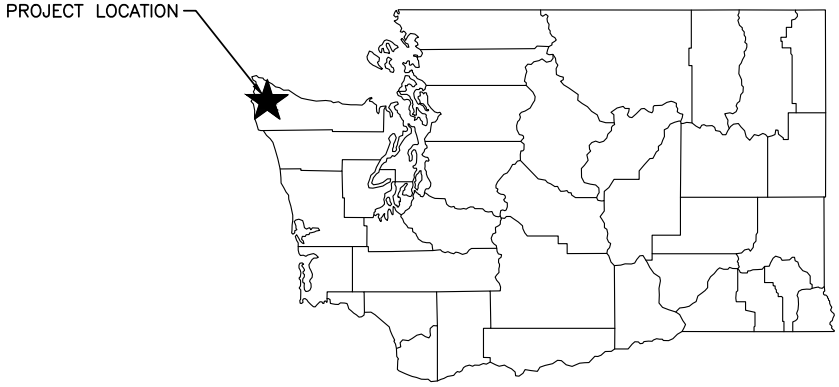
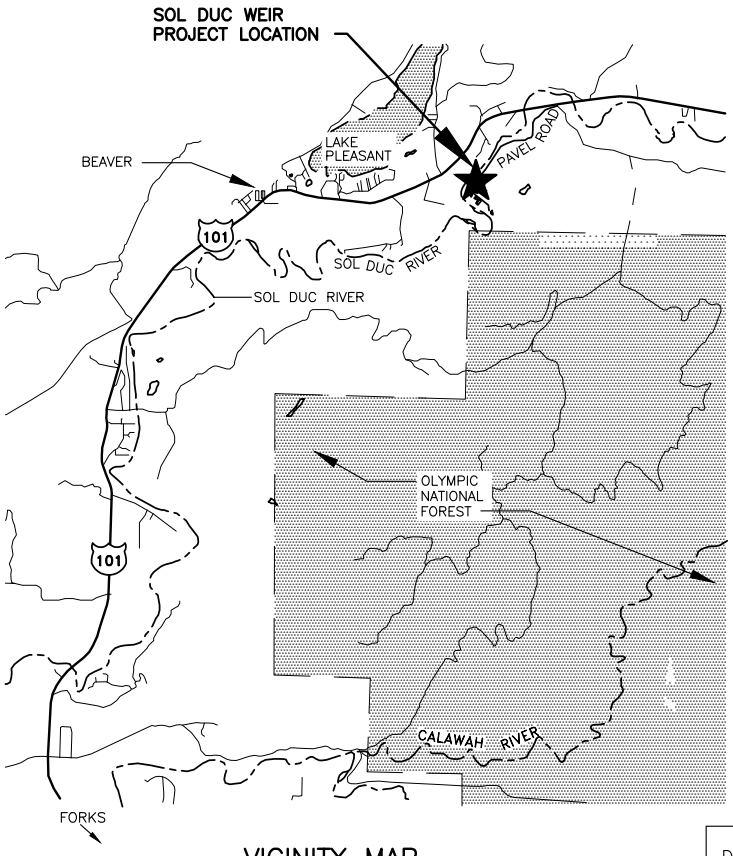


STATE MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

DRIVING DIRECTIONS:
FROM OLYMPIA, TAKE I-5 SOUTH TO EXIT 104 TO HWY 101. TAKE 101 TO HWY 8 THEN HWY 12 TO ABERDEEN THEN HOQUIAM TO HWY 101 AGAIN. STAY ON HWY 101 NORTH UNTIL YOU COME TO THE TOWN OF FORKS. ABOUT 11 MILES NORTH OF FORKS YOU WILL SEE A SIGN FOR THE HATCHERY. TURN RIGHT ON MARY CLARK ROAD AND STAY TO THE RIGHT ONTO PAVEL ROAD, ACCESS SITE WILL BE AT THE END OF THE ROAD ON THE RIGHT.

CLALLAM COUNTY BUILDING CODE DESIGN STANDARDS
AT BEAVER, WA

WIND SPEED: 120MPH
WIND EXPOSURE: C
AVE. SNOW LOAD: 30 PSF
SEISMIC DESIGN: D2

ENG. PROJECT NO. CM:H32:2023-1 PORTION OF: SEC 36-TWP 30N-R13W DRAWN BY: TETRA TECH

REFERENCE NUMBER: **NWS-2023-0841**

APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE
600 CAPITOL WAY N.
OLYMPIA, WA 98501-1091

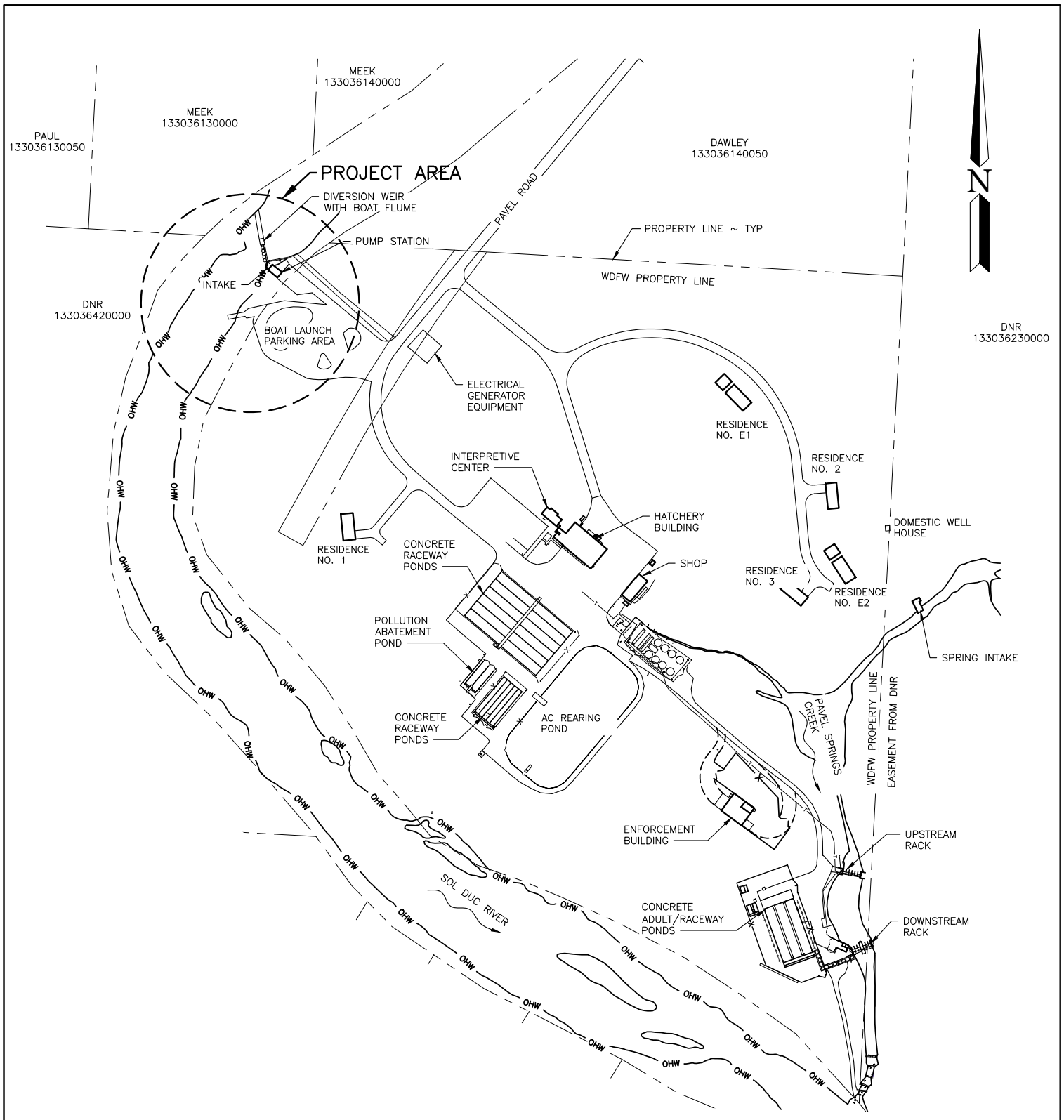
ADJACENT PROPERTY OWNER:
1. MEEK
2 DNR

PROJECT LOCATION (ADDRESS):
SOL DUC HATCHERY
1423 PAVEL ROAD
BEAVER, WA 98305

LAT/LONG: 48.0575/-124.3085
DATUM: WSPC NORTH NAD83, NAVD88
SHEET 1 OF 20 DATE: 7-10-2024

PROPOSED PROJECT:
SOL DUC HATCHERY
WEIR REPLACEMENT

IN: SOL DUC RIVER
NEAR/AT: BEAVER
COUNTY: CLALLAM
STATE: WA



EXISTING HATCHERY SITE PLAN

SCALE: 1" = 300'

0 100 200 300
50 150 250 450

SCALE: 1" = 300'

REFERENCE NUMBER: NWS–2023–0841

APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE

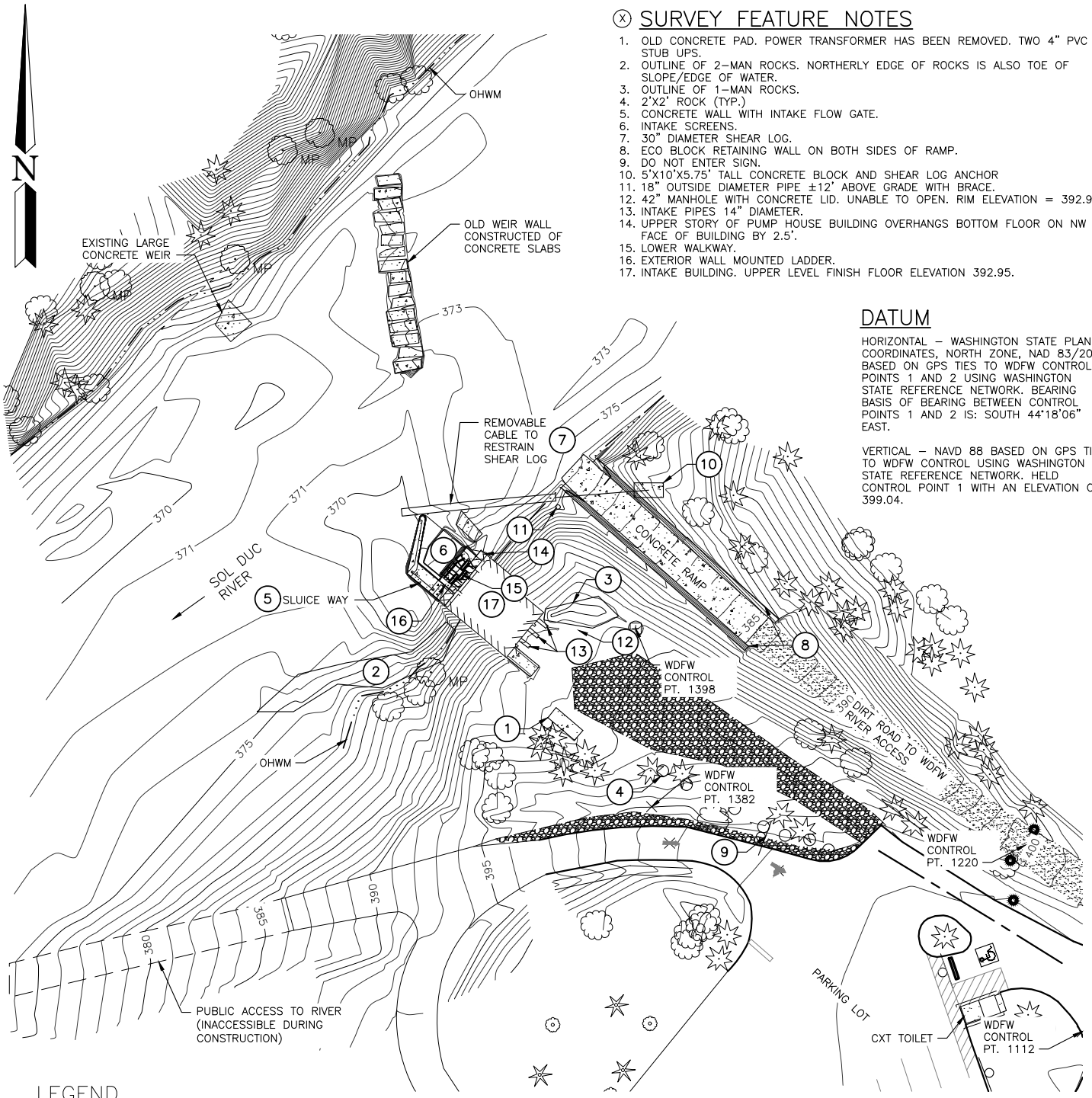
PROPOSED PROJECT:
WEIR REPLACEMENT

LOCATION: SOL DUC HATCHERY

SHEET 2 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1

DRAWN BY: TETRA TECH



ⓧ SURVEY FEATURE NOTES

1. OLD CONCRETE PAD. POWER TRANSFORMER HAS BEEN REMOVED. TWO 4" PVC STUB UPS.
2. OUTLINE OF 2–MAN ROCKS. NORTHERLY EDGE OF ROCKS IS ALSO TOE OF SLOPE/EDGE OF WATER.
3. OUTLINE OF 1–MAN ROCKS.
4. 2'X2' ROCK (TYP.)
5. CONCRETE WALL WITH INTAKE FLOW GATE.
6. INTAKE SCREENS.
7. 30" DIAMETER SHEAR LOG.
8. ECO BLOCK RETAINING WALL ON BOTH SIDES OF RAMP.
9. DO NOT ENTER SIGN.
10. 5'X10'X5.75' TALL CONCRETE BLOCK AND SHEAR LOG ANCHOR
11. 18" OUTSIDE DIAMETER PIPE ±12' ABOVE GRADE WITH BRACE.
12. 42" MANHOLE WITH CONCRETE LID. UNABLE TO OPEN. RIM ELEVATION = 392.98.
13. INTAKE PIPES 14" DIAMETER.
14. UPPER STORY OF PUMP HOUSE BUILDING OVERHANGS BOTTOM FLOOR ON NW FACE OF BUILDING BY 2.5'.
15. LOWER WALKWAY.
16. EXTERIOR WALL MOUNTED LADDER.
17. INTAKE BUILDING. UPPER LEVEL FINISH FLOOR ELEVATION 392.95.

