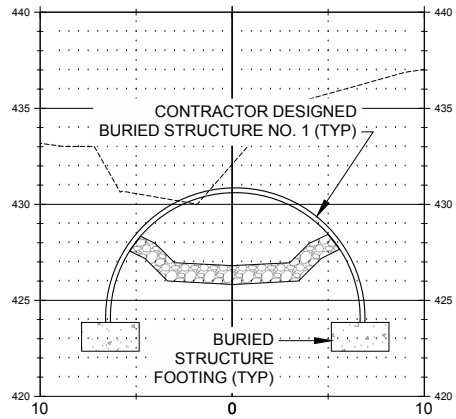
SHEET  
**20 OF 30**



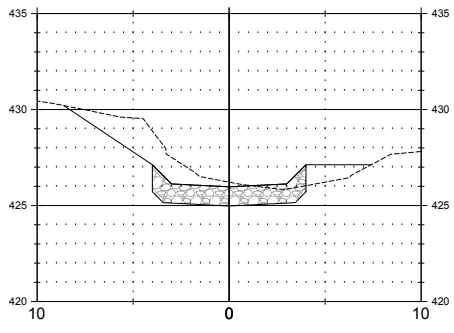
**NORTH CHANNEL - SECTION 1-1**  
STA 9+55



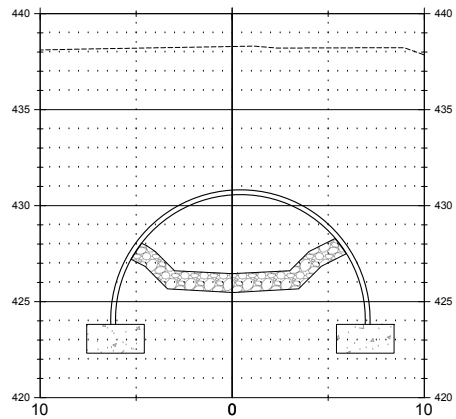
**NORTH CHANNEL - SECTION 4-4**  
STA 8+91



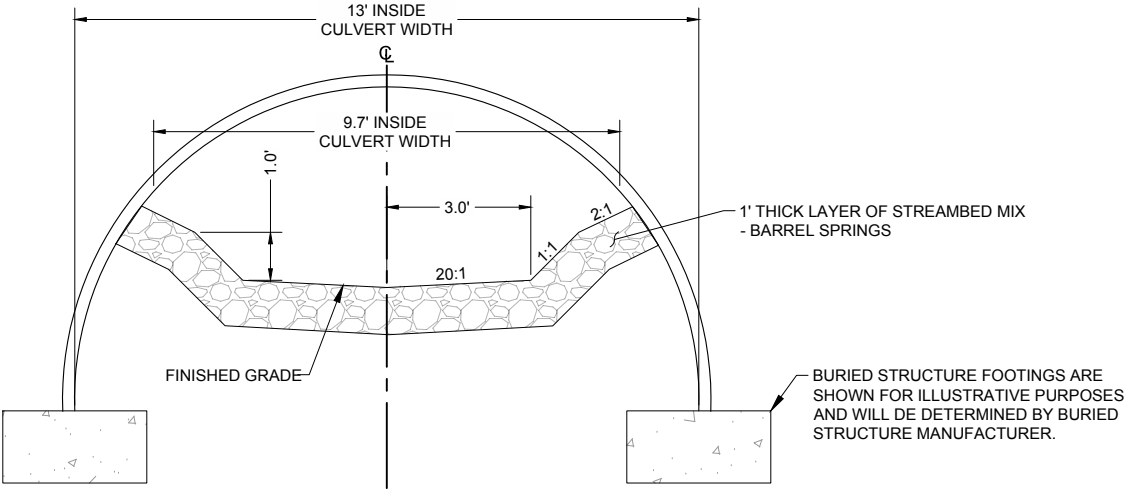
**NORTH CHANNEL - SECTION 2-2**  
STA 9+40



**NORTH CHANNEL - SECTION 5-5**  
STA 8+80

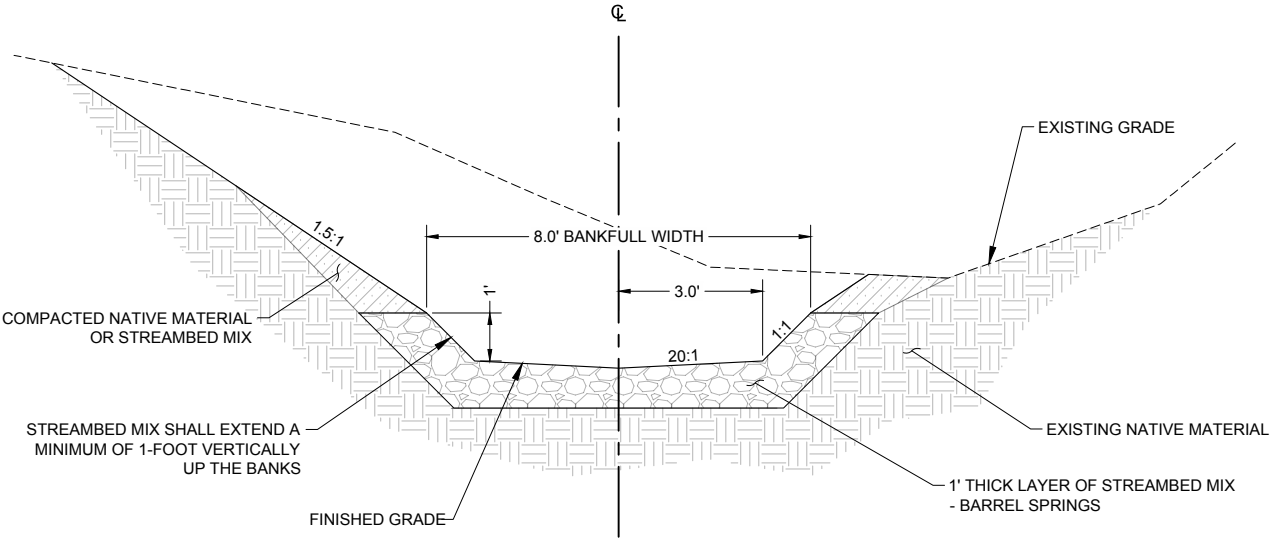


**NORTH CHANNEL - SECTION 3-3**  
STA 9+15



**TYPICAL CULVERT CHANNEL SECTION**

SCALE: 1"=2' HORIZ., 1"=2' VERT.  
BARREL SPRINGS STA 8+99 TO STA 9+35



**TYPICAL CHANNEL SECTION**

SCALE: 1"=2' HORIZ., 1"=2' VERT.  
BARREL SPRINGS STA 8+99 TO STA 9+35



CHANNEL GRADING NOTES:

1. STREAMBED MIX - BARREL SPRINGS SHALL CONSIST OF THE MATERIALS AND RATIOS PER THE TABLE SHOWN ON THIS SHEET.
2. STREAMBED MIX - BARREL SPRINGS SHALL BE MIXED PRIOR TO PLACEMENT IN STREAM CHANNEL. STREAMBED MIX - BARREL SPRINGS SHALL BE COMPACTED VIA BUCKET TAMPING OR SIMILAR MEANS.
3. PROPOSED CHANNEL SHALL TIE IN WITH BACKFILL PLACED FOLLOWING STRUCTURE EXCAVATION AND CONSTRUCTION OF THE PROPOSED DRIVEWAY EMBANKMENT AT THE CROSSING. CONTRACTOR SHALL ADJUST CUT SLOPE GRADES AS NEEDED TO TIE IN WITH SURROUNDING HILLSLOPES.
4. ANY CUT OR FILL SLOPES STEEPER THAN 1.5 H: 1 V SHALL REQUIRE PLACEMENT OF A BIODEGRADABLE EROSION CONTROL BLANKET.
5. FOR BARREL SPRINGS NORTH ALIGNMENT INFORMATION REFER TO SHEET 18

| STREAMBED MIX - BARREL SPRINGS |            |               |
|--------------------------------|------------|---------------|
| MATERIAL                       | PERCENTAGE | SPECIFICATION |
| STREAMBED SEDIMENT             | 50%        | 9-03.11(1)    |
| 6" STREAMBED COBBLES           | 50%        | 9-03.11(2)    |



