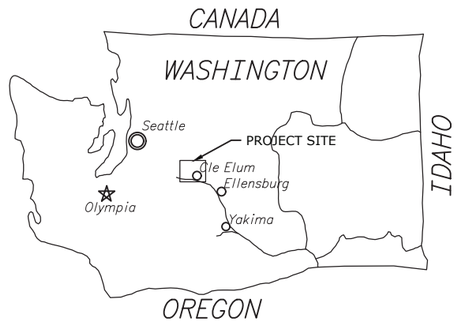
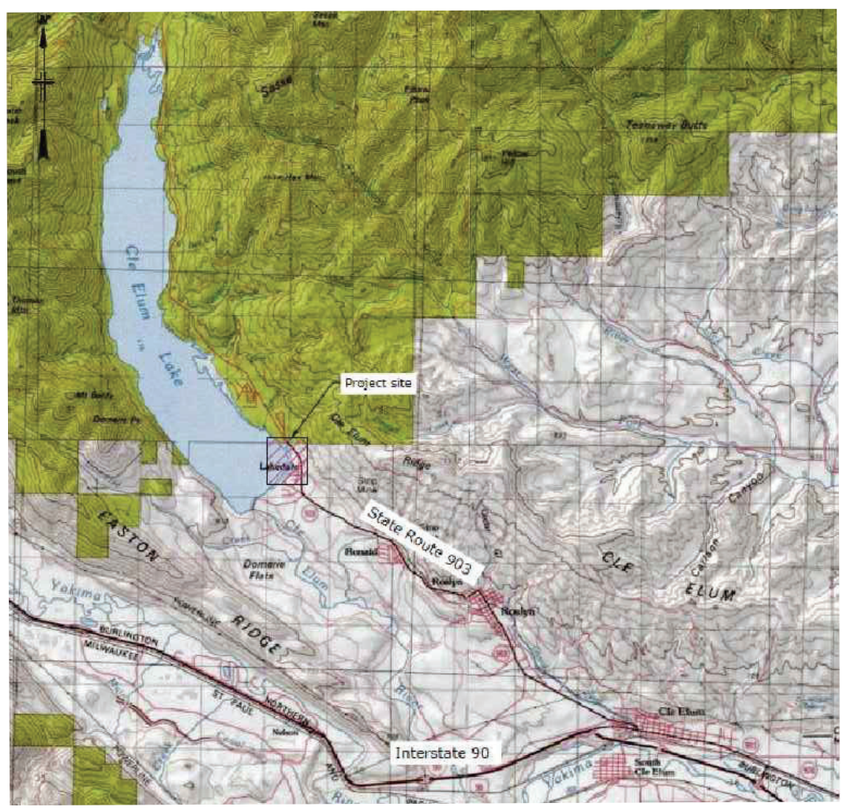
YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJECT - INTEGRATED PLAN

# CLE ELUM DAM AND RESERVOIR
## SPEELYI BEACH SHORELINE PROTECTION




KEY MAP

5000 0 5000 10000 15000
SCALE OF FEET




VICINITY MAP

250 0 250 500 750
SCALE OF FEET

### SHEET INDEX

| Sheet No. | Drawing No. | Sheet Title |
|---|---|---|
| 1 | 33-109-60001 | Location Map and Sheet Index |
| 2 | 33-109-60002 | Access and Staging - Plan and Detail |
| 3 | 33-109-60003 | Site Plan Overview |
| 4 | 33-109-60004 | Plan View Riprap Placement Sta. 0+00 to Sta. 6+50 |
| 5 | 33-109-60005 | Plan View Riprap Placement Sta. 6+50 to Sta. 12+50 |
| 6 | 33-109-60006 | Plan View Riprap Placement Sta. 12+50 to Sta. 19+50 |
| 7 | 33-109-60019 | Plan View Riprap Placement Sta. 12+75 to Sta. 13+25 |
| 8 | 33-109-60007 | Plan View Riprap Placement Sta. 19+50 thru End |
| 9 | 33-109-60008 | Perched Beach - Plan |
| 10 | 33-109-60009 | Access Road/Riprap - Typical Sections |
| 11 | 33-109-60010 | Perched Beach - Sections |
| 12 | 33-109-60011 | Riprap top alignement - Tables |
| 13 | 33-109-60047 | Fish Habitat Log Structures |
| 14 | 33-109-60088 | Cross Sections - Riprap Top Alignment Sta. 0+50 to 2+00 |
| 15 | 33-109-60089 | Cross Sections - Riprap Top Alignment Sta. 2+50 to 5+00 |
| 16 | 33-109-60090 | Cross Sections - Riprap Top Alignment Sta. 5+50 to 7+00 |
| 17 | 33-109-60091 | Cross Sections - Riprap Top Alignment Sta. 7+50 to 9+00 |
| 18 | 33-109-60092 | Cross Sections - Riprap Top Alignment Sta. 9+50 to 11+00 |
| 19 | 33-109-60093 | Cross Sections - Riprap Top Alignment Sta. 11+50 to 13+50 |
| 20 | 33-109-60094 | Cross Sections - Riprap Top Alignment Sta. 14+00 to 15+50 |
| 21 | 33-109-60095 | Cross Sections - Riprap Top Alignment Sta. 17+50 to 19+00 |
| 22 | 33-109-60096 | Cross Sections - Riprap Top Alignment Sta. 19+50 to 23+00 |
| 23 | 33-109-60097 | Cross Sections - Riprap Top Alignment Sta. 23+50 to 24+00 |