DATUM

HORIZONTAL – WASHINGTON STATE PLANE COORDINATES, NORTH ZONE, NAD 83/2011 BASED ON GPS TIES TO WDFW CONTROL POINTS 1 AND 2 USING WASHINGTON STATE REFERENCE NETWORK. BEARING BASIS OF BEARING BETWEEN CONTROL POINTS 1 AND 2 IS: SOUTH 44°18'06" EAST.

VERTICAL – NAVD 88 BASED ON GPS TIES TO WDFW CONTROL USING WASHINGTON STATE REFERENCE NETWORK. HELD CONTROL POINT 1 WITH AN ELEVATION OF 399.04.

LEGEND

- DECIDUOUS TREE
- CONIFER TREE
- MP MAPLE TREE
- DF DOUGLAS–FIR TREE
- WHEEL STOP
- STREET SIGN
- DISABLED PARKING
- HUB AND TACK (MNHT)
- PK NAIL (MNPK)
- REBAR AND CONTROL CAP (MNCC)
- C CABLE JUNCTION BOX
- CABLE RISER/ PEDESTAL
- P POWER JUNCTION BOX
- D STORM MANHOLE
- BOLLARD

WEIR EXISTING SITE

0 10 20 30 40 50 75

SCALE: 1" = 50'

CONTROL POINTS

POINT #	EASTING	NORTHING	ELEVATION	DESCRIPTION
1112	790971.92	404617.87	404.28	WDFW 1112
1220	790951.48	404681.94	399.70	WDFW 1220
1382	790824.82	404694.78	399.95	WDFW 1382
1398	790819.38	404755.67	393.96	WDFW 1001

UTILITY NOTE

UTILITIES SHOWN HEREON ARE FROM FIELD MAPPING VISIBLE SURFACE APPURTENANCES, AND MAPPING UTILITY PAINT MARKS FROM A UTILITY LOCATING SERVICE. BURIED UTILITIES ARE ONLY SHOWN AS APPROXIMATE AND SHOULD BE VERIFIED BEFORE CONSTRUCTION.

REFERENCE NUMBER: **NWS–2023–0841**

APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE

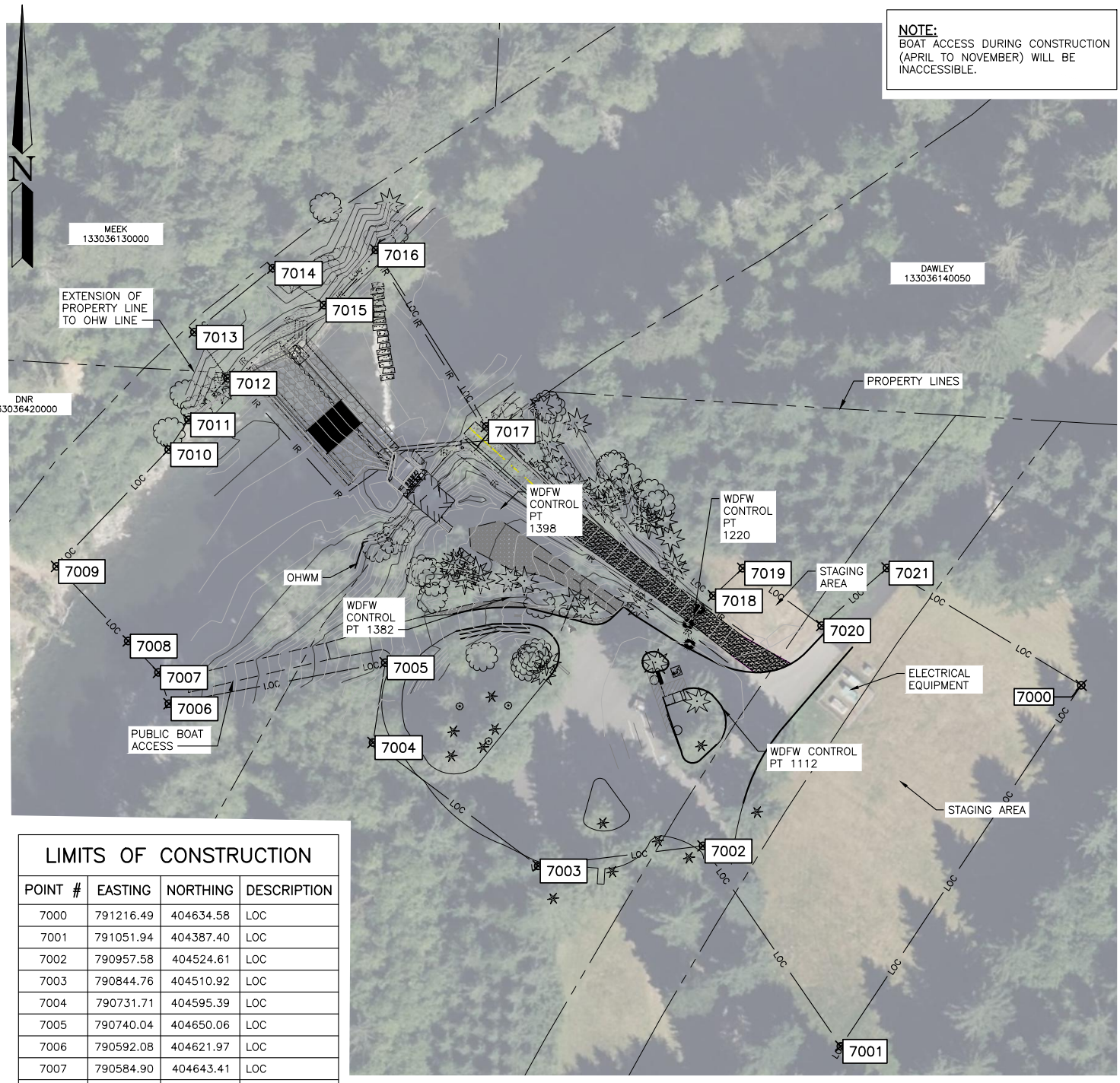
PROPOSED PROJECT:
WEIR REPLACEMENT

LOCATION: SOL DUC HATCHERY

SHEET 3 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1

DRAWN BY: TETRA TECH



GENERAL SITE LAYOUT PLAN

0 50 100
25 75 150
SCALE: 1" = 100'

LEGEND

- LOC — LIMITS OF CONSTRUCTION/ STAGING AREA
- IR — IMPROVEMENT AREA
- PROPERTY LINE

LIMITS OF CONSTRUCTION

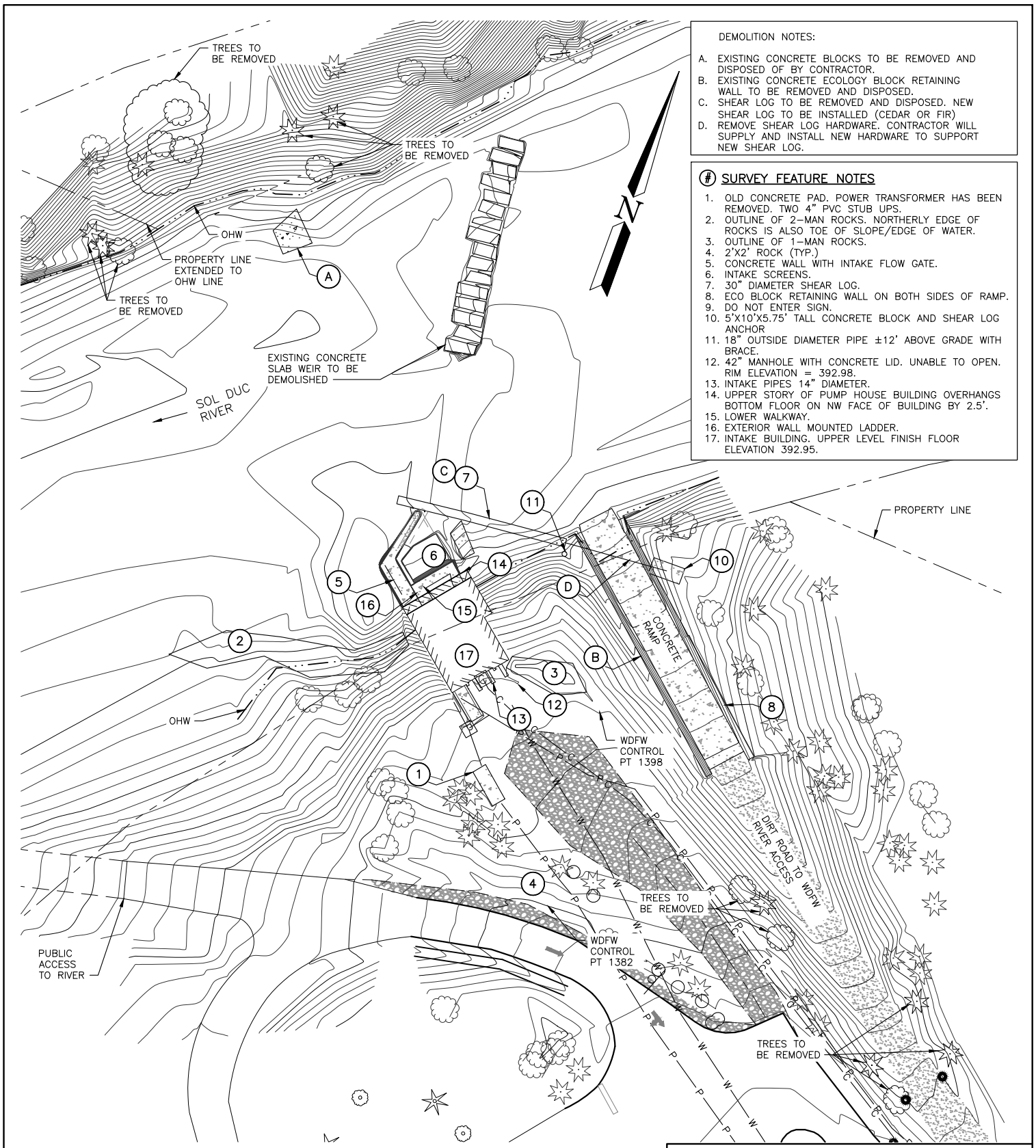
POINT #	EASTING	NORTHING	DESCRIPTION
7000	791216.49	404634.58	LOC
7001	791051.94	404387.40	LOC
7002	790957.58	404524.61	LOC
7003	790844.76	404510.92	LOC
7004	790731.71	404595.39	LOC
7005	790740.04	404650.06	LOC
7006	790592.08	404621.97	LOC
7007	790584.90	404643.41	LOC
7008	790564.18	404664.94	LOC
7009	790515.14	404715.98	LOC
7010	790591.85	404796.00	LOC
7011	790605.50	404816.38	LOC
7012	790632.34	404844.75	LOC
7013	790609.47	404876.42	LOC
7014	790663.16	404920.26	LOC
7015	790698.22	404894.95	LOC
7016	790733.68	404932.72	LOC
7017	790809.36	404811.78	LOC
7018	790964.75	404695.96	LOC
7019	790984.77	404714.73	LOC
7020	791038.82	404675.49	LOC
7021	791083.54	404714.88	LOC

IMPROVEMENT AREA (SQ FT)	
ABOVE OHW	BELOW OHW
5,710 ±	15,000 ±

DEWATERED AREA (SQ FT)
30,000 ±

REFERENCE NUMBER: NWS–2023–0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 4 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1
DRAWN BY: TETRA TECH



DEMOLITION NOTES:

A. EXISTING CONCRETE BLOCKS TO BE REMOVED AND DISPOSED OF BY CONTRACTOR.
B. EXISTING CONCRETE ECOLOGY BLOCK RETAINING WALL TO BE REMOVED AND DISPOSED.
C. SHEAR LOG TO BE REMOVED AND DISPOSED. NEW SHEAR LOG TO BE INSTALLED (CEDAR OR FIR)
D. REMOVE SHEAR LOG HARDWARE. CONTRACTOR WILL SUPPLY AND INSTALL NEW HARDWARE TO SUPPORT NEW SHEAR LOG.