Natural Systems Design  
+ Coastal Geologic Services

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |



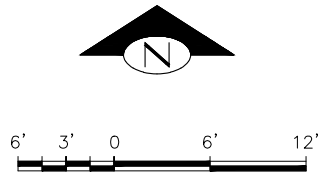
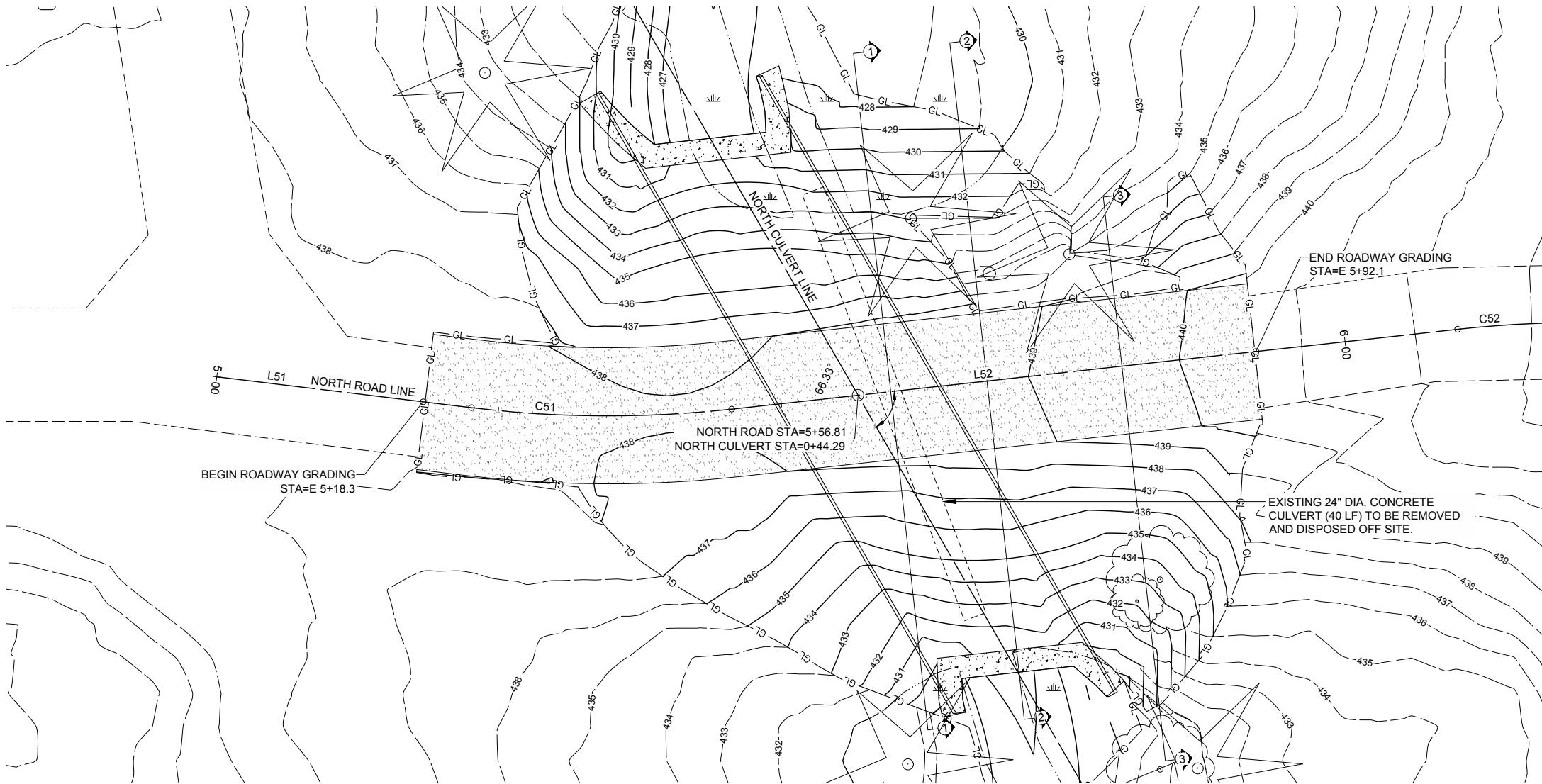
|                      |                    |                                            |              |
|----------------------|--------------------|--------------------------------------------|--------------|
| PROJECT NO.: WA40222 | FED. AID NO.: ---- | DRAWN BY: LAV                              | APPROVED BY: |
| DESIGNED BY: NJT     | CHECKED BY:        | PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON |              |
| S12 T36N R3E         |                    |                                            |              |

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

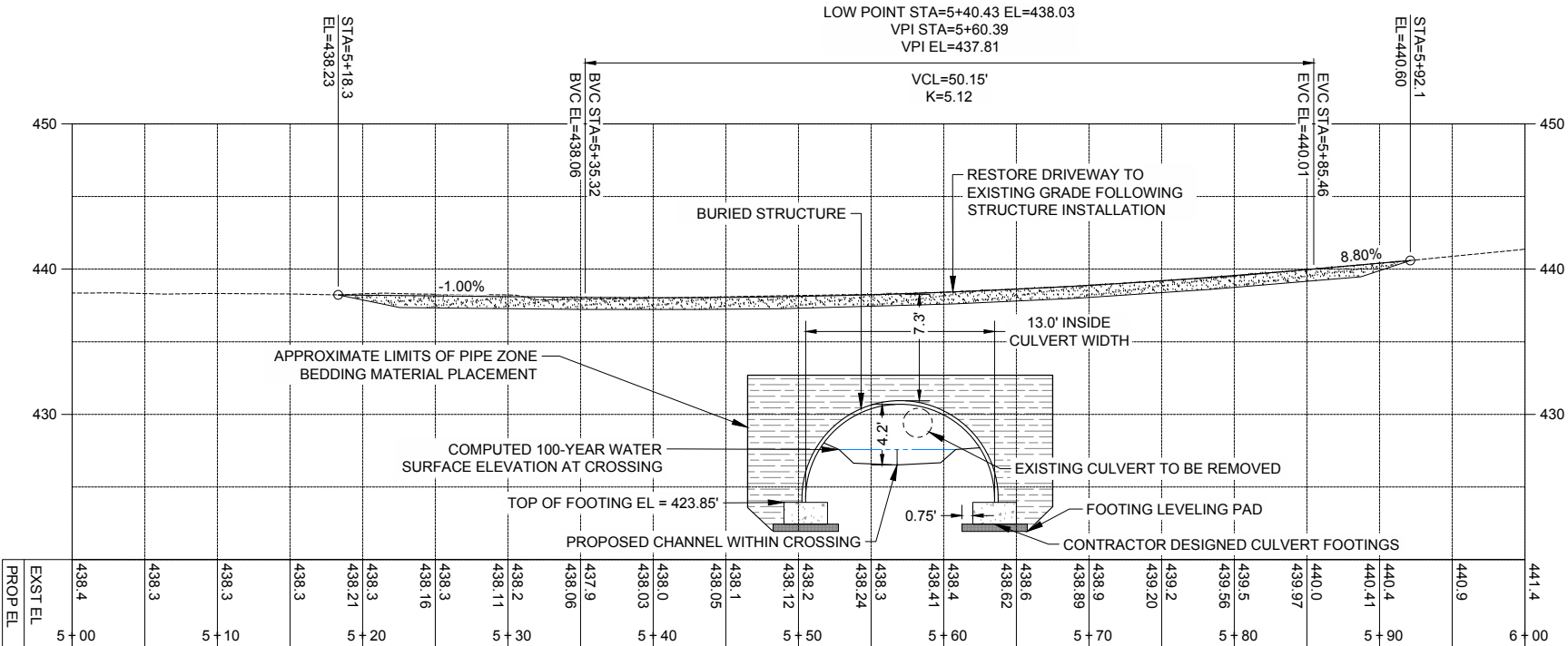
CHANNEL SECTIONS  
BARREL SPRINGS NORTH

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
**21 OF 30**



- NOTES:
1. FOR TYPICAL DRIVEWAY SECTION REFER TO SHEET 23.
  2. FOR DRIVEWAY ALIGNMENT INFORMATION REFER TO SHEET 18.
  3. DRIVEWAY EMBANKMENT FINISHED GRADE CONTOURS SHOWN ARE APPROXIMATE AND WILL BE FIELD FIT BASED UPON LIMITS OF STRUCTURE EXCAVATION, STREAMBED GRADING, AND SURROUNDING HILLSLOPES.
  4. BIODEGRADABLE EROSION CONTROL BLANKET SHALL BE PLACED AS SHOWN ON SHEET 30.
  5. SKEW NOT SHOWN IN PROFILE.



**BARREL SPRINGS NORTH - ROAD PROFILE**

SCALE: 1" = 6' HORIZ., 1" = 6' VERT.



Natural Systems Design  
+ Coastal Geologic Services

**BARREL SPRINGS & DRY CREEK RESTORATION**

ROAD PLAN AND PROFILE  
BARREL SPRINGS NORTH

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
**22 OF 30**



PROJECT NO.: WA402222

FED. AID NO.: ----

DESIGNED BY: NJT

CHECKED BY:

DRAWN BY: LAV

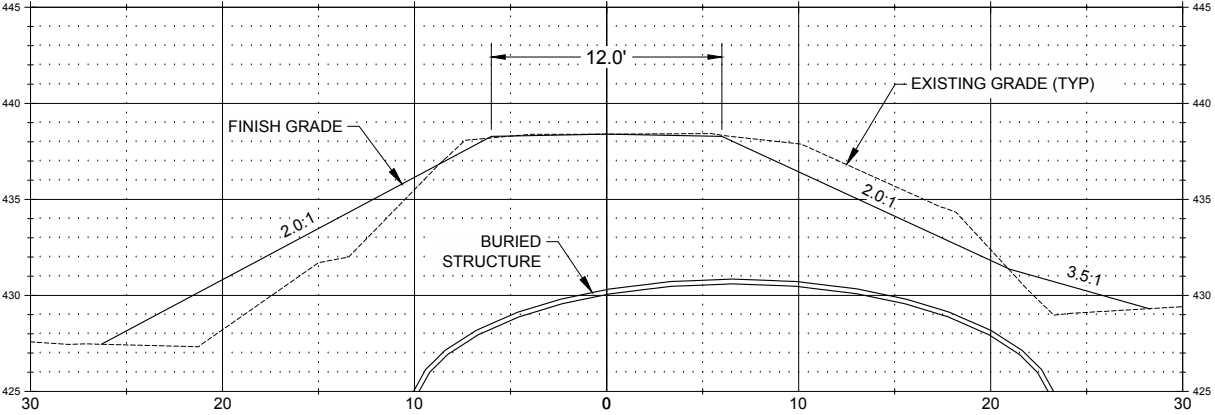
APPROVED BY:

PROJECT LOCATED NEAR:  
ALGER, WASHINGTON

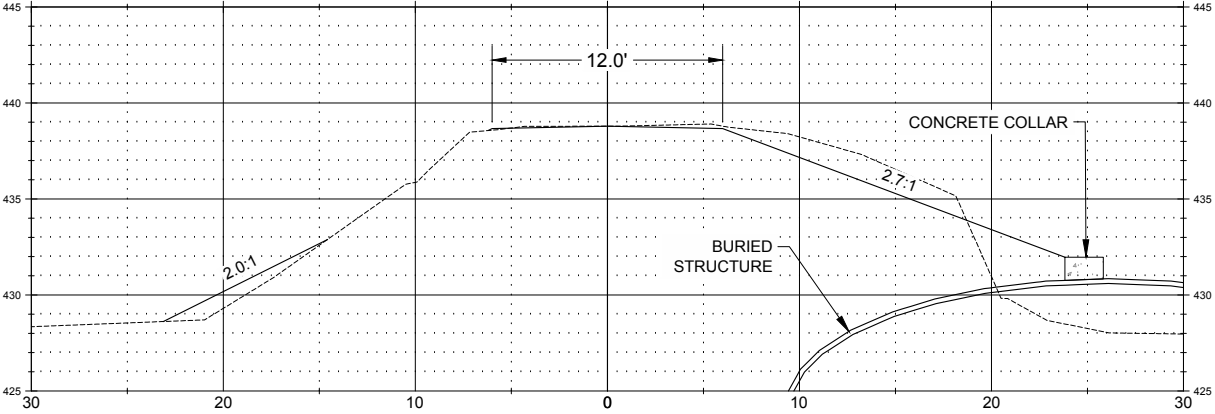
S12 T36N R3E

| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |

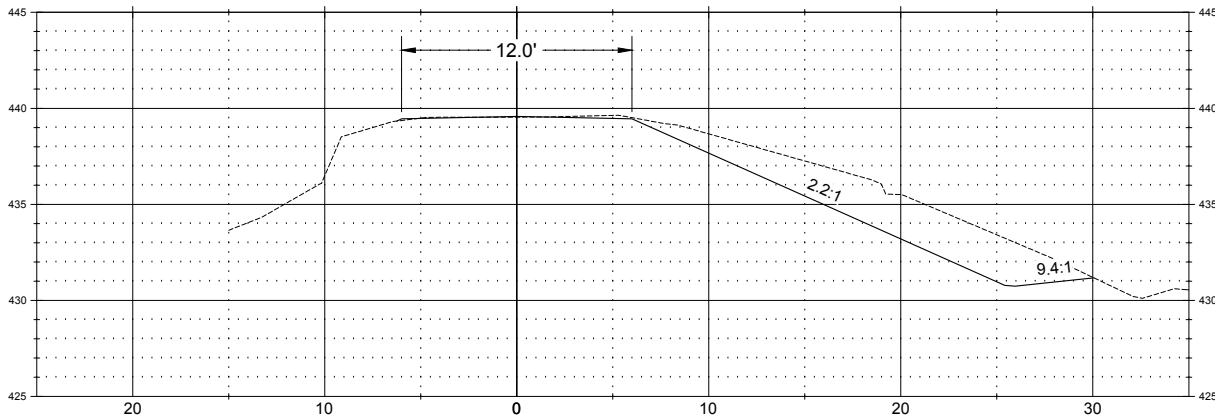
**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



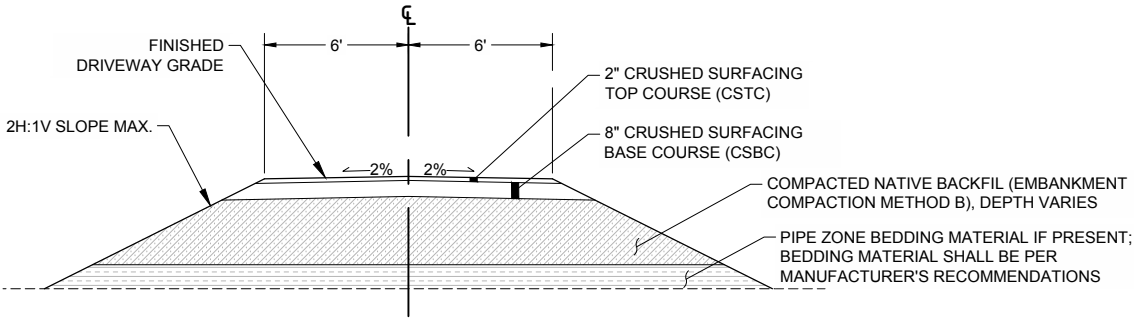
**NORTH ROAD - SECTION 1-1**  
STA 5+60



**NORTH ROAD - SECTION 2-2**  
STA 5+68



**NORTH ROAD - SECTION 3-3**  
STA 5+80



**TYPICAL DRIVEWAY SECTION**  
SCALE: 1"=4' HORIZ., 1"=4' VERT.  
STA E 5+18.3 TO STA E 5+92.1

- NOTES:
- BURIED STRUCTURE IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
  - LIMITS OF STRUCTURE EXCAVATION AND VOLUMES OF COMPACTED NATIVE BACKFILL SHALL DEPEND ON THE CONTRACTORS EXCAVATION METHODS AND LIMITS OF STRUCTURE EXCAVATION.
  - LIMITS OF PIPE ZONE BEDDING MATERIAL SHALL BE BASED UPON BURIED STRUCTURE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - PIPE ZONE BEDDING MATERIAL SHALL BE COMPACTED PER MANUFACTURER'S RECOMMENDATIONS.
  - COMPACTED NATIVE BACKFILL MATERIAL SHALL BE COMPACTED PER EMBANKMENT COMPACTION, METHOD B.



Natural Systems Design  
+ Coastal Geologic Services

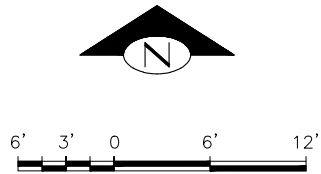
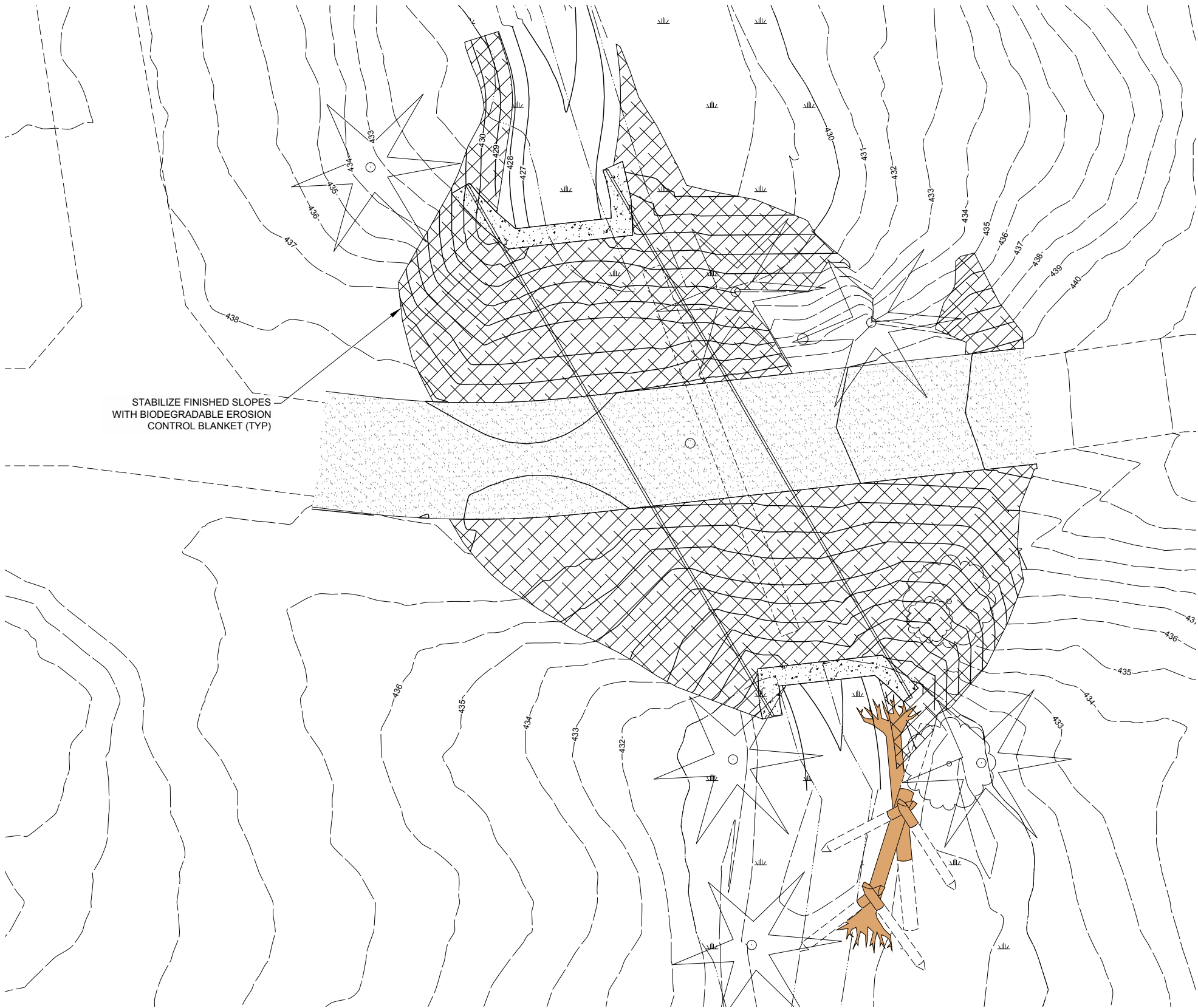
**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



PROJECT NO.: WA40222  
FED. AID NO.: ----  
DESIGNED BY: NJT  
CHECKED BY:  
DRAWN BY: LAV  
APPROVED BY:  
PROJECT LOCATED NEAR:  
ALGER, WASHINGTON  
S12 T36N R3E

**BARREL SPRINGS & DRY CREEK  
RESTORATION**  
ROAD SECTIONS  
BARREL SPRINGS NORTH

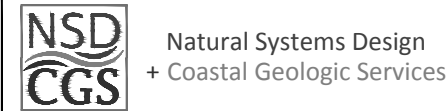
1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
**23 OF 30**



**SITE RESTORATION LEGEND**

 EROSION CONTROL BLANKET

- NOTES:
1. CONTRACTOR SHALL USE BIODEGRADABLE EROSION CONTROL BLANKET TO STABILIZE SLOPES WITHIN LIMITS OF GRADING. SEE DETAIL ON SHEET 30.