Coordinate System: State Plane Coordinate System, Washington South Zone (FIPS 3602)

Vertical Datum: **USBR Cle Elum Dam**. USBR Cle Elum Dam Elev. + 5.20 feet = NAVD88.

Horizontal Datum: NAD 83 (11), Based on measurements to WSDOT monuments designated GP19090-38, GP19090-46, and GP19970-8.

Units: US Survey Feet

Note: Project Grid to Ground combined scale factor for this site is 1.000100178.

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YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR
SPEELYI SHORELINE PROTECTION

| | | | |
|---|---|---|---|
| 2 | 2026-02-12 | 1:09 | SHEET INDEX UPDATE |
| 1 | 2025-06-12 | 1:09 | SHEET INDEX UPDATE |

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LOCATION MAP AND SHEET INDEX

33-109-60001

SHEET 1

LAST SAVED DATE 2026-02-12
LAST SAVED BY MDEAMICO

CAD SYSTEM AutoCAD Civil 3D (LMS TECH)
CAD FILENAME 33-109-60001-RD-1.DWG

| Line Table: Temporary Access Road | | | | | | |
|---|---|---|---|---|---|---|
| Line # | Length | Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
| C6 | 56.44 | N12° 45' 03.18"W | 702436.72 | 1500825.04 | 702491.69 | 1500812.60 |
| C5 | 126.06 | N6° 06' 09.62"W | 701954.58 | 1500955.54 | 702079.01 | 1500942.24 |
| C4 | 61.55 | N11° 48' 48.64"E | 701579.01 | 1500910.17 | 701639.15 | 1500922.75 |
| C3 | 74.19 | N10° 36' 24.34"E | 701212.53 | 1500802.85 | 701285.26 | 1500816.47 |
| C2 | 160.01 | N18° 48' 07.82"E | 701035.79 | 1500750.22 | 701185.48 | 1500801.18 |
| C1 | 216.37 | N0° 34' 38.43"E | 700507.86 | 1500529.14 | 700712.09 | 1500531.20 |
| L7 | 92.40 | N7° 21' 38.85"W | 702491.69 | 1500812.60 | 702583.32 | 1500800.76 |
| L6 | 376.42 | N18° 08' 27.50"W | 702079.01 | 1500942.24 | 702436.72 | 1500825.04 |
| L5 | 317.13 | N5° 56' 08.25"E | 701639.15 | 1500922.75 | 701954.58 | 1500955.54 |
| L4 | 308.33 | N17° 41' 29.04"E | 701285.26 | 1500816.47 | 701579.01 | 1500910.17 |
| L3 | 27.10 | N3° 31' 19.65"E | 701185.48 | 1500801.18 | 701212.53 | 1500802.85 |
| L2 | 390.84 | N34° 04' 55.98"E | 700712.09 | 1500531.20 | 701035.79 | 1500750.22 |
| L1 | 102.75 | N32° 55' 39.12"W | 700421.62 | 1500584.99 | 700507.86 | 1500529.14 |