(#) SURVEY FEATURE NOTES

1. OLD CONCRETE PAD. POWER TRANSFORMER HAS BEEN REMOVED. TWO 4" PVC STUB UPS.
2. OUTLINE OF 2-MAN ROCKS. NORTHERLY EDGE OF ROCKS IS ALSO TOE OF SLOPE/EDGE OF WATER.
3. OUTLINE OF 1-MAN ROCKS.
4. 2'X2' ROCK (TYP.)
5. CONCRETE WALL WITH INTAKE FLOW GATE.
6. INTAKE SCREENS.
7. 30" DIAMETER SHEAR LOG.
8. ECO BLOCK RETAINING WALL ON BOTH SIDES OF RAMP.
9. DO NOT ENTER SIGN.
10. 5'X10'X5.75' TALL CONCRETE BLOCK AND SHEAR LOG ANCHOR
11. 18" OUTSIDE DIAMETER PIPE ±12' ABOVE GRADE WITH BRACE.
12. 42" MANHOLE WITH CONCRETE LID. UNABLE TO OPEN. RIM ELEVATION = 392.98.
13. INTAKE PIPES 14" DIAMETER.
14. UPPER STORY OF PUMP HOUSE BUILDING OVERHANGS BOTTOM FLOOR ON NW FACE OF BUILDING BY 2.5'.
15. LOWER WALKWAY.
16. EXTERIOR WALL MOUNTED LADDER.
17. INTAKE BUILDING. UPPER LEVEL FINISH FLOOR ELEVATION 392.95.

DEMOLITION PLAN

0 20 40
10 30 60
SCALE: 1" = 40'

REFERENCE NUMBER: NWS-2023-0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 5 OF 20 DATE: 7-10-2024

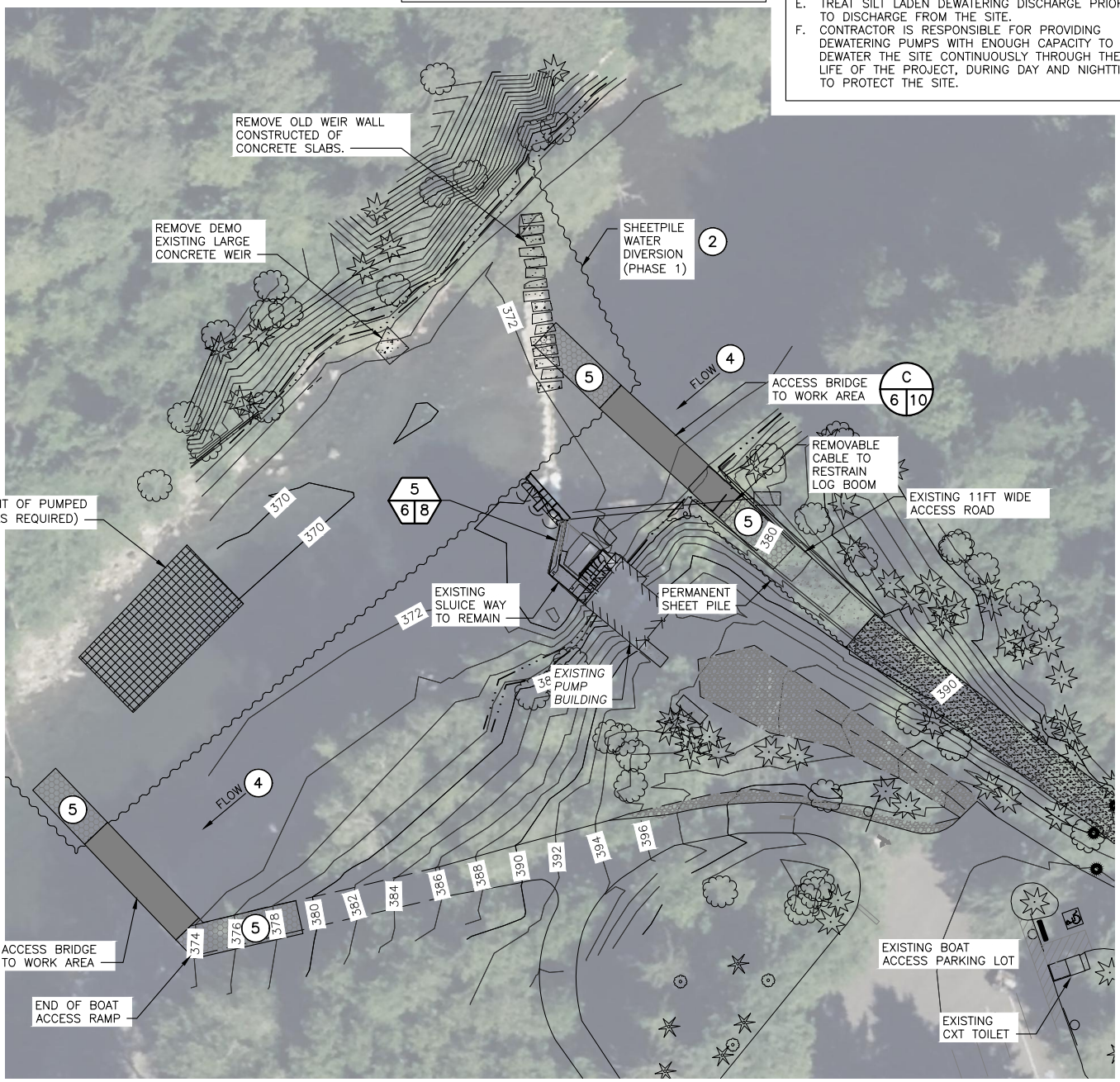
ENG. PROJECT NO. CM:H32:2023-1
DRAWN BY: TETRA TECH

OTHER NOTES:

1. FOR LONG TERM WORK ZONE ISOLATION AND/OR BANK STABILIZATION, INSTALL SHEET PILES WHERE SHOWN.
2. FOR TEMPORARY RIVER DIVERSION AND WORK ISOLATION, USE SHEET PILING AS ARRANGED OR AS DETERMINED BY CONTRACTOR FOR CONSTRUCTION DEWATERING.
3. CONTRACTOR MAY CHOOSE TO SHORTEN COFFERDAM LENGTH TO ISOLATE A SMALLER WORK AREA, AND RELOCATE DAM TO PROGRESS THE WORK FROM UPSTREAM TO DOWNSTREAM.
4. ROUTE FLOWS AWAY FROM WORK AREAS & MAINTAIN WATER DEPTH FOR INTAKE SCREEN OPERATION WHEN IN USE.
5. CONSTRUCT TEMPORARY ACCESS RAMP WITH IMPORTED OR ON-SITE FILL

GENERAL NOTES:

A. SEQUENCING & DEWATERING PLAN IS CONCEPTUAL IN NATURE, AND IS INTENDED TO OUTLINE THE GENERAL WORK ACTIVITIES & PROGRESSION OF WORK.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING APPROPRIATE MEANS AND METHODS TO COMPLETE ALL WORK ELEMENTS AND COMPLY WITH ALL PERMIT REQUIREMENTS AND CONSTRAINTS SHOWN IN THE CONTRACT DOCUMENTS.
C. PREPARE AND SUBMIT DETAILED SEQUENCING AND DEWATERING PLANS FOR REVIEW, PRIOR TO COMMENCING ANY WORK BELOW ORDINARY HIGH WATER.
D. USE TURBIDITY CURTAINS AROUND WORK AREAS AS NEEDED TO PREVENT DISCHARGE OF SILT LADEN WATER FROM THE CONSTRUCTION SITE.
E. TREAT SILT LADEN DEWATERING DISCHARGE PRIOR TO DISCHARGE FROM THE SITE.
F. CONTRACTOR IS RESPONSIBLE FOR PROVIDING DEWATERING PUMPS WITH ENOUGH CAPACITY TO DEWATER THE SITE CONTINUOUSLY THROUGH THE LIFE OF THE PROJECT, DURING DAY AND NIGHTTIME, TO PROTECT THE SITE.



DEWATERING PLAN PHASE 1

SCALE: 1" = 60'

0 20 40 60
10 30 50 90

SCALE: 1" = 60'

REFERENCE NUMBER: NWS-2023-0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 6 OF 20 DATE: 7-10-2024

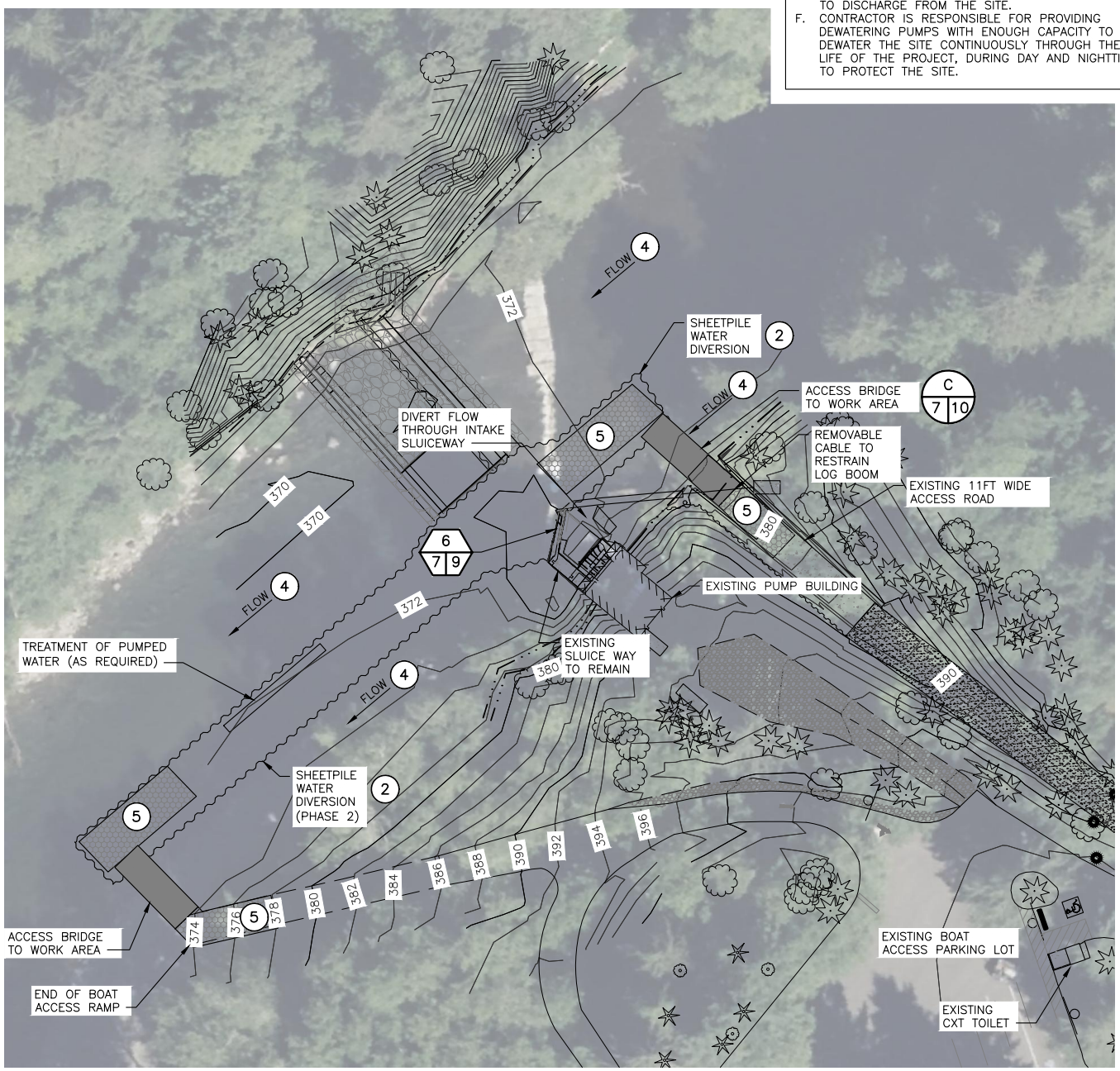
ENG. PROJECT NO. CM:H32:2023-1
DRAWN BY: TETRA TECH

OTHER NOTES:

1. FOR LONG TERM WORK ZONE ISOLATION AND/OR BANK STABILIZATION, INSTALL SHEET PILES WHERE SHOWN.
2. FOR TEMPORARY RIVER DIVERSION AND WORK ISOLATION, USE SHEET PILING AS ARRANGED OR AS DETERMINED BY CONTRACTOR FOR CONSTRUCTION DEWATERING.
3. CONTRACTOR MAY CHOOSE TO SHORTEN COFFERDAM LENGTH TO ISOLATE A SMALLER WORK AREA, AND RELOCATE DAM TO PROGRESS THE WORK FROM UPSTREAM TO DOWNSTREAM.
4. ROUTE FLOWS AWAY FROM WORK AREAS & MAINTAIN WATER DEPTH FOR INTAKE SCREEN OPERATION WHEN IN USE.
5. CONSTRUCT TEMPORARY ACCESS RAMP WITH IMPORTED OR ON-SITE FILL

GENERAL NOTES:

A. SEQUENCING & DEWATERING PLAN IS CONCEPTUAL IN NATURE, AND IS INTENDED TO OUTLINE THE GENERAL WORK ACTIVITIES & PROGRESSION OF WORK.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING APPROPRIATE MEANS AND METHODS TO COMPLETE ALL WORK ELEMENTS AND COMPLY WITH ALL PERMIT REQUIREMENTS AND CONSTRAINTS SHOWN IN THE CONTRACT DOCUMENTS.
C. PREPARE AND SUBMIT DETAILED SEQUENCING AND DEWATERING PLANS FOR REVIEW, PRIOR TO COMMENCING ANY WORK BELOW ORDINARY HIGH WATER.
D. USE TURBIDITY CURTAINS AROUND WORK AREAS AS NEEDED TO PREVENT DISCHARGE OF SILT LADEN WATER FROM THE CONSTRUCTION SITE.
E. TREAT SILT LADEN DEWATERING DISCHARGE PRIOR TO DISCHARGE FROM THE SITE.
F. CONTRACTOR IS RESPONSIBLE FOR PROVIDING DEWATERING PUMPS WITH ENOUGH CAPACITY TO DEWATER THE SITE CONTINUOUSLY THROUGH THE LIFE OF THE PROJECT, DURING DAY AND NIGHTTIME, TO PROTECT THE SITE.