**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400



PROJECT NO.: WA40222  
FED. AID NO.: ----  
DESIGNED BY: NJT  
CHECKED BY:  
DRAWN BY: LAV  
APPROVED BY:

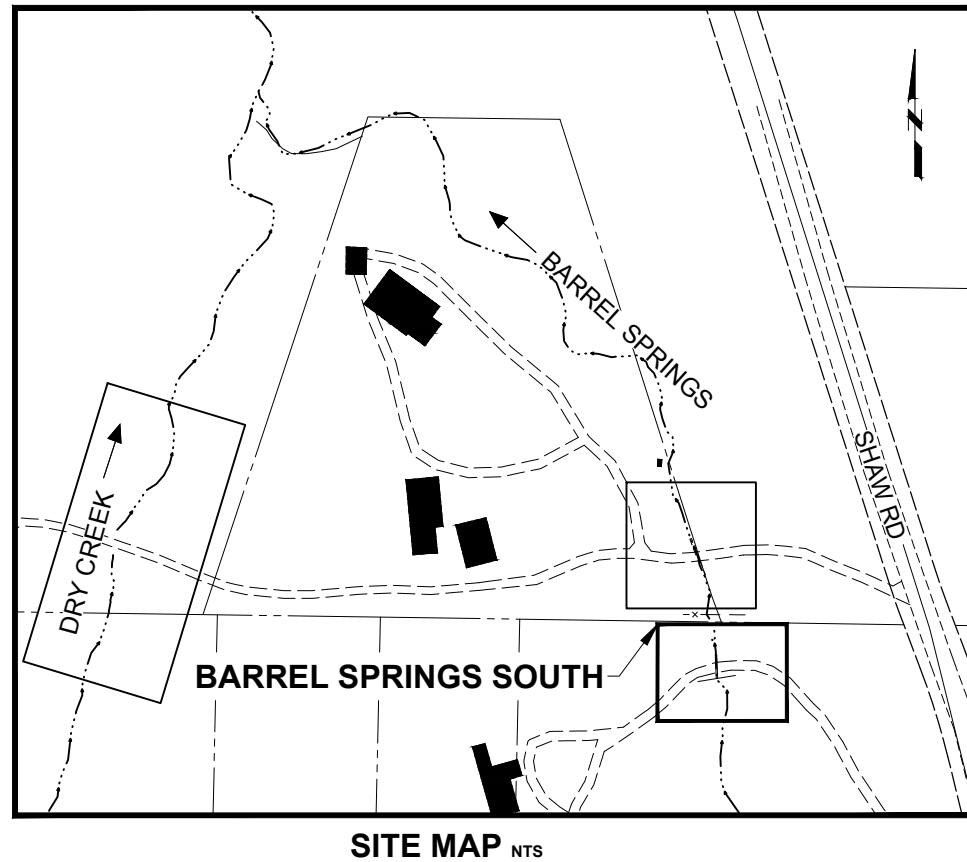
**BARREL SPRINGS & DRY CREEK  
RESTORATION**  
  
SITE RESTORATION  
BARREL SPRINGS NORTH

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
**24 OF 30**

# BARREL SPRINGS SOUTH RESTORATION

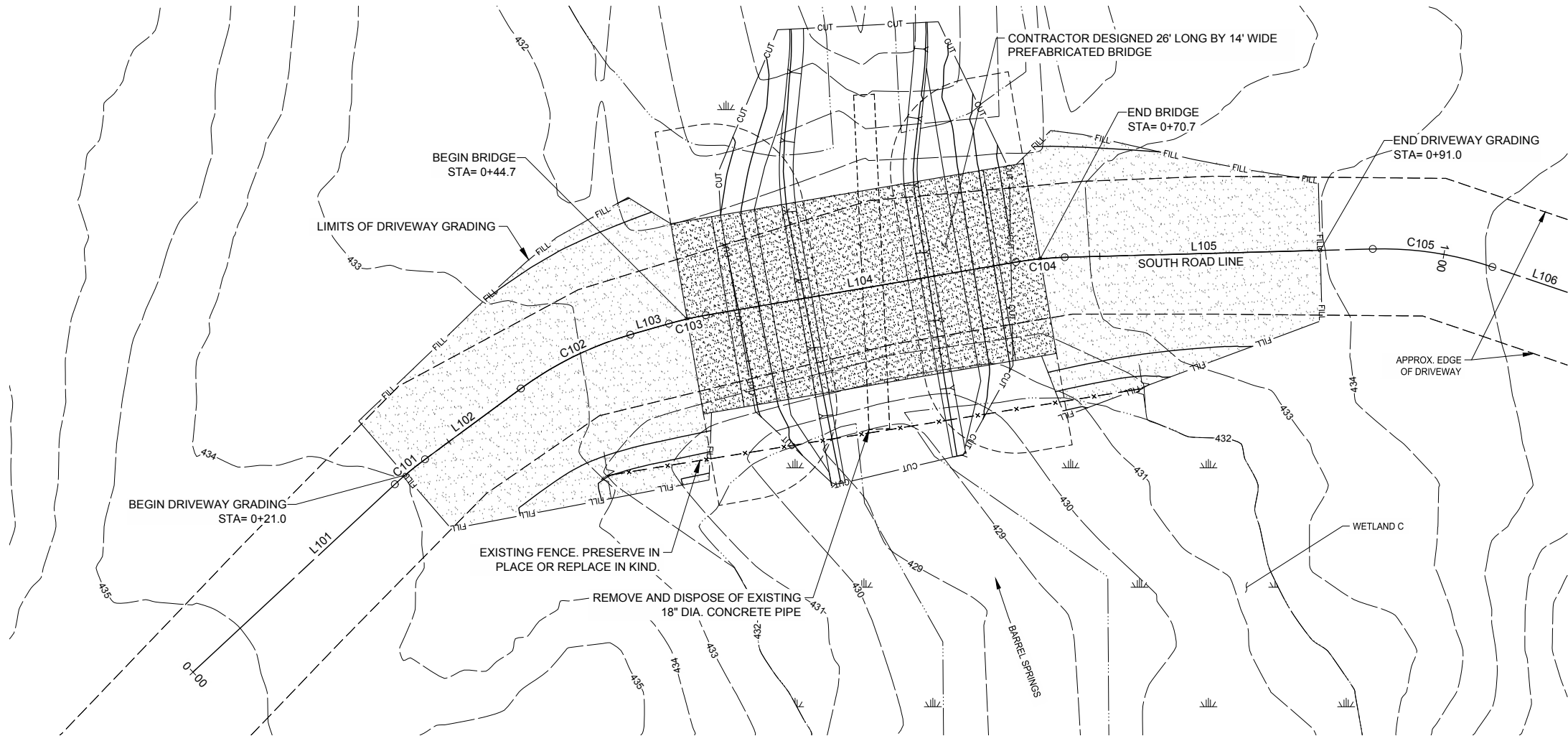
| BARREL SPRINGS SOUTH<br>ROAD ALIGNMENT TABLE |        |        |                      |           |               |             |                             |                             |
|----------------------------------------------|--------|--------|----------------------|-----------|---------------|-------------|-----------------------------|-----------------------------|
| NO.                                          | RADIUS | LENGTH | LINE/CHORD DIRECTION | DELTA     | START STATION | END STATION | START COORDINATE            | END COORDINATES             |
| L101                                         |        | 20.01' | N47°05'33.13"E       |           | 0+00          | 0+20.01     | N=597949.76<br>E=1268321.93 | N=597963.38<br>E=1268336.59 |
| C101                                         | 25.00' | 2.85'  | N50°21'10.13"E       | 6°31'14"  | 0+20.01       | 0+22.85     | N=597963.38<br>E=1268336.59 | N=597965.20<br>E=1268338.78 |
| L102                                         |        | 8.65'  | N53°36'47.13"E       |           | 0+22.85       | 0+31.50     | N=597965.20<br>E=1268338.78 | N=597970.33<br>E=1268345.74 |
| C102                                         | 25.00' | 8.89'  | N63°48'14.14"E       | 20°22'54" | 0+31.50       | 0+40.39     | N=597970.33<br>E=1268345.74 | N=597974.23<br>E=1268353.68 |
| L103                                         |        | 2.91'  | N73°59'41.15"E       |           | 0+40.39       | 0+43.31     | N=597974.23<br>E=1268353.68 | N=597975.03<br>E=1268356.48 |
| C103                                         | 25.00' | 2.75'  | N77°08'28.81"E       | 6°17'35"  | 0+43.31       | 0+46.05     | N=597975.03<br>E=1268356.48 | N=597975.64<br>E=1268359.15 |
| L104                                         |        | 22.84' | N80°17'16.47"E       |           | 0+46.05       | 0+68.89     | N=597975.64<br>E=1268359.15 | N=597979.50<br>E=1268381.66 |
| C104                                         | 25.00' | 3.56'  | N84°22'09.89"E       | 8°09'47"  | 0+68.89       | 0+72.45     | N=597979.50<br>E=1268381.66 | N=597979.85<br>E=1268385.21 |
| L105                                         |        | 22.36' | N88°27'03.32"E       |           | 0+72.45       | 0+94.82     | N=597979.85<br>E=1268385.21 | N=597980.45<br>E=1268407.56 |
| C105                                         | 25.00' | 8.83'  | S81°25'53.78"E       | 20°14'06" | 0+94.82       | 1+03.65     | N=597980.45<br>E=1268407.56 | N=597979.14<br>E=1268416.25 |
| L106                                         |        | 12.61' | S71°18'50.88"E       |           | 1+03.65       | 1+16.26     | N=597979.14<br>E=1268416.25 | N=597975.10<br>E=1268428.19 |

| PLAN SHEET INDEX-<br>BARREL SPRINGS SOUTH |                              |
|-------------------------------------------|------------------------------|
| SHEET                                     | TITLE                        |
| 25                                        | SUBSET COVER SHEET           |
| 26                                        | ROAD PLAN AND PROFILE        |
| 27                                        | CHANNEL PLAN AND PROFILE     |
| 28                                        | TYPICAL SECTIONS AND DETAILS |