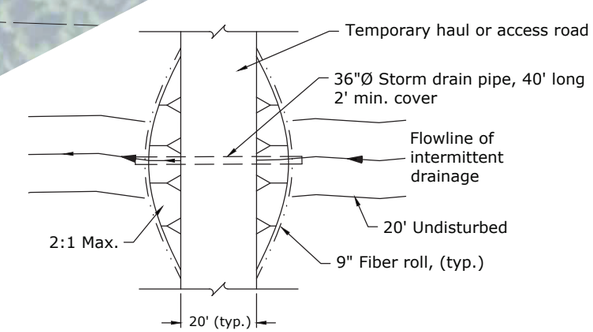
| Curve Table: Temporary Access Road | | | | | | | |
|---|---|---|---|---|---|---|---|
| Curve # | Radius | Length | Chord Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
| C6 | 300.00 | 56.44 | N12° 45' 03.18"W | 702436.72 | 1500825.04 | 702491.69 | 1500812.60 |
| C5 | 300.00 | 126.06 | N6° 06' 09.62"W | 701954.58 | 1500955.54 | 702079.01 | 1500942.24 |
| C4 | 300.00 | 61.55 | N11° 48' 48.64"E | 701579.01 | 1500910.17 | 701639.15 | 1500922.75 |
| C3 | 300.00 | 74.19 | N10° 36' 24.34"E | 701212.53 | 1500802.85 | 701285.26 | 1500816.47 |
| C2 | 300.00 | 160.01 | N18° 48' 07.82"E | 701035.79 | 1500750.22 | 701185.48 | 1500801.18 |
| C1 | 185.00 | 216.37 | N0° 34' 38.43"E | 700507.86 | 1500529.14 | 700712.09 | 1500531.20 |

## NOTES:

1. Culverts at temporary road crossings must be removed during extended periods when work stops to allow fish passage when the reservoir level is 2230 or higher.
2. Contractor may stockpile and stage riprap between the temporary access road and bank slope.
3. No work shall take place below existing elevation 2225 unless shown otherwise on the drawings.
4. Start the temporary access road along the side of the existing boat ramp. Stockpile existing riprap placed at the edge of the boat ramp and replace it upon removal of the temporary access road.
5. See drawing 33-109-60009 for typical temporary access road section and proposed profile.
6. Material may be borrowed between the temporary access road and the top of riprap placement, within the work limits as shown. Restore any borrow areas after use by grading max 5:1 slope at edges with drainage toward reservoir to avoid fish entrapment.
7. The Contractor may use water from the reservoir for dust control. Any water pumps set below elevation 2243 for filling a water truck must be placed in secondary containment and be equipped with a NMFS-compliant intake screen.
8. Contractor may relocate existing driftwood as necessary to clear the work area. Upon completion of all work, ensure driftwood is not left in piles and spread it naturally within the restored work site.

ACCESS AND STAGING

0 100' 200'




DRAINAGE CROSSING PLAN
N.T.S.

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CLE ELUM DAM AND RESERVOIR

SPEELYI BEACH SHORELINE PROTECTION

| REV NO | | | |
|---|---|---|---|
| 2 | 2026-02-12 109 MATT DEAMICO, P.E. | UPDATED NOTES. | |
| 1 | 2025-03-25 109 MATT DEAMICO, P.E. | ADDED OPTIONAL PRICE SCHEDULE A WORK LIMIT BOUNDARY, ADDED FISH HABITAT LOG STRUCTURES. | |