DEWATERING PLAN PHASE 2

SCALE: 1" = 60'

0 20 40 60
10 30 50 90

SCALE: 1" = 60'

ENG. PROJECT NO. CM:H32:2023-1

DRAWN BY: TETRA TECH

REFERENCE NUMBER: NWS-2023-0841

APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE

PROPOSED PROJECT:
WEIR REPLACEMENT

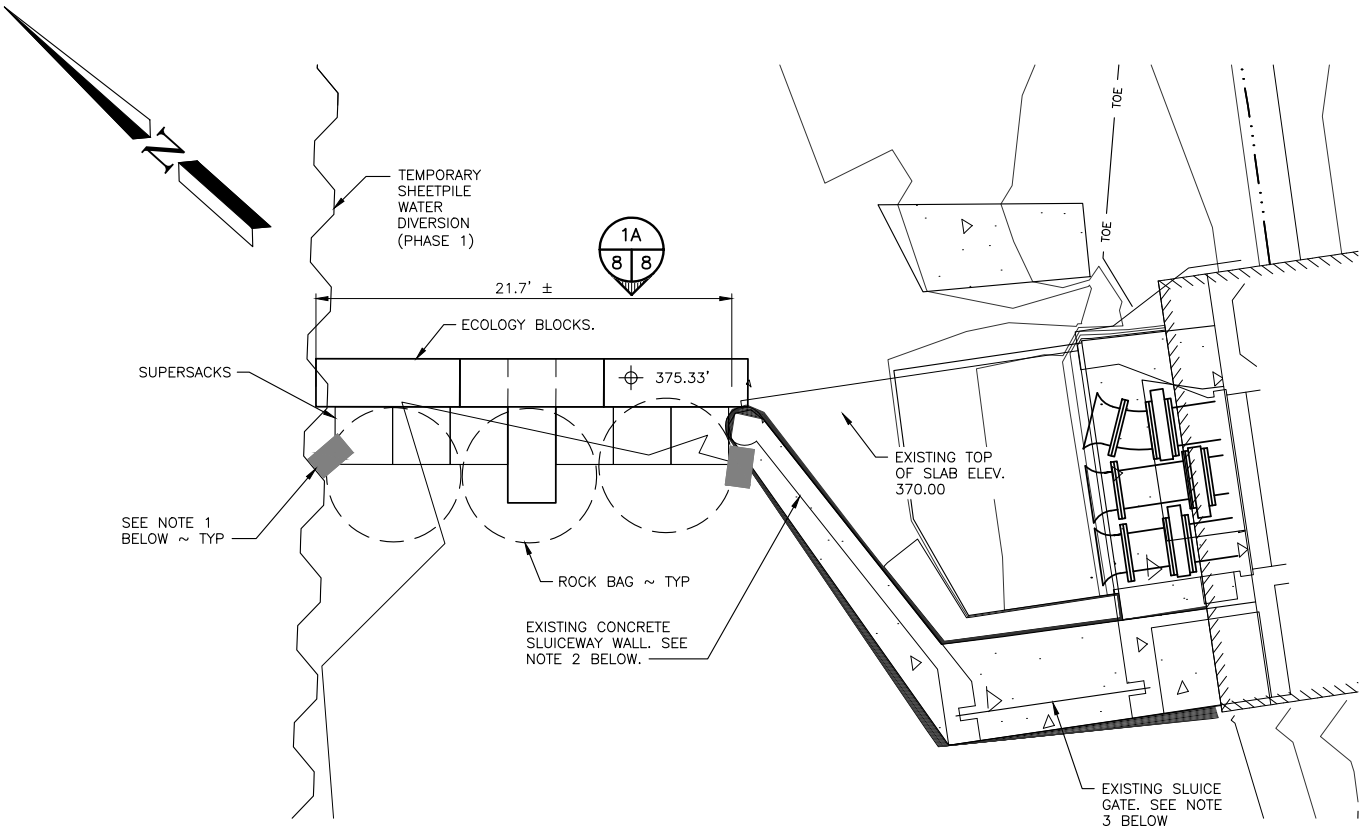
LOCATION: SOL DUC HATCHERY

SHEET 7 OF 20 DATE: 7-10-2024

QUANTITIES TABLE			
	QTY	WEIGHT (CY)	TOTAL CY
ROCK BAGS	3	2.3	6.9
SUPERSACKS	6	1.2	7.2
ULTRA BLOCKS	6	–	–
		TOTAL CY	14.1

(1) ULTRABLOCK 4X BEAM
2.5' x 2.5 x 10' – 8640 LBS

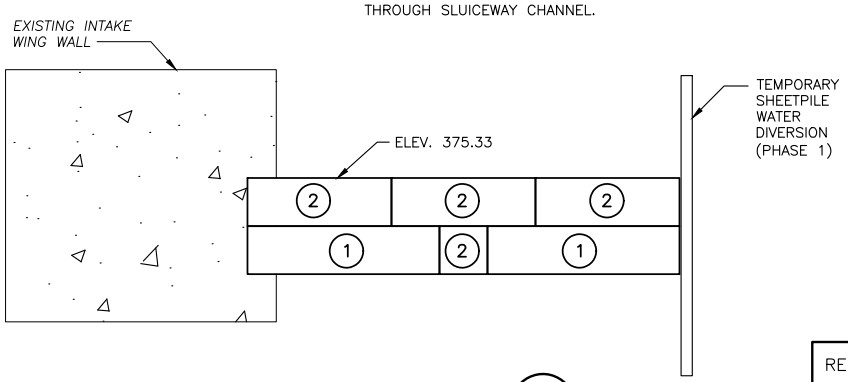
(2) ULTRABLOCK 3X BEAM
2.5' x 2.5 x 7.5' – 6480 LBS



DETAIL (PHASE 1) 5 6 8
SCALE: 1" = 10'

0 2 4 6 8 10 15
SCALE: 1" = 10'

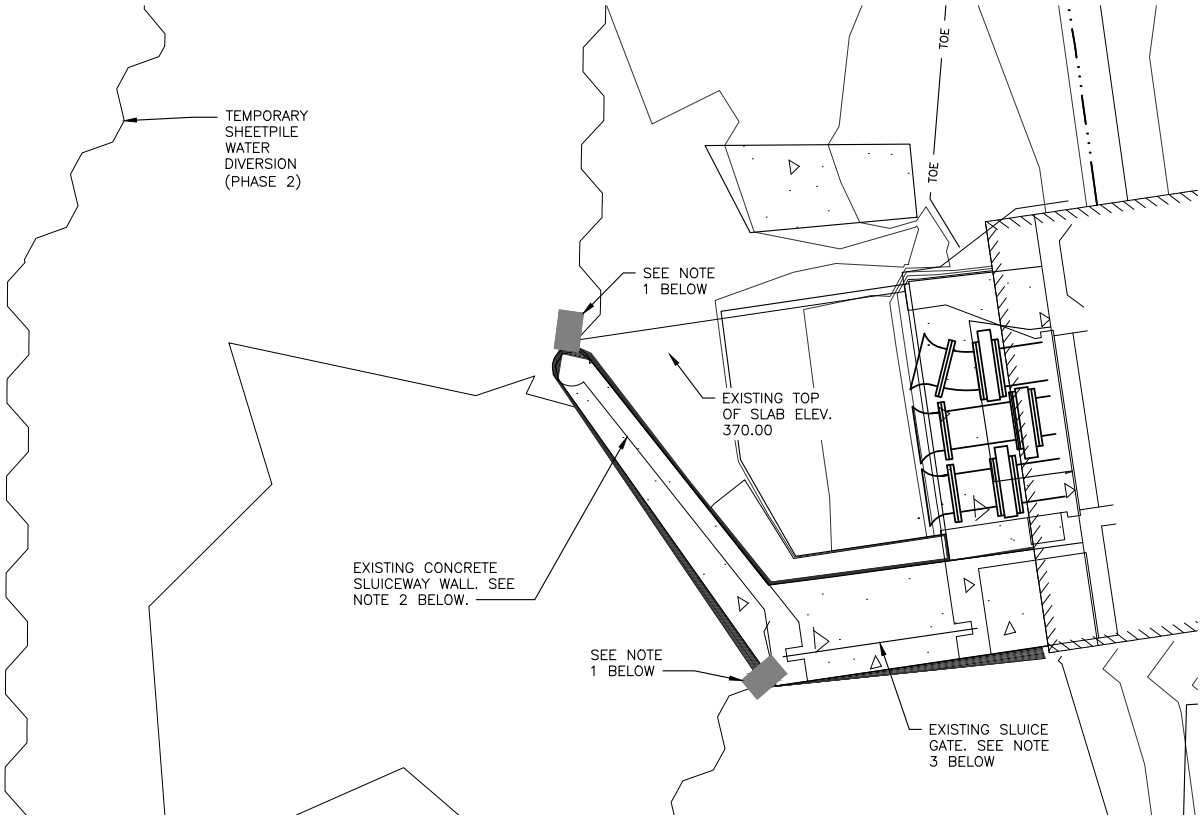
NOTES:
1. INSTALL SANDBAGS, SUPERSACKS, AND/OR ROCKBAGS AS REQUIRED TO CREATE WATERTIGHT CONNECTION.
2. HEIGHT OF ECOLOGY BLOCK WALL SHALL BE 375.33 TO MAINTAIN WATER DEPTH TO INTAKE.
3. RAISE EXISTING SLUICE GATE TO DIRECT RIVER FLOW THROUGH SLUICEWAY CHANNEL.



ELEVATION 1A 8 8
SCALE: 1" = 10'

REFERENCE NUMBER: NWS–2023–0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 8 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1
DRAWN BY: TETRA TECH



DETAIL (PHASE 1)

SCALE: 1" = 5'

6
6 | 9

NOTES:

1. INSTALL SANDBAGS, SUPERSACKS, AND/OR ROCKBAGS AS REQUIRED TO CREATE WATERTIGHT CONNECTION.
2. RAISE EXISTING SLUICE GATE TO DIRECT RIVER FLOW THROUGH SLUICEWAY CHANNEL.

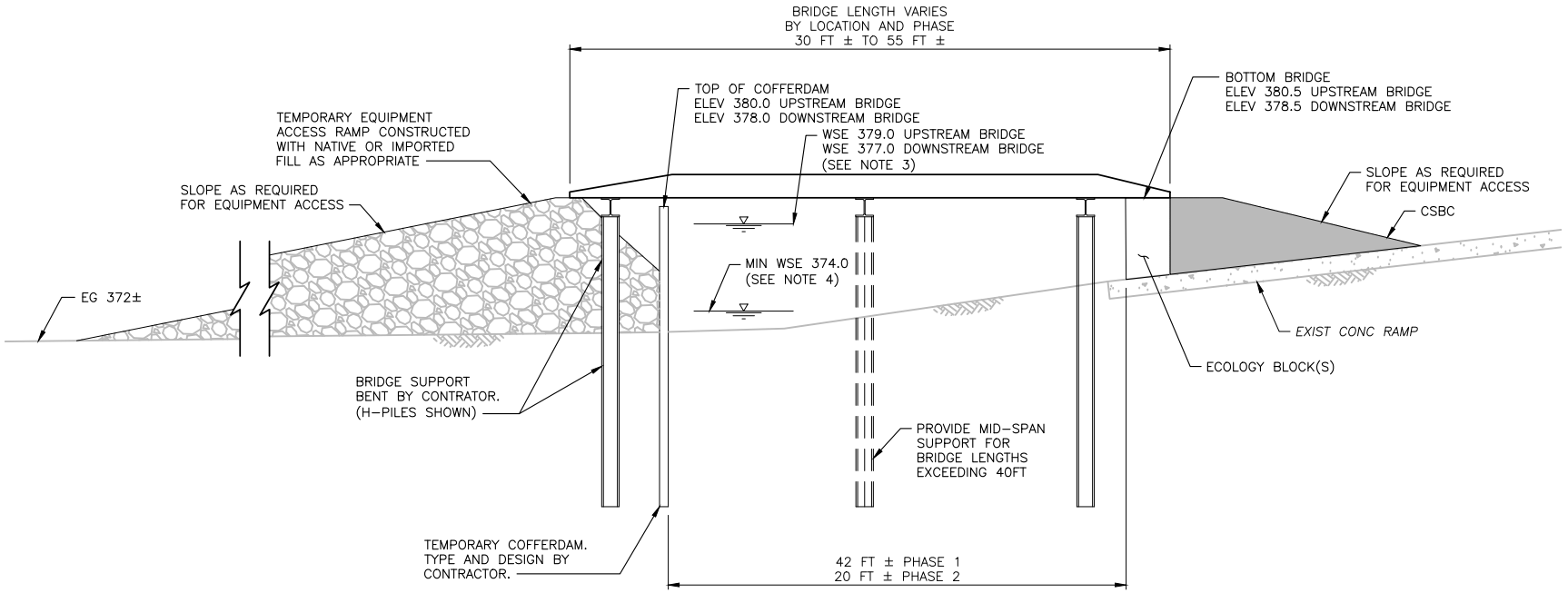
0 2 4 7.5
1 3 5

SCALE: 1" = 5'

REFERENCE NUMBER: NWS–2023–0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 9 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1

DRAWN BY: TETRA TECH



SECTION ACCESS BRIDGE

SCALE: 1" = 10'

C 6|10 C 7|10

ACCESS BRIDGE NOTES

1. BRIDGE LAYOUT IS CONCEPTUAL IN NATURE AND IS INTENDED TO SHOW APPROXIMATE HEIGHT AND SPAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRIDGE DESIGN AND IMPLEMENTATION.
2. PREPARE AND SUBMIT DETAILED DRAWINGS, CALCS, AND SEQUENCING PLANS FOR REVIEW PRIOR TO COMMENCING WORK.
3. APPROXIMATE WATER SURFACE ELEVATION AT 900 CFS RIVER FLOW.
4. MINIMUM REQUIRED WATER SURFACE TO MAINTAIN ADEQUATE SUBMERGENCE OF EXISTING INTAKE PUMPS.