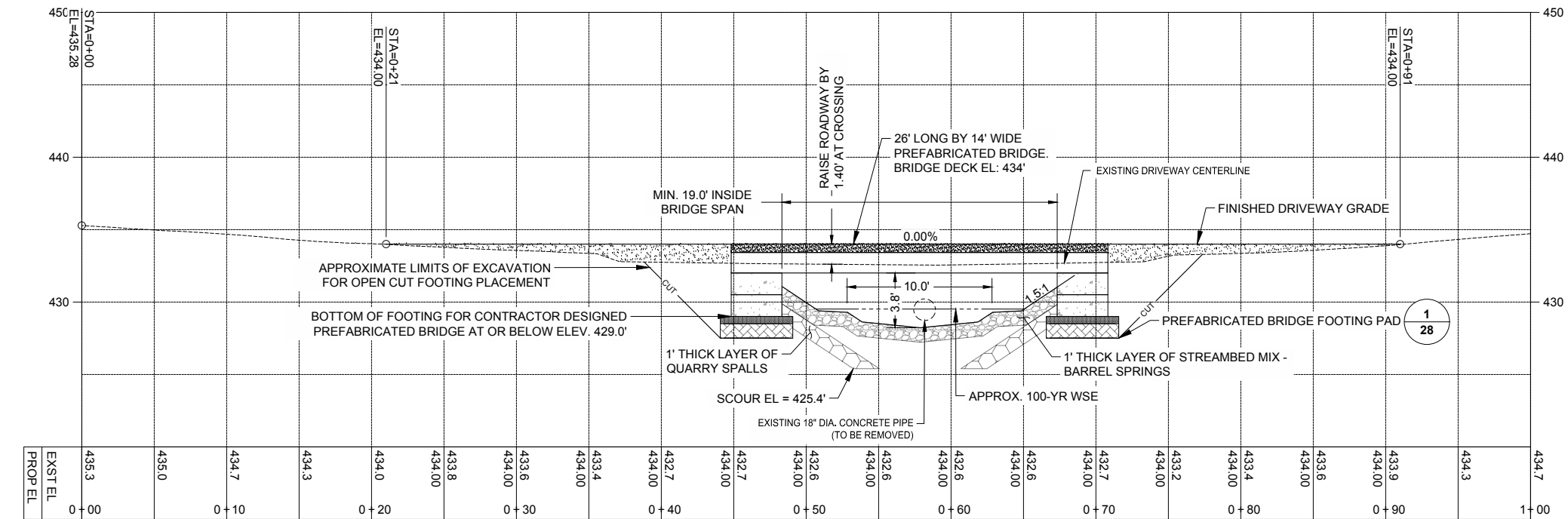
[illegible]

| <div> <div>BARREL SPRINGS SOUTH</div> <div>CHANNEL ALIGNMENT TABLE</div> </div> |        |        |                      |           |               |             |                             |                             |
|---------------------------------------------------------------------------------|--------|--------|----------------------|-----------|---------------|-------------|-----------------------------|-----------------------------|
| NO.                                                                             | RADIUS | LENGTH | LINE/CHORD DIRECTION | DELTA     | START STATION | END STATION | START COORDINATE            | END COORDINATES             |
| L107                                                                            |        | 4.69'  | N56°22'03.39"W       |           | 10+64.11      | 10+59.42    | N=597954.29<br>E=1268382.34 | N=597956.88<br>E=1268378.44 |
| C106                                                                            | 12.55' | 10.13' | N33°15'43.57"W       | 46°12'40" | 10+59.42      | 10+49.30    | N=597956.88<br>E=1268378.44 | N=597965.12<br>E=1268373.03 |
| L108                                                                            |        | 18.72' | N10°09'23.76"W       |           | 10+49.30      | 10+30.58    | N=597965.12<br>E=1268373.03 | N=597983.55<br>E=1268369.73 |
| C107                                                                            | 15.39' | 4.27'  | N2°12'20.77"W        | 15°54'06" | 10+30.58      | 10+26.31    | N=597983.55<br>E=1268369.73 | N=597987.80<br>E=1268369.57 |
| L109                                                                            |        | 5.87'  | N5°44'42.22"E        |           | 10+26.31      | 10+20.44    | N=597987.80<br>E=1268369.57 | N=597993.64<br>E=1268370.16 |
| C108                                                                            | 20.00' | 4.94'  | N1°20'08.27"W        | 14°09'41" | 10+20.44      | 10+15.50    | N=597993.64<br>E=1268370.16 | N=597998.57<br>E=1268370.04 |
| L110                                                                            |        | 6.63'  | N8°24'58.76"W        |           | 10+15.50      | 10+08.87    | N=597998.57<br>E=1268370.04 | N=598005.12<br>E=1268369.07 |





BARREL SPRINGS SOUTH - ROAD PLAN

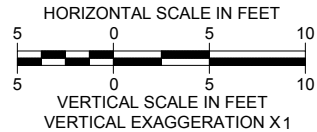


BARREL SPRINGS SOUTH - ROAD PROFILE

SCALE: 1" = 5' HORIZ., 1" = 5' VERT.

NOTES:

1. REPLACE EXISTING 18" DIA. CONCRETE PIPE WITH 26" LONG BY 14" WIDE PREFABRICATED BRIDGE.
2. BRIDGE SPAN LENGTH SHALL BE 26'-0" MEASURED FROM THE END OF THE BRIDGE STRUCTURE.
3. BRIDGE WIDTH SHALL BE 14'-0" MEASURED FROM THE INSIDE FACE OF EACH RAIL.
4. BRIDGE SHALL BE DESIGNED TO MEET A HL-93 LOADING REQUIREMENT.
5. BRIDGE DECK SHALL BE DESIGNED TO SUPPORT A GRAVEL WEARING COURSE.
6. BRIDGE SHALL INCLUDE TIMBER CURBS OR SIMILAR STRUCTURES ALONG THE OUTSIDE OF THE BRIDGE.
7. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND FABRICATION OF BRIDGE FOOTINGS THAT SHALL BEAR THE BRIDGE ON THE FOOTING PADS.
8. FOR TYPICAL DRIVEWAY AND BRIDGE SECTIONS REFER TO SHEET 28.
9. FOR DRIVEWAY ALIGNMENT INFORMATION REFER TO SHEET 25.



Natural Systems Design  
+ Coastal Geologic Services

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

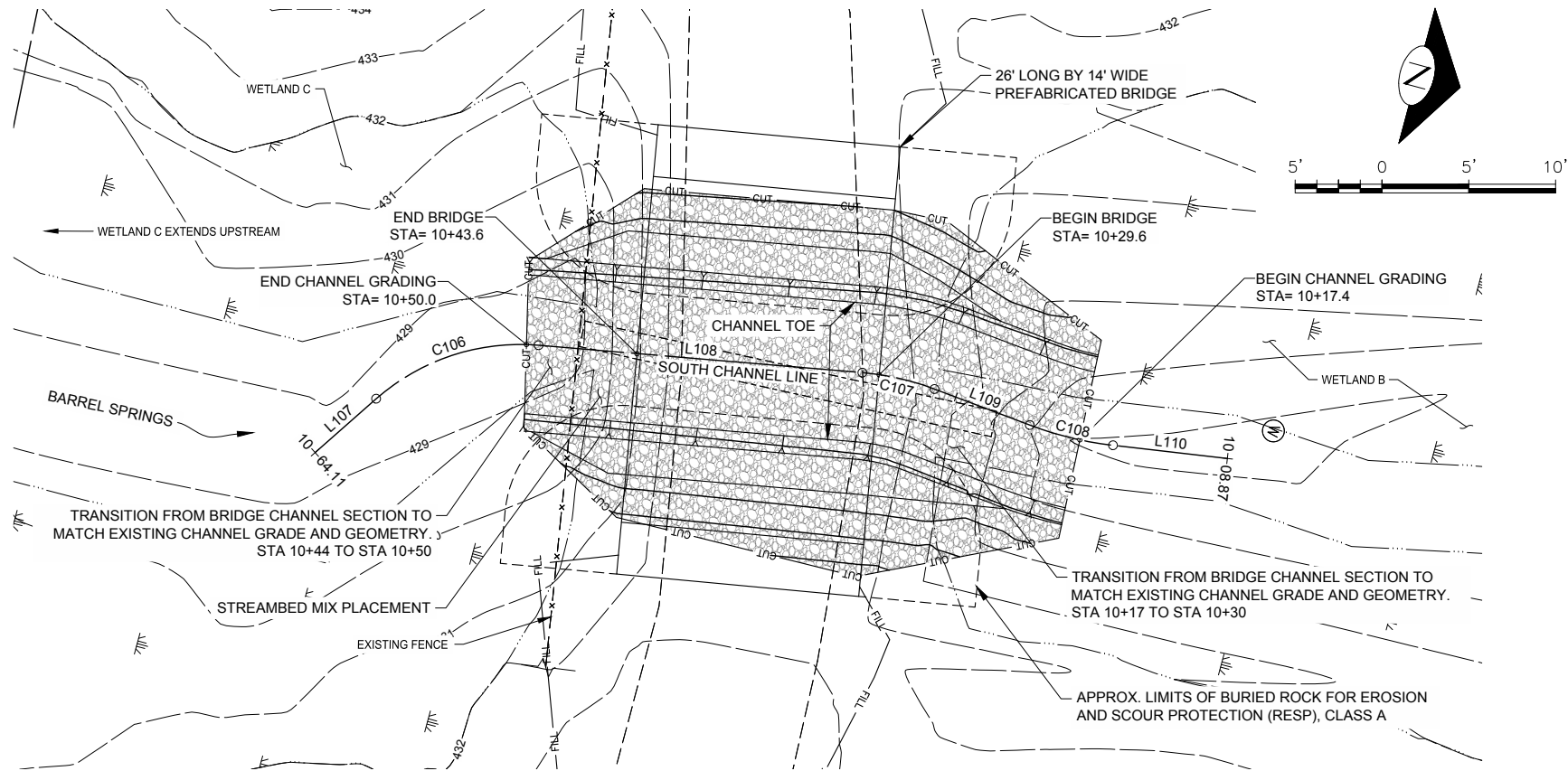
| DATE | REVISIONS | NO. |
|------|-----------|-----|
|      |           |     |



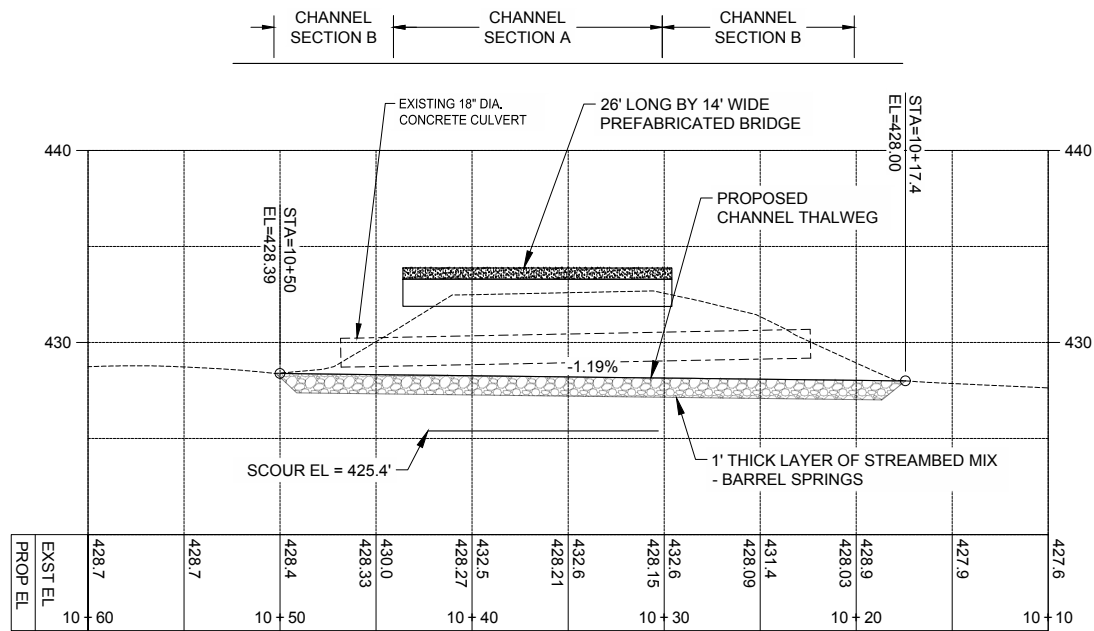
|                                            |                    |                  |               |              |              |
|--------------------------------------------|--------------------|------------------|---------------|--------------|--------------|
| PROJECT NO.: WA40202                       | FED. AID NO.: ---- | DESIGNED BY: NJT | DRAWN BY: LAV | CHECKED BY:  | APPROVED BY: |
| PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON |                    |                  |               | S12 T36N R3E |              |