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ACCESS AND STAGING

PLAN AND DETAIL

33-109-60002

SHEET 2

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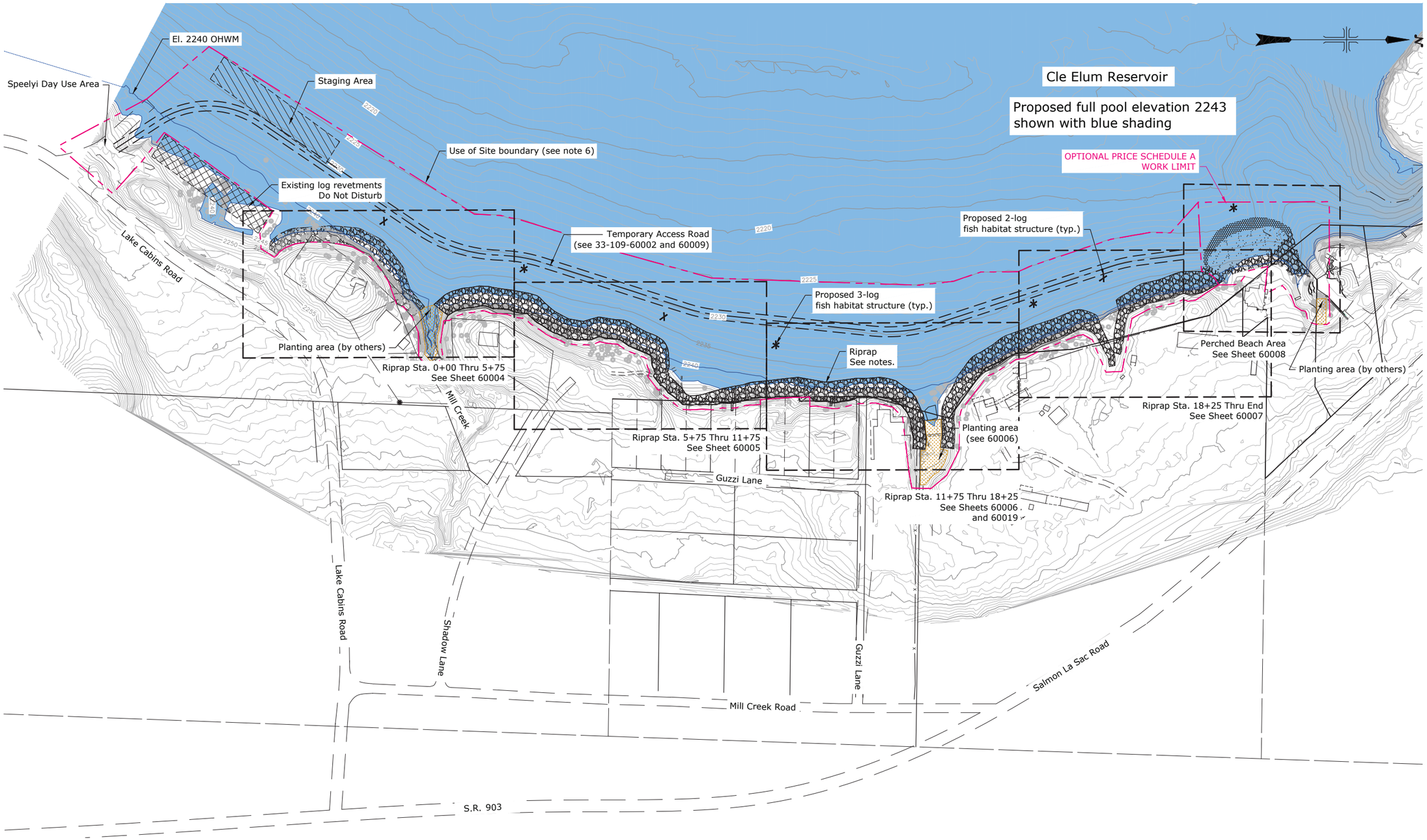
CAD FILENAME 33-109-60002-RD-1.DWG




## NOTES:

1. Riprap to be placed at El. 2251.5' and extending down to existing surface at maximum of 2:1 slope, per the typical section on 33-109-60009.
2. Riprap to be placed to a thickness of 4.5', per the typical section on 33-109-60009.
4. Riprap to be placed over bedding stone, and geotextile fabric, per the typical section on 33-109-60009.
5. Key riprap to a depth of 4.5', per the typical section on 33-109-60009.
6. Use of site boundary generally follows the 2225 contour to the west, and an area offset 10-feet east of the top of riprap alignment.
7. Clear and grub as required for placement of riprap.
8. Remove trees as required for placement of riprap.
9. Demolish and dispose of stairways and structures that interfere with riprap placement unless noted otherwise on sheets 60004 through 60007 and 60019.
10. Contractor may stockpile riprap between the access road and the edge of shoreline protection work: see sheet 60002. Do not stockpile material below elevation 2225.
11. Contractor may relocate existing driftwood as necessary to clear the work area. Upon completion of all work, ensure driftwood is not left in piles and spread it naturally within the restored work site.

WORK AREAS (APPROX.)
BASE CONTRACT - 9 ACRES
OPTIONAL PRICE SCHEDULE A - 0.5 ACRES

SITE PLAN
0 100' 200'

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SPEELYI SHORELINE PROTECTION

| REV NO | | |
|---|---|---|
| 2 | 2026-02-11 109 MATT DEAMICO, P.E. | ADDED USE OF SITE BOUNDARY. |
| 1 | 2025-06-12 109 MATT DEAMICO, P.E. | ADDED OPTIONAL PRICE SCHEDULE A WORK LIMIT BOUNDARY. ADDED FISH HABITAT LOG STRUCTURES. |