0 2 4 6 8 10 15

SCALE: 1" = 10'

ENG. PROJECT NO. CM:H32:2023-1

DRAWN BY: TETRA TECH

REFERENCE NUMBER: **NWS-2023-0841**

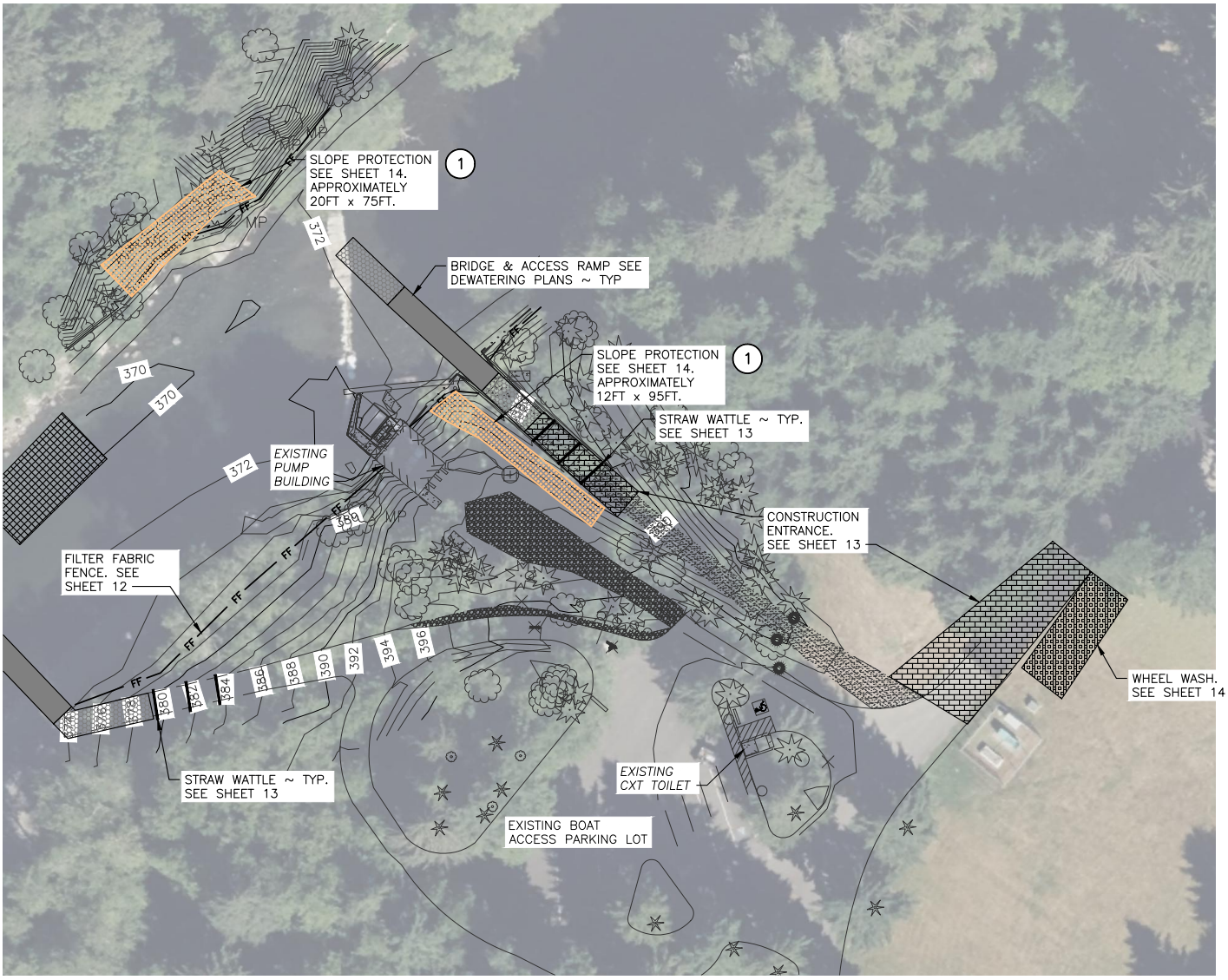
APPLICANT NAME: WASHINGTON DEPT. of FISH & WILDLIFE

PROPOSED PROJECT: WEIR REPLACEMENT

LOCATION: SOL DUC HATCHERY

SHEET 10 OF 20 DATE: 7-10-2024

NOTE:
1. SEED AND PLANT WITH SALMON BERRY



EROSION CONTROL PLAN

SCALE: 1" = 80'

0 40 80
20 60 100

SCALE: 1" = 80'

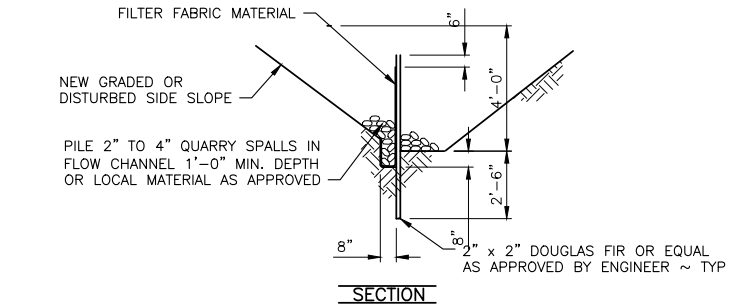
REFERENCE NUMBER: NWS-2023-0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 11 OF 20 DATE: 7-10-2024

ENG. PROJECT NO. CM:H32:2023-1

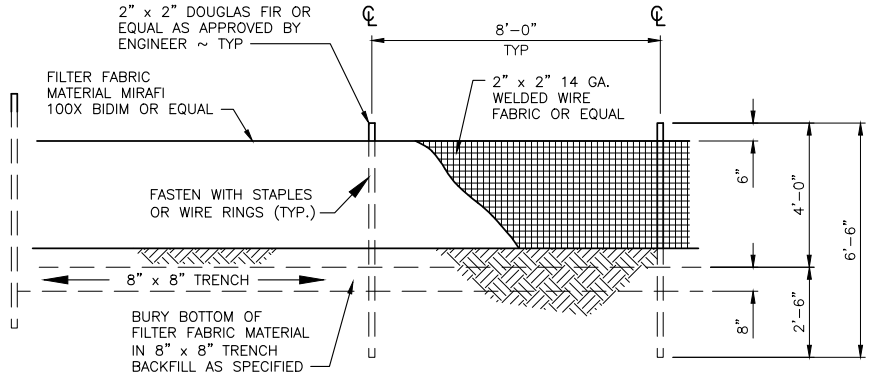
DRAWN BY: TETRA TECH

EROSION AND SEDIMENT CONTROL PLAN STANDARD NOTES:

1. APPROVAL OF THIS EROSION & SEDIMENT CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES).
2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
4. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
5. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
6. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
7. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.
8. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
9. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
10. ALL STRAW UTILIZED SHALL BE WEED-FREE.



SECTION



FILTER FABRIC FENCE

NOT TO SCALE

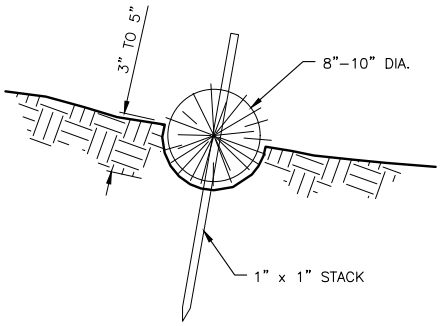
G1-12

FILTER FABRIC NOTES:

1. FILTER FABRIC SHALL BE PURCHASED CONTINUOUS ROLL CUT TO LENGTH OF BARRIER AS NEEDED. IF JOINTS ARE NECESSARY FABRIC SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POSTS WITH A MINIMUM OF (6) INCH OVERLAP. BOTH ENDS SHALL BE SECURED AS REQUIRED.
2. FILTER FABRIC SHALL BE INSTALLED TO FOLLOW CONTOURS. FENCE POSTS SHALL BE SPACED A MAXIMUM OF EIGHT (8) FEET APART UNLESS OTHERWISE SHOWN HEREIN. ALL POSTS SHALL BE DRIVEN INTO THE GROUND A MINIMUM OF 30 INCHES.
3. A TRENCH SHALL BE EXCAVATED, ROUGHLY EIGHT (8) INCHES WIDE BY EIGHT (8) INCHES DEEP UP SLOPE AND ADJACENT TO THE POST TO ALLOW THE FILTER FABRIC TO BE BURIED.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS UTILIZED, A WIRE SINGLE SPACE MESH SUPPORT FENCE SHALL BE FASTENED TO THE UPSLOPE (OR UPSTREAM) SIDE OF THE POSTS USING ONE (1) INCH MINIMUM LENGTH WIRE STAPLES, TIE WIRE OR APPROVED HOG RINGS. ALL WIRE SUPPORT SHALL EXTEND INTO THE TRENCH A MINIMUM OF FOUR (4) INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE ORIGINAL GRADE.
5. ALL FILTER FABRIC SHALL BE STAPLED OR WIRED TO SUPPORT FENCING AND A MINIMUM OF 20 INCHES OF FABRIC SHALL BE EXTENDED INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED OR FASTENED TO EXISTING TREES OF STRUCTURES UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. IF HIGH STRENGTH FILTER FABRIC AND CLOSER SPACING ARE USED, THE WIRE SUPPORT FENCING MAY BE ELIMINATED. HIGH STRENGTH FABRIC SHALL BE STAPLED OR WIRED DIRECTLY TO POSTS AS REQUIRED BY THE ENGINEER.
7. CUTOFF TRENCH SHALL BE BACKFILLED WITH 3/4 INCH MINIMUM DIAMETER WASHED GRAVEL OR OTHER SIMILAR SOURCE AS APPROVED BY THE ENGINEER.
8. FILTER FENCING SHALL BE INSTALLED WHERE SHOWN ON THE PLAN, OR AS MARKED IN THE FIELD BY THE ENGINEER, PRIOR TO COMMENCEMENT OF WORK. ALL FENCING SHALL BE INSPECTED DAILY DURING CONSTRUCTION AND AFTER EACH SIGNIFICANT RAINFALL EVENT UNTIL SITE HAS BEEN PERMANENTLY STABILIZED. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. REMOVAL OF TRAPPED SEDIMENT SHALL BE PERFORMED WHEN AMOUNTS REACH APPROXIMATELY 1/3 HEIGHT OF THE FENCE. CONTRACTOR SHALL REINFORCE FENCE AS REQUIRED TO WITHSTAND SEDIMENT LOAD.
10. FILTER FENCING SHALL REMAIN IN-PLACE UNTIL SITE HAS BEEN REVEGETATED TO ORIGINAL CONDITION OR DIRECTED BY THE ENGINEER.