**BARREL SPRINGS & DRY CREEK  
RESTORATION**  
ROAD PLAN AND PROFILE  
BARREL SPRINGS SOUTH

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY  
SHEET  
**26 OF 30**

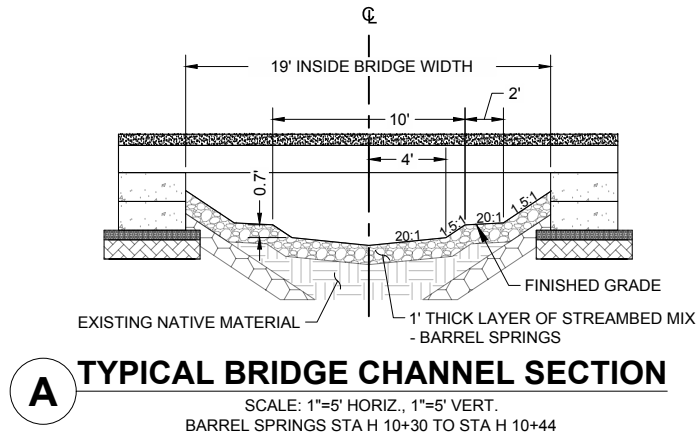


**BARREL SPRINGS SOUTH - CHANNEL PLAN**



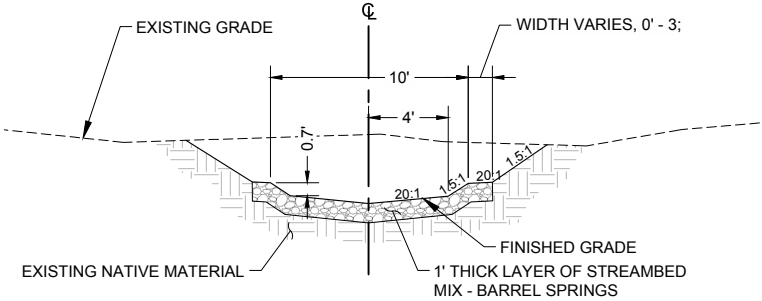
**BARREL SPRINGS SOUTH - CHANNEL PROFILE**

SCALE: 1" = 5' HORIZ., 1" = 5' VERT.



**A TYPICAL BRIDGE CHANNEL SECTION**

SCALE: 1"=5' HORIZ., 1"=5' VERT.  
BARREL SPRINGS STA H 10+30 TO STA H 10+44



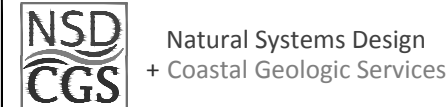
**B TRANSITION CHANNEL SECTION**

SCALE: 1"=5' HORIZ., 1"=5' VERT.  
BARREL SPRINGS STA H 10+18 TO STA H 10+30  
AND STA H 10+44 TO STA H 10+50

**STREAMBED MIX - BARREL SPRINGS**

| MATERIAL             | PERCENTAGE | SPECIFICATION |
|----------------------|------------|---------------|
| STREAMBED SEDIMENT   | 50%        | 9-03.11(1)    |
| 6" STREAMBED COBBLES | 50%        | 9-03.11(2)    |

- NOTES:
- TRANSITION CHANNEL SECTION IS INTENDED TO ALLOW FOR A SMOOTH AND GRADUAL TRANSITION FROM THE TYPICAL CHANNEL UNDERNEATH THE BRIDGE TO THE EXISTING GRADES UPSTREAM AND DOWNSTREAM OF THE GRADING LIMITS.
  - STREAMBED MIX - BARREL SPRINGS SHALL BE MIXED PRIOR TO PLACEMENT IN STREAM CHANNEL. STREAMBED MIX - BARREL SPRINGS SHALL BE COMPACTED VIA BUCKET TAMPING OR SIMILAR MEANS.
  - BRIDGE ELEMENTS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
  - FOR BARREL SPRINGS SOUTH ALIGNMENT INFORMATION REFER TO SHEET 25.



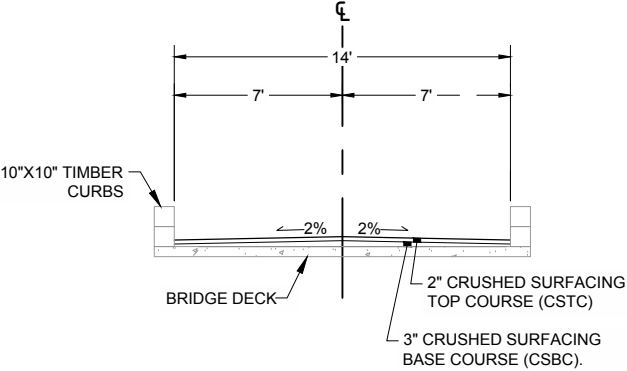
**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

| DATE | REVISIONS | NO. |
|------|-----------|-----|
|      |           |     |

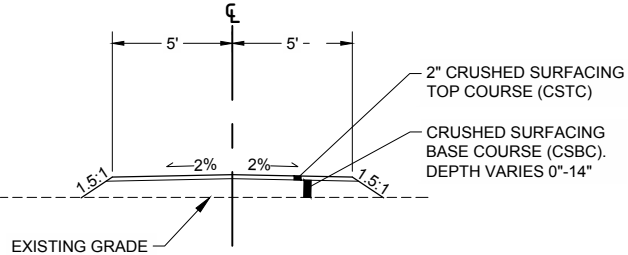


|                                            |                    |                  |               |              |              |
|--------------------------------------------|--------------------|------------------|---------------|--------------|--------------|
| PROJECT NO.: WA40222                       | FED. AID NO.: ---- | DESIGNED BY: NJT | DRAWN BY: LAV | CHECKED BY:  | APPROVED BY: |
| PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON |                    |                  |               | S12 T36N R3E |              |

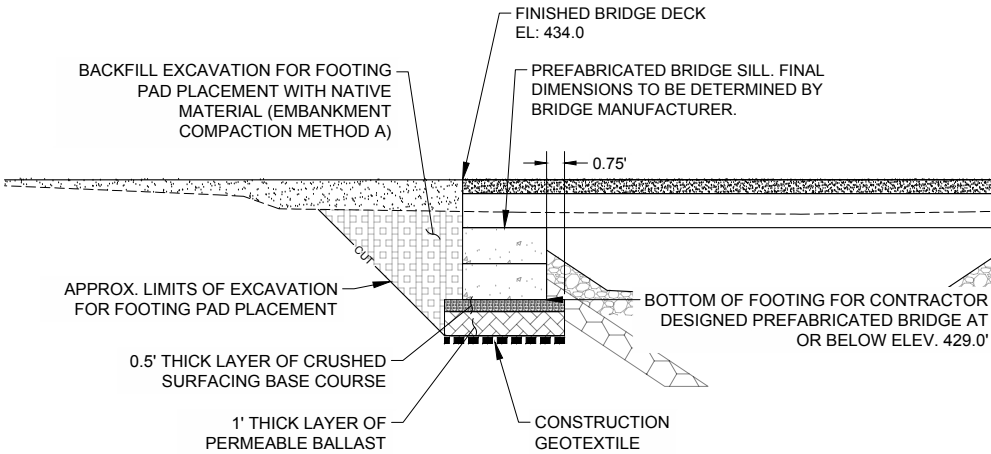
**BARREL SPRINGS & DRY CREEK  
RESTORATION**  
CHANNEL PLAN AND PROFILE  
BARREL SPRINGS SOUTH



**TYPICAL BRIDGE SECTION**  
SCALE: 1"=4' HORIZ., 1"=4' VERT.  
STA G 0+44.7 TO STA G 0+70.7



**TYPICAL DRIVEWAY SECTION**  
SCALE: 1"=4' HORIZ., 1"=4' VERT.  
STA G 0+21 TO STA G 0+44.7 AND  
STA G 0+70.7 TO STA G 0+91



**BRIDGE FOOTING PAD DETAIL**  
SCALE: 1"=4' HORIZ., 1"=4' VERT.



**BRIDGE FOOTING PAD NOTES:**

1. FINAL DIMENSIONS AND ELEVATION OF BRIDGE FOOTING PAD SHALL BE BASED UPON FOOTING DIMENSIONS PROVIDED IN FINAL SHOP DRAWINGS PROVIDED BY BRIDGE MANUFACTURE.
2. IF UNSTABLE SUBGRADE MATERIALS ARE ENCOUNTERED DURING THE EXCAVATION FOR THE PLACEMENT OF THE BRIDGE FOOTING PADS, THE ENGINEER MAY REQUIRE THE OVER-EXCAVATION OF AN ADDITIONAL 2-FEET OF SUBGRADE AND PLACEMENT AND COMPACTION OF PERMEABLE BALLAST. SUBGRADE IMPROVEMENTS BEYOND THOSE SHOWN ON THIS SHEET OR THE FINAL SHOP DRAWINGS (WHICHEVER REQUIRES THE MOST OVEREXCAVATION) SHALL BE PAID FOR ACCORDING TO SECTION 1-04.4 OF THE STANDARD SPECIFICATIONS.