REFERENCE NUMBER: NWS-2023-0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 12 OF 20 DATE: 7-10-2024

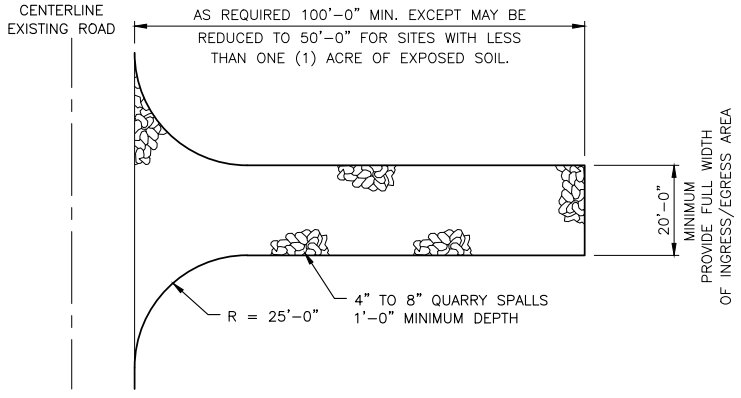
ENG. PROJECT NO. CM:H32:2023-1 DRAWN BY: TETRA TECH



STRAW WATTLE DETAIL
NOT TO SCALE — G3–13

CONSTRUCTION SPECIFICATIONS:

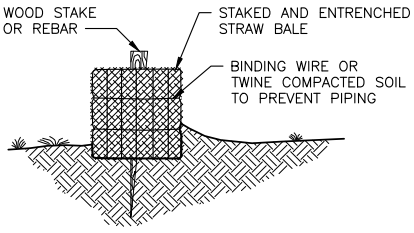
1. PREPARE THE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED.
2. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
3. DIG SMALL TRENCHES ACROSS THE SLOPE ON CONTOUR, TO PLACE ROLLS IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE ROLL. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE ROLL 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE.
4. IT IS CRITICAL THAT ROLLS ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
5. START BUILDING TRENCHES AND INSTALL ROLLS FROM THE BOTTOM OF THE SLOPE AND WORK UP.
6. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF 3–12 FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES. 1:1=10' 2:1=20' 3:1=30' 4:1=40'
7. LAY THE ROLL ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE.
8. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WILLOW OR WOODEN STAKES.
9. DRIVE THE STAKE THROUGH PREPARED HOLE INTO SOIL. LEAVE ONLY 1 OR 2 INCHES OF STAKE EXPOSED ABOVE ROLL.
10. IF USING WILLOW STAKES REFER TO LIVE STAKING BEST MANAGEMENT PRACTICES.
11. INSTALL STAKES AT LEAST EVERY 4 FEET APART THROUGH THE WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY EROSIVE OR VERY STEEP SLOPES.
12. INSPECT THE STRAW ROLLS AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE ROLLS ARE IN CONTACT WITH THE SOIL.
13. REPAIR ANY RILLS OR GULLYS PROMPTLY.
14. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.



CONSTRUCTION ENTRANCE
NOT TO SCALE — G4–13

CONSTRUCTION ENTRANCE NOTES:

1. MATERIAL SHALL BE 4 INCH TO 8 INCH QUARRY SPALLS AND MAY BE TOP–DRESSED WITH 1 INCH TO 3 INCH ROCK. WSDOT 9–13.1 (5)
2. THE ROCK PAD SHALL BE AT LEAST 12 INCHES THICK AND 100 FEET LONG (50 FEET FOR SITES WITH LESS THAN 1 ACRE). WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA. SMALLER PADS MAY BE APPROVED FOR SINGLE–FAMILY RESIDENTIAL AND SMALL COMMERCIAL SITES.
3. ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
4. IF THE PAD DOES NOT ADEQUATELY REMOVE THE MUD FROM THE VEHICLE WHEELS, THE WHEELS SHALL BE HOSED OFF BEFORE THE VEHICLE ENTERS A PAVED STREET. THE WASHING SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK AND WASH WATER SHALL DRAIN TO A SEDIMENT RETENTION FACILITY OR THROUGH A SILT FENCE



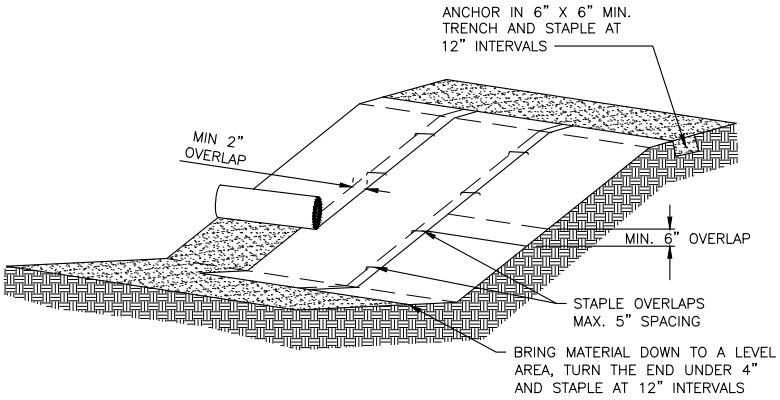
STRAW BALE DETAIL
NOT TO SCALE — G2–13

STRAW BALES

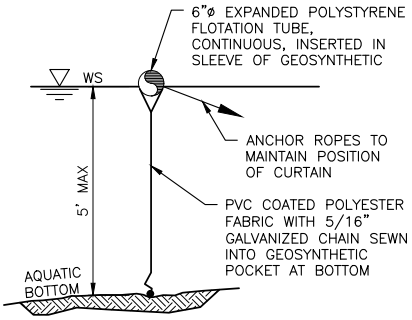
1. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
2. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE A MINIMUM OF 4 INCHES. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP 4 INCHES AGAINST THE UPHILL SIDE OF THE BARRIER. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST 2 STAKES OR REBAR DRIVEN THROUGH THE BALE.
3. THE GAP BETWEEN THE BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES.

REFERENCE NUMBER: **NWS–2023–0841**
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 13 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1 DRAWN BY: TETRA TECH



SLOPE PROTECTION DETAIL
NOT TO SCALE — G5 – 14

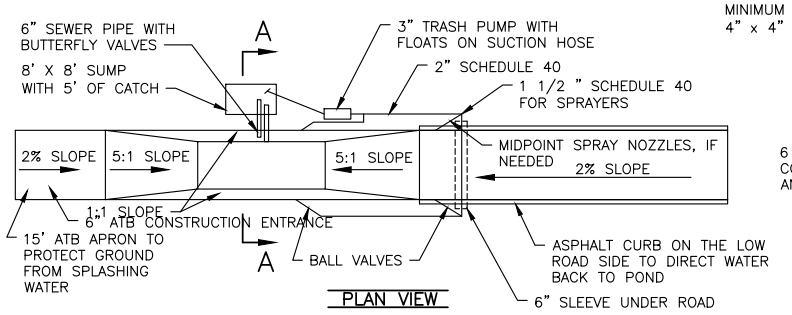


TURBIDITY CURTAIN
NOT TO SCALE — G8 – 14

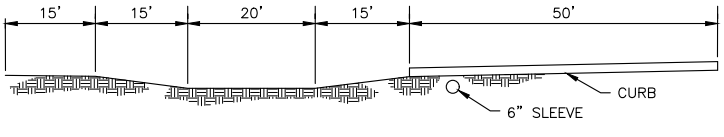
NOTES:
1. FABRIC IS 22 OZ/YD²
2. A LARGER FLOAT AND ADDITIONAL BALLAST WEIGHT IS REQUIRED FOR DEPTHS GREATER THAN 5 FEET.

SLOPE PROTECTION NOTES:

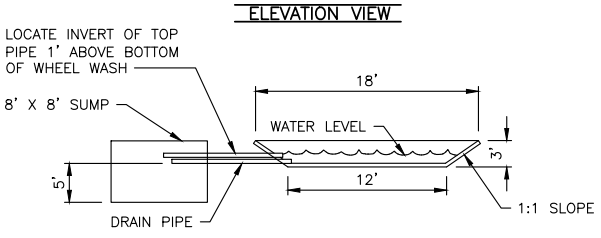
1. SLOPE SURFACE SHALL BE SMOOTH BEFORE PLACEMENT FOR PROPER SOIL CONTACT.
2. STAPLING PATTERN AS PER MANUFACTURER'S RECOMMENDATIONS.
3. DO NOT STRETCH BLANKETS/MATTINGS TIGHT – ALLOW THE ROLLS TO MOLD TO ANY IRREGULARITIES.
4. FOR SLOPES LESS THAN 3H:1V, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS.
5. IF THERE IS A BERM AT THE TOP OF THE SLOPE, ANCHOR UPSLOPE OF THE BERM.
6. LIME, FERTILIZE, AND SEED BEFORE INSTALLATION. PLANTING OF SHRUBS, TREES, ETC. SHOULD OCCUR AFTER INSTALLATION.



PLAN VIEW



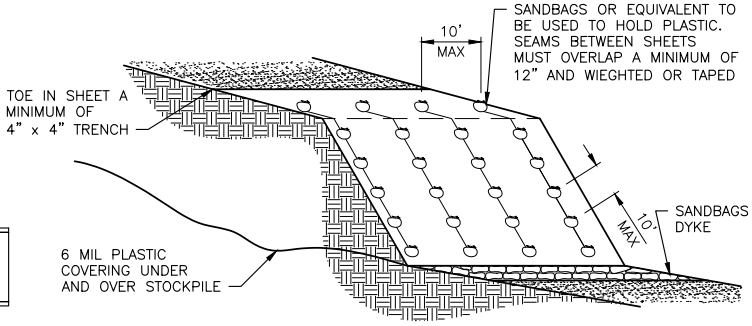
ELEVATION VIEW



SECTION A–A

NOTES:
1. BUILD 8' X 8' SUMP TO ACCOMODATE CLEANING BY TRACKHOE.

WHEEL WASH DETAIL
NOT TO SCALE — G7 – 14



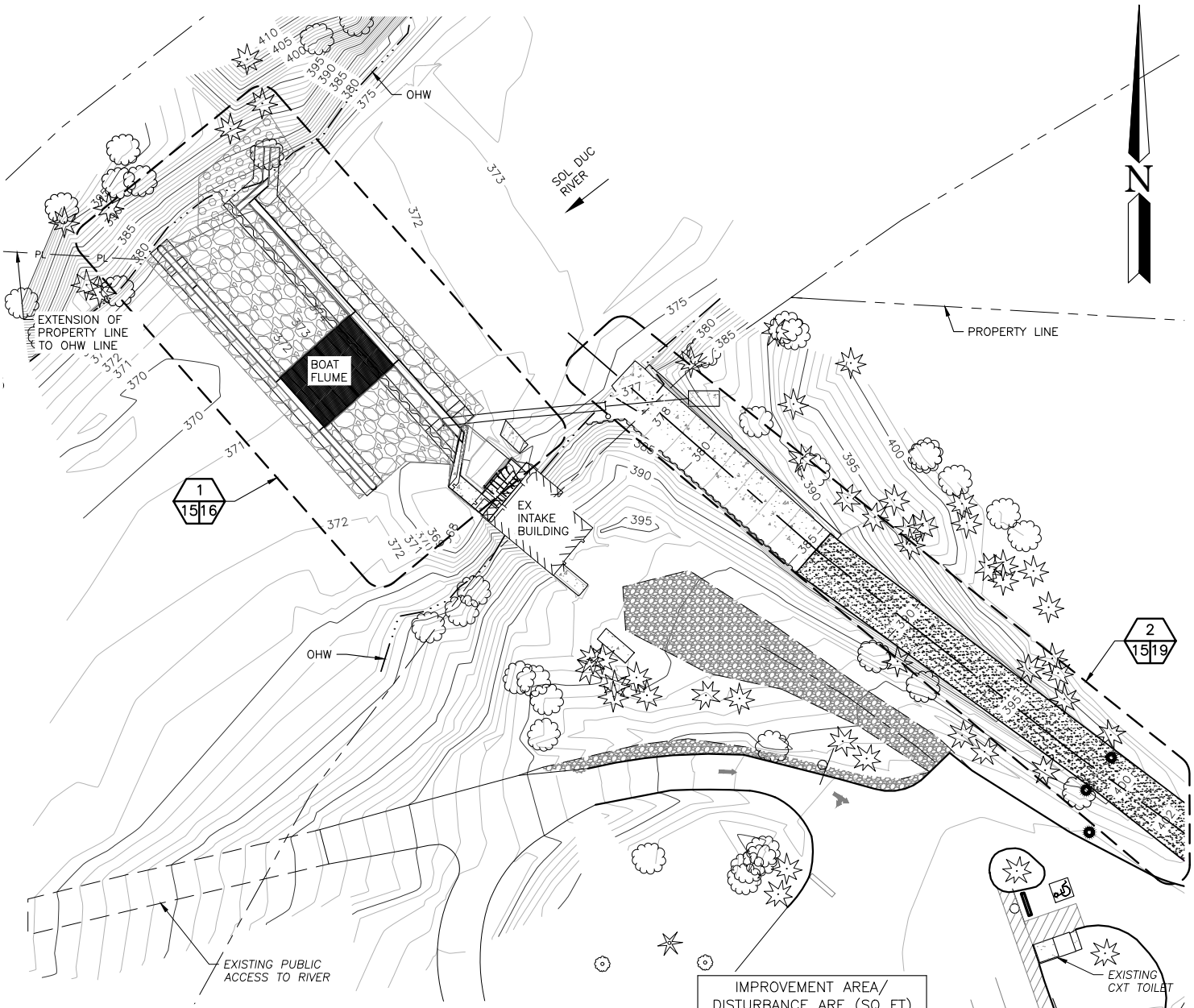
STOCK PILE COVERING DETAIL
NOT TO SCALE — G6 – 14

SOIL STOCKPILE NOTES:

1. STOCKPILES SHALL BE STABILIZED (WITH PLASTIC COVERING OR OTHER APPROVED DEVICE) DAILY BETWEEN NOVEMBER 1 AND MARCH 31.
2. IN ANY SEASON, SEDIMENT LEACHING FROM STOCK PILES MUST BE PREVENTED.
3. TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBGRADE IS EXCESSIVELY WET, OR WHEN CONDITIONS EXIST THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING.
4. PREVIOUSLY ESTABLISHED GRADES ON THE AREAS TO BE TOPSOILED SHALL BE MAINTAINED ACCORDING TO THE APPROVED PLAN.