Natural Systems Design  
+ Coastal Geologic Services

PROJECT NO.: WA402222

FED. AID NO.: ----

DESIGNED BY: NJT

CHECKED BY:

DRAWN BY: LAV

APPROVED BY:

PROJECT LOCATED NEAR:  
ALGER, WASHINGTON  
S12 T36N R3E

**BARREL SPRINGS & DRY CREEK  
RESTORATION**

TYPICAL SECTIONS AND DETAILS  
BARREL SPRINGS SOUTH

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
**28 OF 30**

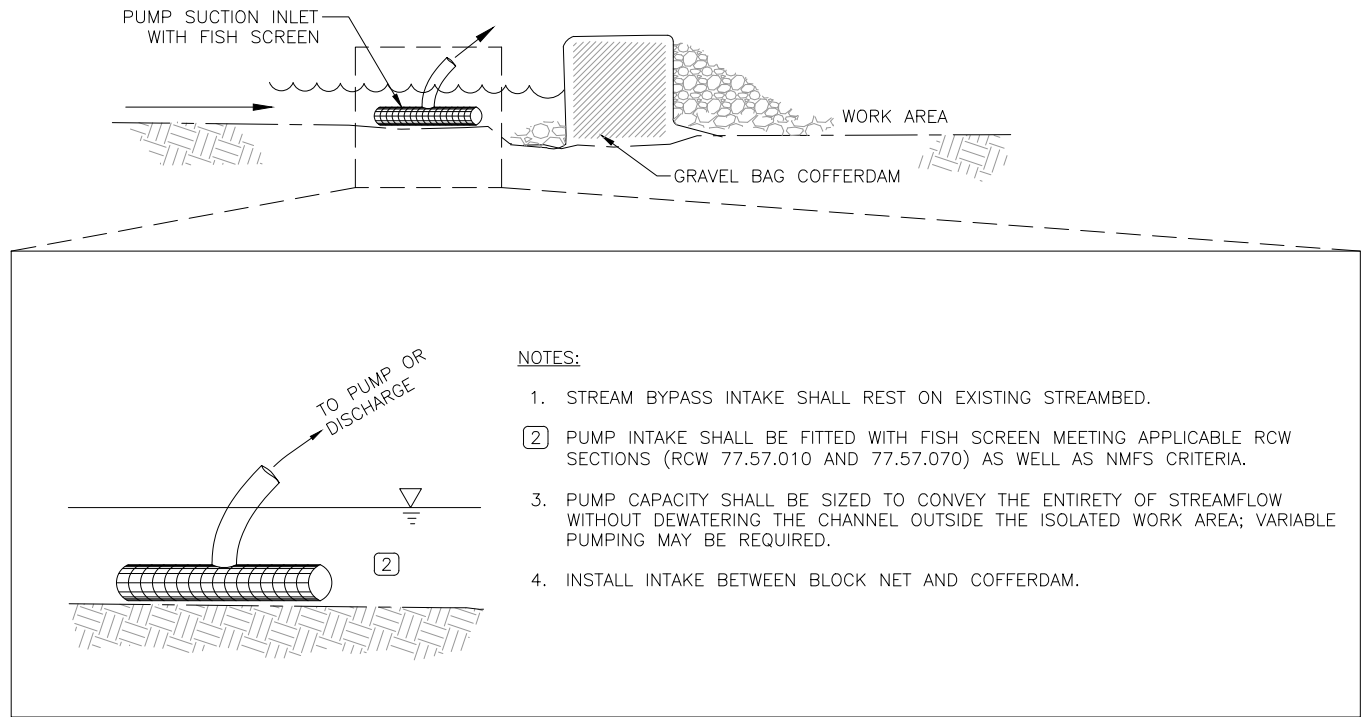
**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400

DATE

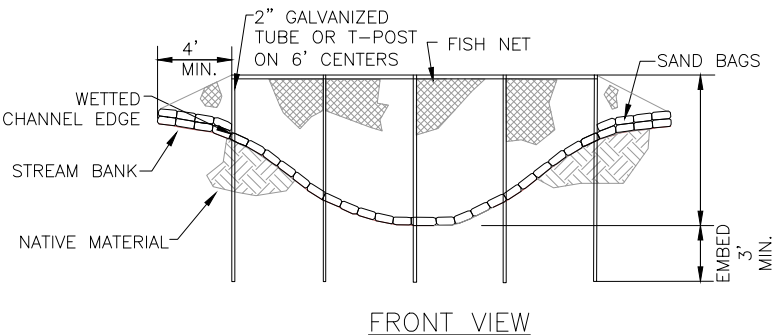
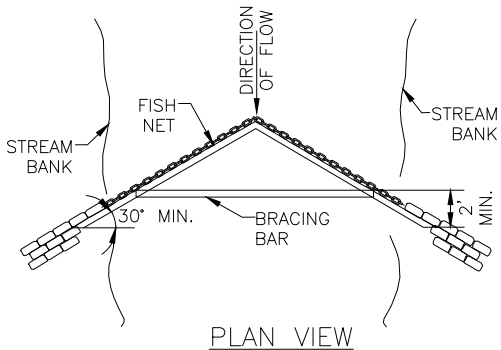
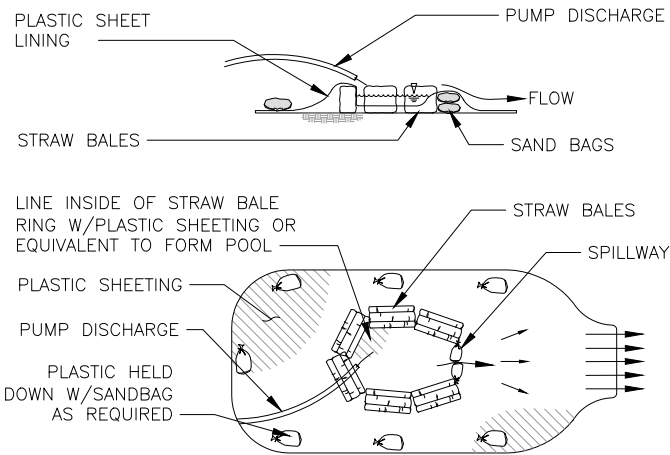
REVISIONS

NO.



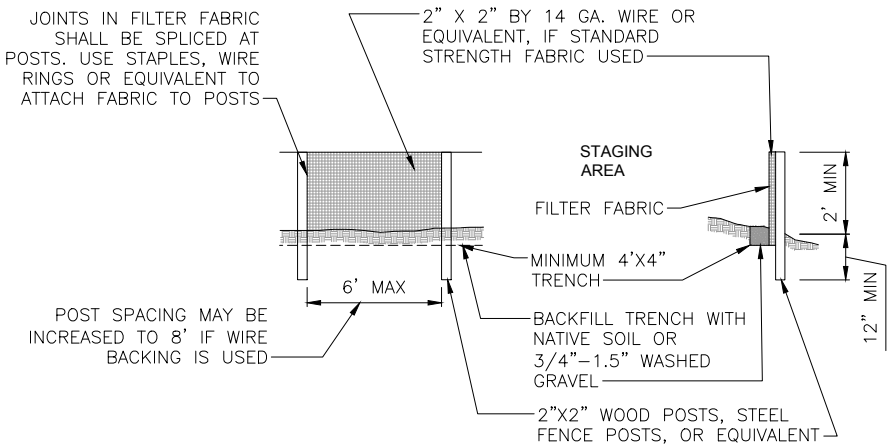
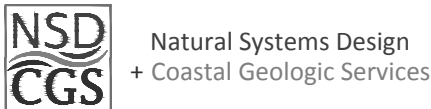


**STREAM BY-PASS PUMP INTAKE** **1**  
SCALE: NOT TO SCALE **29**

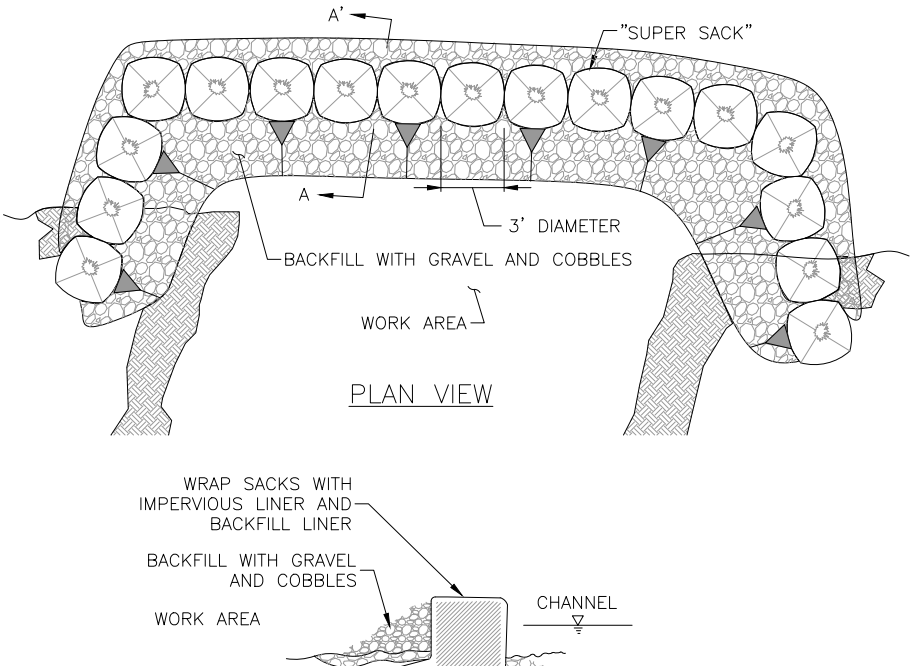


- NOTES**
1. BLOCK NET SHOWN FOR ILLUSTRATIVE PURPOSES ONLY; CONTRACTING AGENCY WILL BE RESPONSIBLE FOR INSTALLING BLOCK NETS.
  2. FOLLOWING INSTALLATION OF BLOCK NETS, THE CONTRACTING AGENCY WILL PERFORM FISH REMOVAL.
  3. THE CONTRACTOR SHALL INSPECT BLOCK NETS DAILY AND IMMEDIATELY INFORM THE OWNER OF ANY DEFICIENCIES NOTED.