REFERENCE NUMBER: **NWS–2023–0841**
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 14 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1
DRAWN BY: TETRA TECH



CUT AND FILL DATA (CUBIC YARDS)

SITE	MATIERAL	CUT ABOVE OHW	CUT BELOW OHW	FILL ABOVE OHW	FILL BELOW OHW
ACCESS ROAD	EXISTING ROAD MATERIAL	90	15	–	–
	RETAINING WALL ECO BLOCKS	25	5	–	–
	CSTC	–	–	75	20
EXISTING WEIR	CONCRETE BLOCK	–	120	–	–
NEW WEIR	WEIR	–	–	–	235
	EROSION WEIR	–	–	–	90
	RIVER ALUVIAL	–	–	–	900
	CLASS B/C BOULDERS	–	–	10	15
	EXISTING RIVER MATERIAL	–	1000	–	
	EXISTING HILLSIDE MATERIAL	1000	–	1000	–
	CSBC	–	–	–	115
TOTAL		1115	1140	1085	1375

IMPROVEMENT AREA/ DISTURBANCE ARE (SQ FT)	
ABOVE OHW	BELOW OHW
5,710 ±	15,000 ±

TREE REMOVAL ±:
8 TREES (ACCESS ROAD)
10 TREES (WEIR)

1. ± DEPENDS ON MEANS AND METHODS OF CONTRACTOR
2. 3X TREE SAPLINGS TO BE PLANTED FOR EVERY TREE REMOVED.

SHEET PILE QUANTITIES ±:
115 LF PERMANENT ABOVE OHWM (ACCESS ROAD)
100 LF PERMANENT BELOW OHWM (WEIR)
825 LF REMOVED BELOW OHWM (DEWATERING)

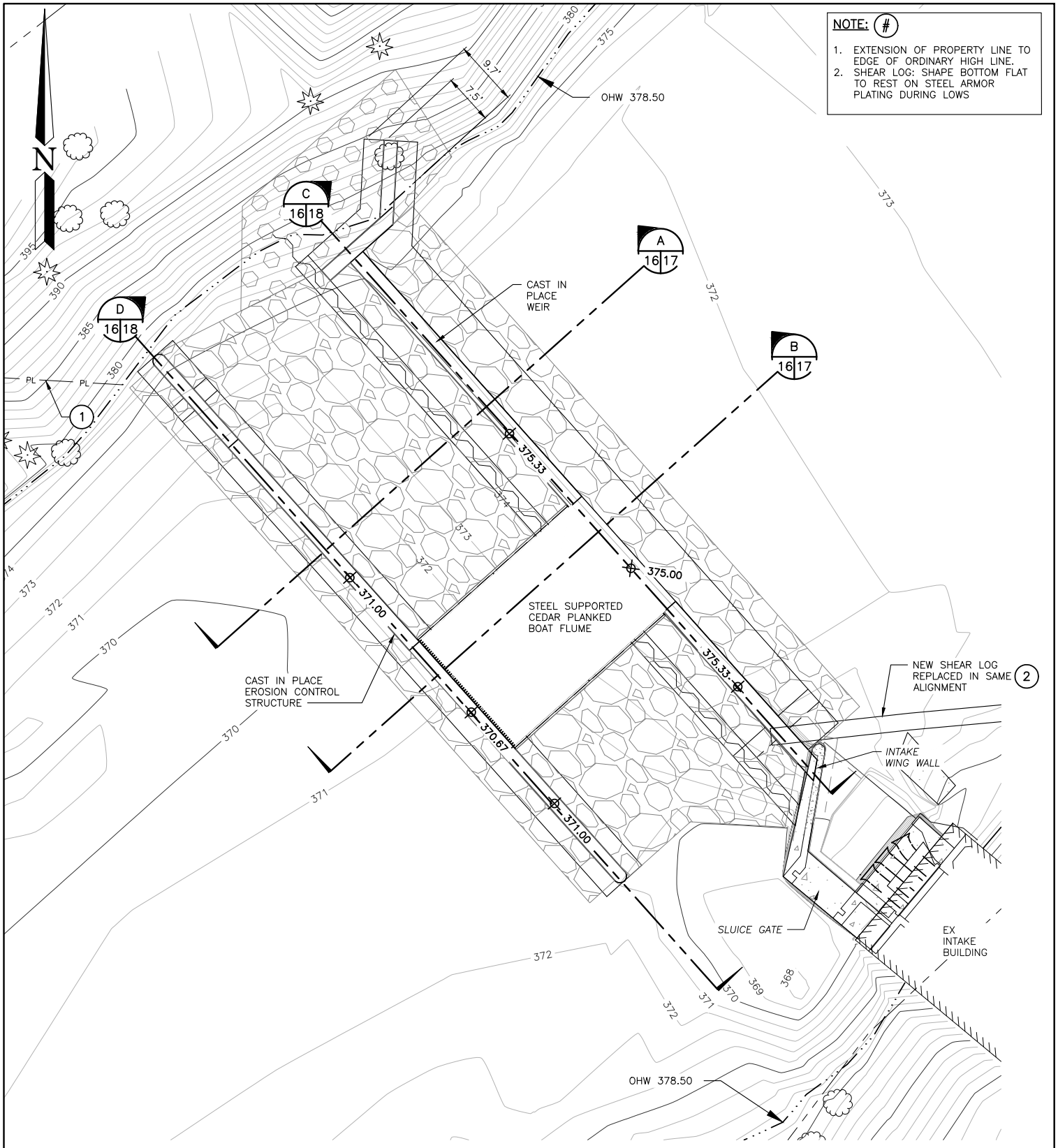
UP TO 16 PIN PILES FOR TEMPORARY BRIDGES

OVERALL PROPOSED SITE PLAN

0 20 40 75
10 30 50
SCALE: 1" = 50'

REFERENCE NUMBER: NWS–2023–0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 15 OF 20 DATE: 7–10–2024

ENG. PROJECT NO. CM:H32:2023–1
DRAWN BY: TETRA TECH



PROPOSED WEIR SITE PLAN

SCALE: 1" = 20'

1
15 16

0 5 10 15 20 30

SCALE: 1" = 20'

REFERENCE NUMBER: NWS–2023–0841

APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE

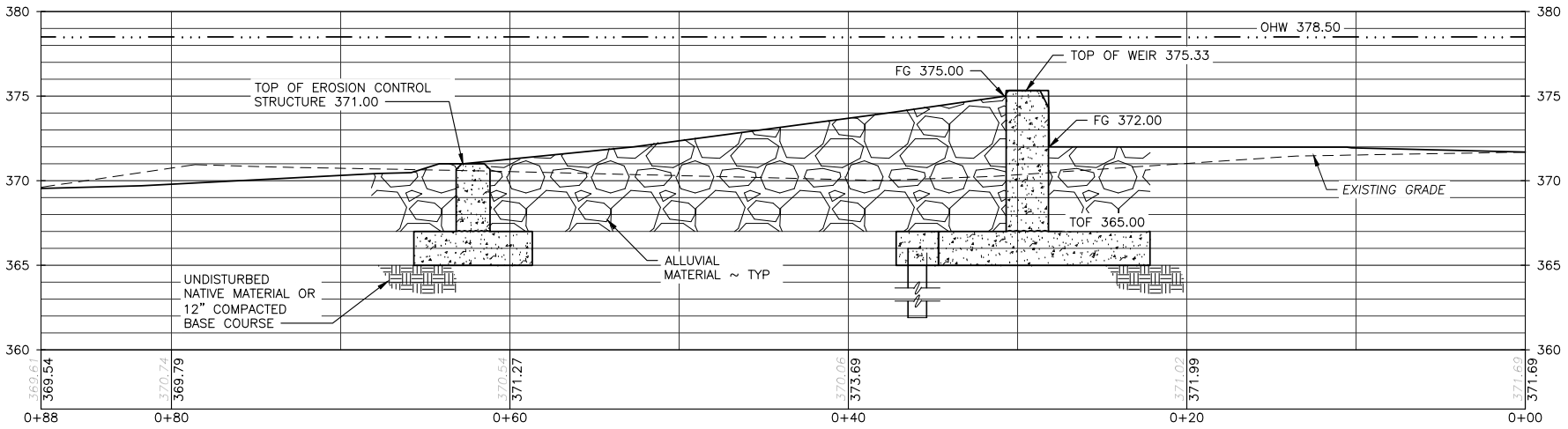
PROPOSED PROJECT:
WEIR REPLACEMENT

LOCATION: SOL DUC HATCHERY

ENG. PROJECT NO. CM:H32:2023–1

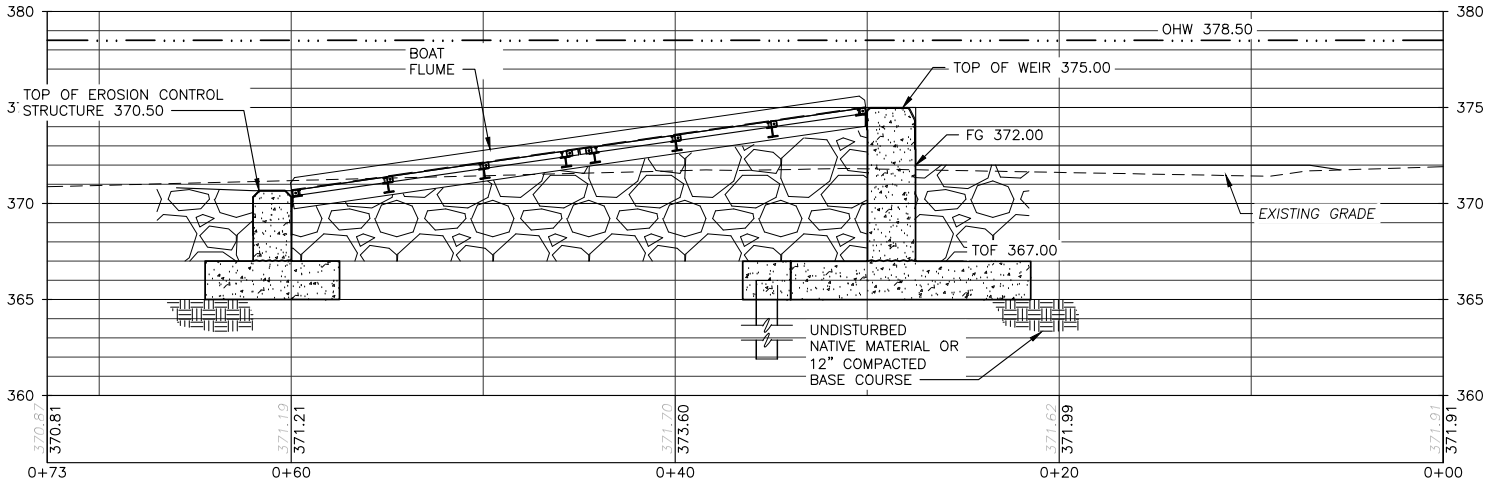
DRAWN BY: TETRA TECH

SHEET 16 OF 20 DATE: 7–10–2024



SECTION
SCALE: 1" = 5'

A
16|17



SECTION
SCALE: 1" = 5'

B
16|17

ENG. PROJECT NO. CM:H32:2023-1

DRAWN BY: TETRA TECH

REFERENCE NUMBER: NWS-2023-0841

APPLICANT NAME: WASHINGTON DEPT. of FISH & WILDLIFE

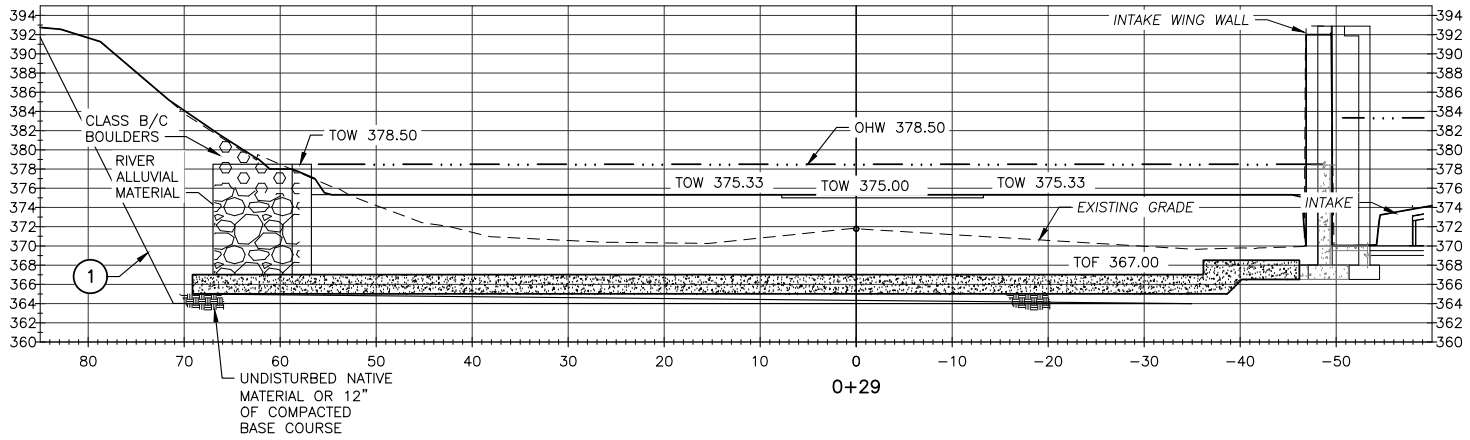
PROPOSED PROJECT: WEIR REPLACEMENT

LOCATION: SOL DUC HATCHERY

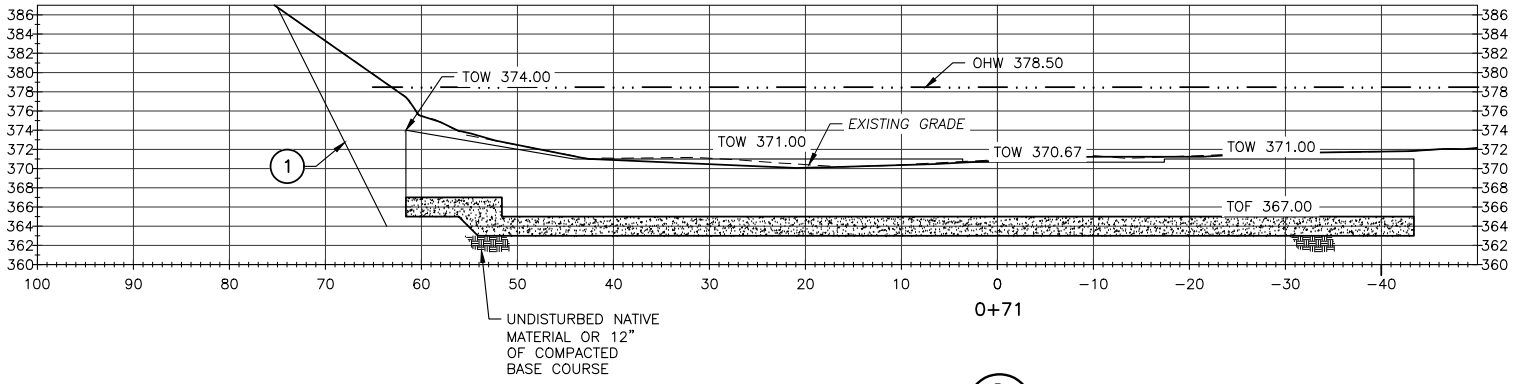
SHEET 17 OF 20 DATE: 7-10-2024

NOTE: (#)

1. 2:1 CUT SLOPE SHOWN. CONTRACTOR IS RESPONSIBLE FOR STABILIZING HILL SIDE THROUGH THE LIFE OF CONSTRUCTION. BACKFILL WITH NATIVE OR IMPORTED FILL AS APPROPRIATE.



SECTION C
SCALE: 1" = 10'
16|18



SECTION D
SCALE: 1" = 5'
16|18

ENG. PROJECT NO. CM:H32:2023-1

DRAWN BY: TETRA TECH

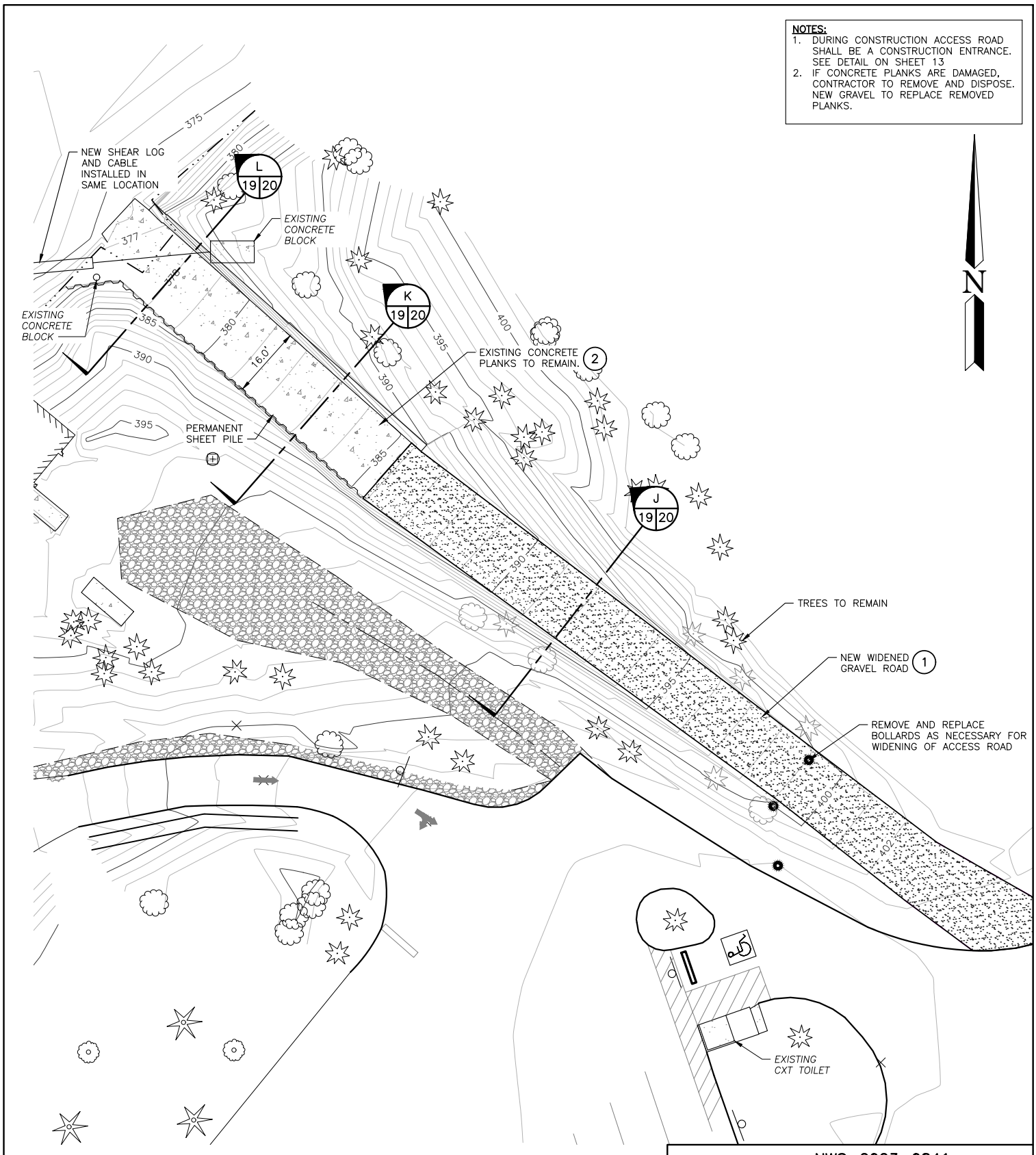
REFERENCE NUMBER: NWS-2023-0841

APPLICANT NAME: WASHINGTON DEPT. of FISH & WILDLIFE

PROPOSED PROJECT: WEIR REPLACEMENT

LOCATION: SOL DUC HATCHERY

SHEET 18 OF 20 DATE: 7-10-2024



PROPOSED ACCESS ROAD PLAN

2
15 19

SCALE: 1" = 30'

0 10 20 30
5 15 25 45

SCALE: 1" = 30'

ENG. PROJECT NO. CM:H32:2023-1

DRAWN BY: TETRA TECH

REFERENCE NUMBER: NWS-2023-0841

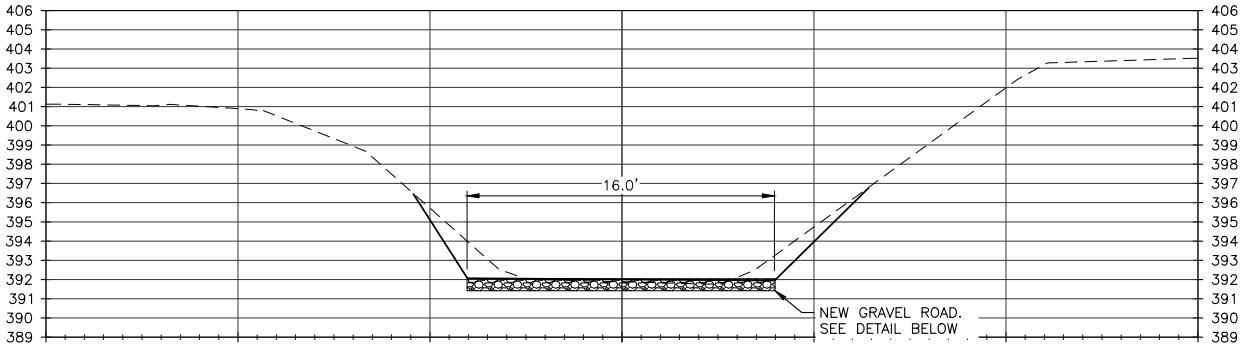
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE

PROPOSED PROJECT:
WEIR REPLACEMENT

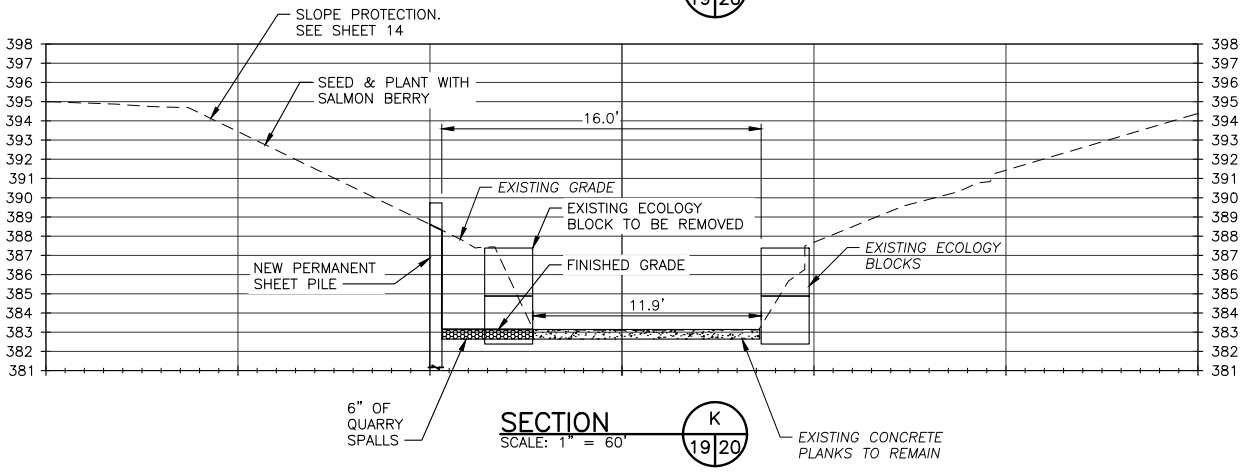
LOCATION: SOL DUC HATCHERY

SHEET 19 OF 20 DATE: 7-10-2024

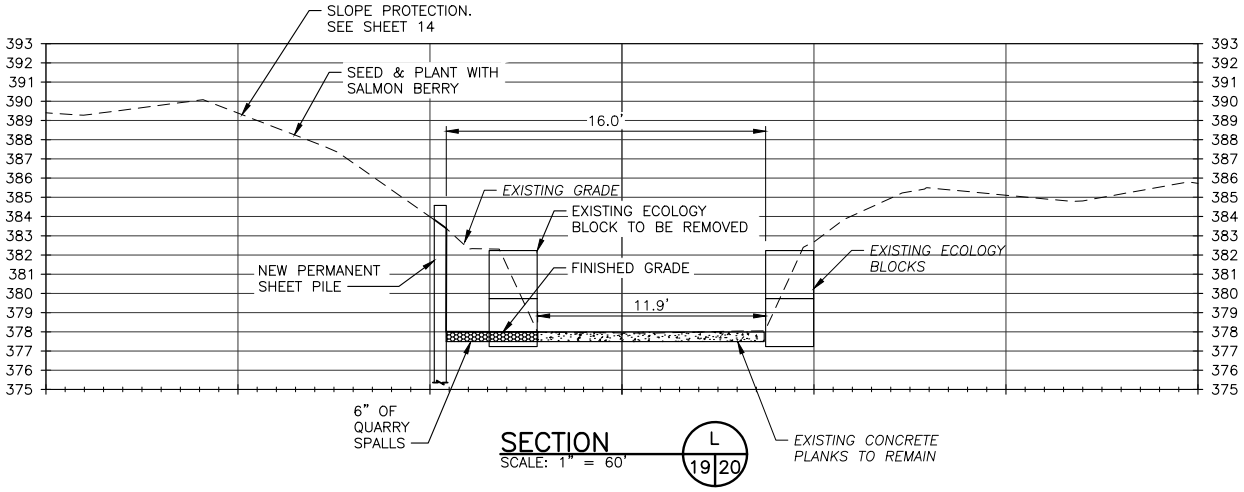
NOTES:
1. DURING CONSTRUCTION ACCESS ROAD SHALL BE A CONSTRUCTION ENTRANCE. SEE DETAIL ON SHEET 13
2. IF CONCRETE PLANKS ARE DAMAGED, CONTRACTOR TO REMOVE, DISPOSE & REPLACE PLANKS.



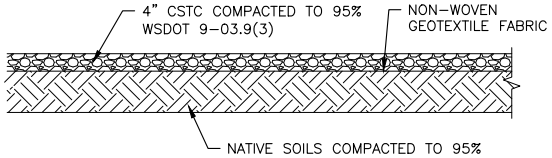
SECTION J
SCALE: 1" = 60'
19 | 20



SECTION K
SCALE: 1" = 60'
19 | 20



SECTION L
SCALE: 1" = 60'
19 | 20



GRAVEL DETAIL 20 – 20
NOT TO SCALE

REFERENCE NUMBER: NWS-2023-0841
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
WEIR REPLACEMENT
LOCATION: SOL DUC HATCHERY
SHEET 20 OF 20 DATE: 7-10-2024

ENG. PROJECT NO. CM:H32:2023-1
DRAWN BY: TETRA TECH