**BLOCK NET** **5**  
SCALE: NOT TO SCALE **29**



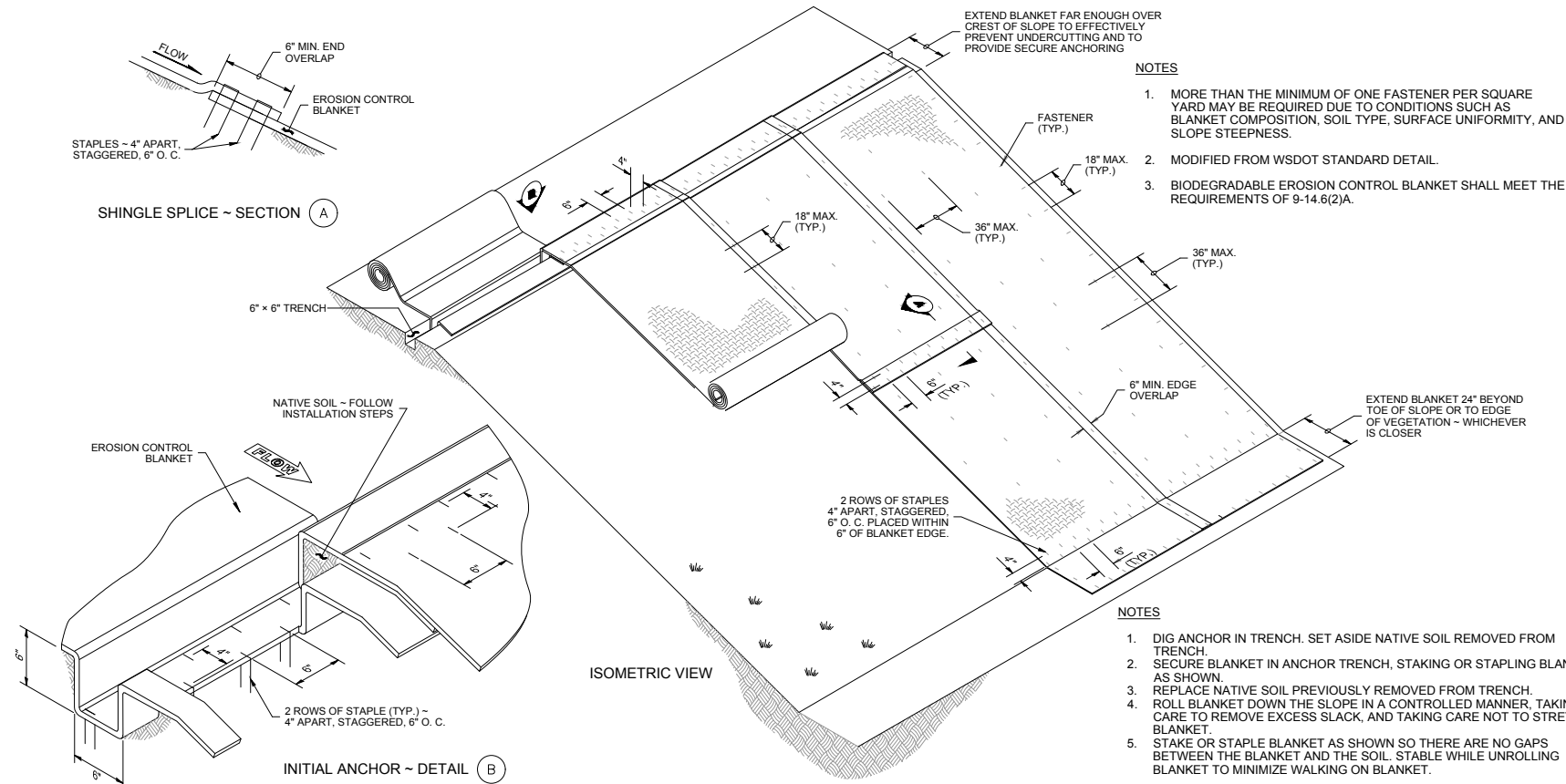
REFERENCE; WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (FIGURE 4-19)



| NO. | REVISIONS | DATE |
|-----|-----------|------|
| 1   |           |      |
| 2   |           |      |
| 3   |           |      |
| 4   |           |      |
| 5   |           |      |
| 6   |           |      |
| 7   |           |      |
| 8   |           |      |
| 9   |           |      |
| 10  |           |      |

|                                                            |                    |                  |               |             |              |
|------------------------------------------------------------|--------------------|------------------|---------------|-------------|--------------|
| PROJECT NO.: WA40222                                       | FED. AID NO.: ---- | DESIGNED BY: NJT | DRAWN BY: LAV | CHECKED BY: | APPROVED BY: |
| PROJECT LOCATED NEAR:<br>ALGER, WASHINGTON<br>S12 T36N R3E |                    |                  |               |             |              |

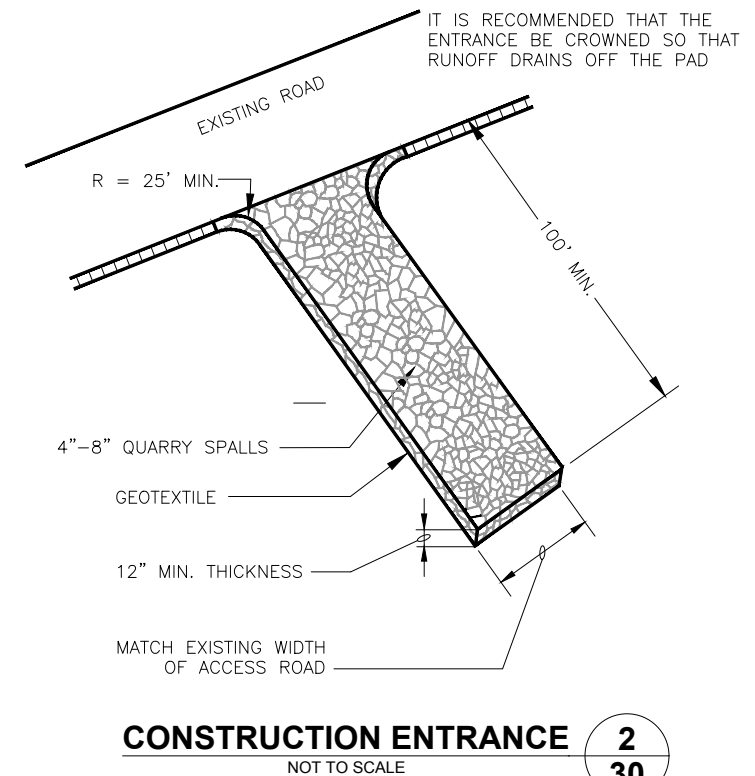
|                                                       |                     |
|-------------------------------------------------------|---------------------|
| <b>BARREL SPRINGS &amp; DRY CREEK<br/>RESTORATION</b> | <b>TESC DETAILS</b> |
|-------------------------------------------------------|---------------------|



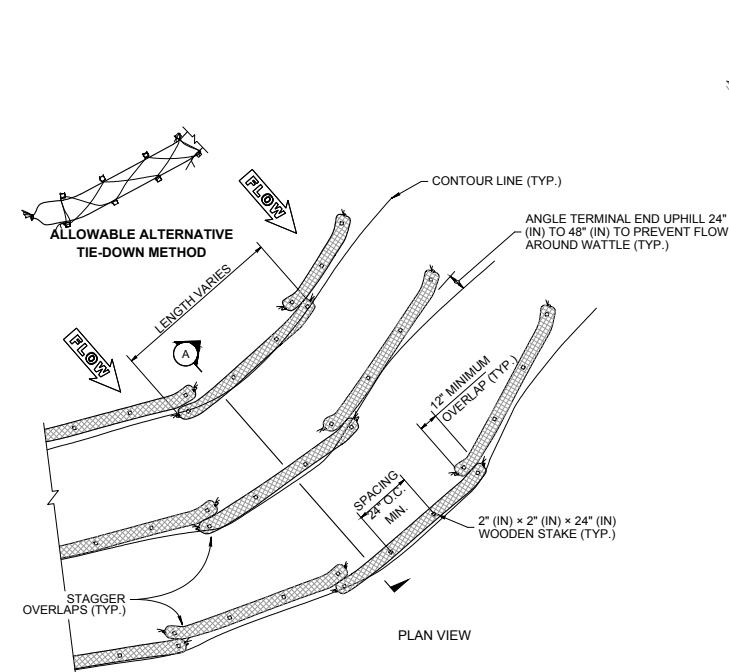
## BIODEGRADABLE EROSION CONTROL BLANKET PLACEMENT

NOT TO SCALE

1  
30



2  
30



## STRAW WATTLE

NOT TO SCALE

3  
30

- INSTALL WATTLES PERPENDICULAR TO FLOW ALONG CONTOURS.
- STRAW WATTLES SHALL BE CERTIFIED WEED FREE.
- SECURELY KNOT EACH END OF WATTLE. OVERLAP ADJACENT WATTLE ENDS 12" (IN) BEHIND ONE ANOTHER AND SECURELY TIE TOGETHER.
- COMPACT EXCAVATED SOIL AND TRENCHES TO PREVENT UNDERCUTTING. ADDITIONAL STAKING MAY BE NECESSARY TO PREVENT UNDERCUTTING.
- WATTLES SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.

| WATTLE SPACING TABLE        |                 |                 |              |
|-----------------------------|-----------------|-----------------|--------------|
| TEMPORARY                   |                 | PERMANENT       |              |
| 8" - 10" OR 10" - 12" DIAM. | 10" - 12" DIAM. | 10" - 12" DIAM. |              |
| SLOPE                       | MAX. SPACING    | SLOPE           | MAX. SPACING |
| 1H : 1V                     | 5' - 0"         | -               | -            |
| 2H : 1V                     | 10' - 0"        | 2H : 1V         | 5' - 0"      |
| 3H : 1V                     | 15' - 0"        | 3H : 1V         | 10' - 0"     |
| 4H : 1V                     | 20' - 0"        | 4H : 1V         | 15' - 0"     |

REFERENCE: WSDOT STANDARD PLAN I-30.30-02



Natural Systems Design  
+ Coastal Geologic Services

BARREL SPRINGS & DRY CREEK  
RESTORATION

TESC DETAILS 2

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
30 OF 30

PROJECT NO.: WA402222

FED. AID NO.: ----

DESIGNED BY: NJT

CHECKED BY:

DRAWN BY: LAV

APPROVED BY:

PROJECT LOCATED NEAR:  
ALGER, WASHINGTON  
S12 T36N R3E



| NO. | REVISIONS | DATE |
|-----|-----------|------|
|     |           |      |
|     |           |      |
|     |           |      |
|     |           |      |

**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400