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SITE PLAN

OVERVIEW

33-109-60003

SHEET 3

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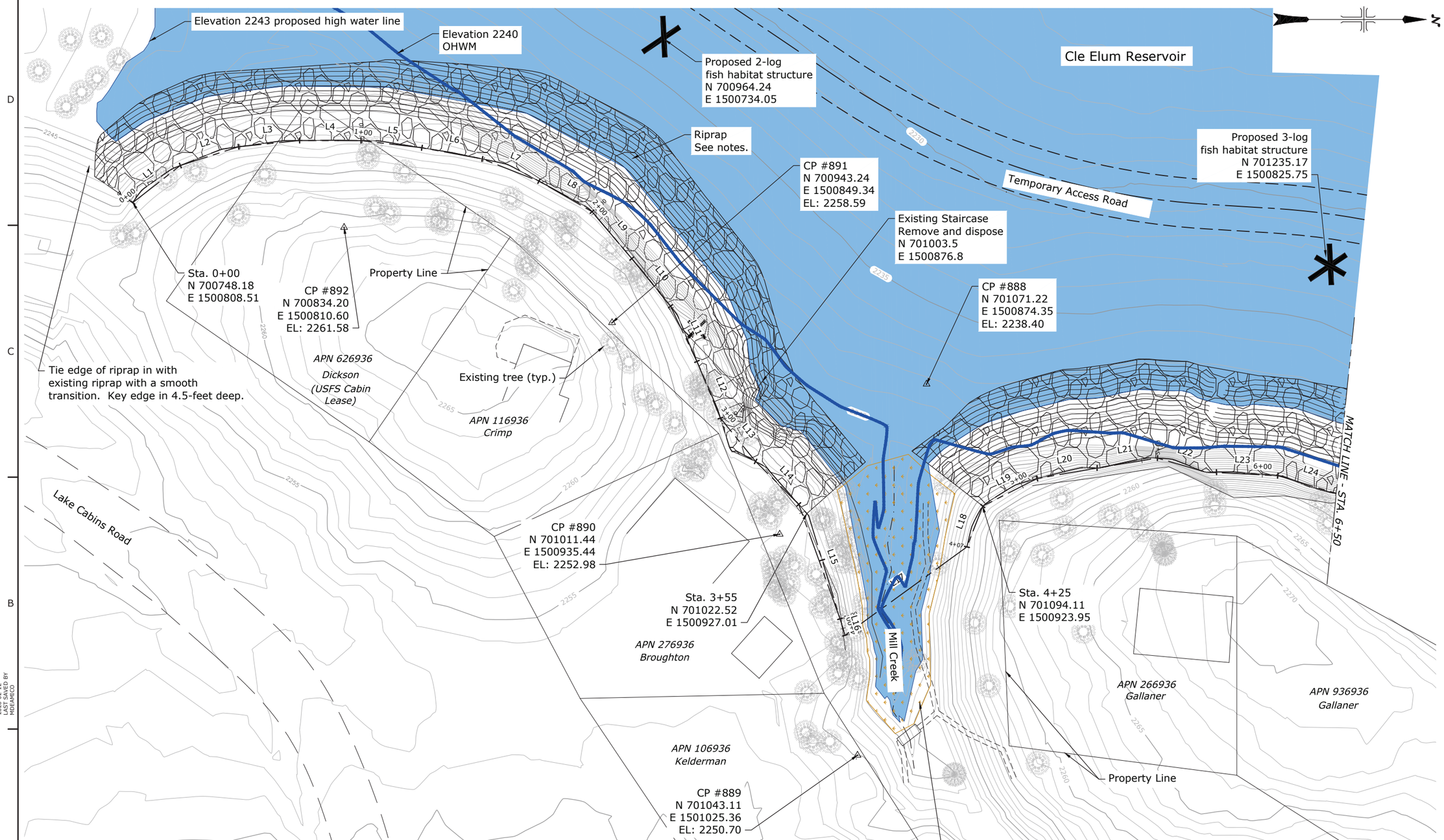
CAD SYSTEM AutoCAD Civil 3D (LMS TECH)
CAD FILENAME 33-109-60003-RD-1.DWG




## NOTES:

1. Riprap to be placed at El. 2251.5' and extending down to existing grade as shown in typical section on 33-109-60009.
2. Top of riprap alignment table is provided in 60011 for reference.

PLAN VIEW

0 10' 20' 40'

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SPEELYI SHORELINE PROTECTION

| | | | |
|---|---|---|---|
| 2 | 2026-02-11 Matt DeAmico, P.E. | 109 | Deleted trees that have been removed, updated notes. |
| 1 | 2025-06-11 Matt DeAmico, P.E. | 109 | Added Symbols for trees already removed. Added fish habitat structures. |

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CCAO, YAKIMA, WA 2024-11-01

PLAN VIEW
RIPRAP PLACEMENT

STA. 0+00 THRU
STA. 6+50

33-109-60004

SHEET 4

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CAD SYSTEM
AutoCAD Civil 3D (LMS TECH)
CAD FILENAME
33-109-60004-RD-1.DWG

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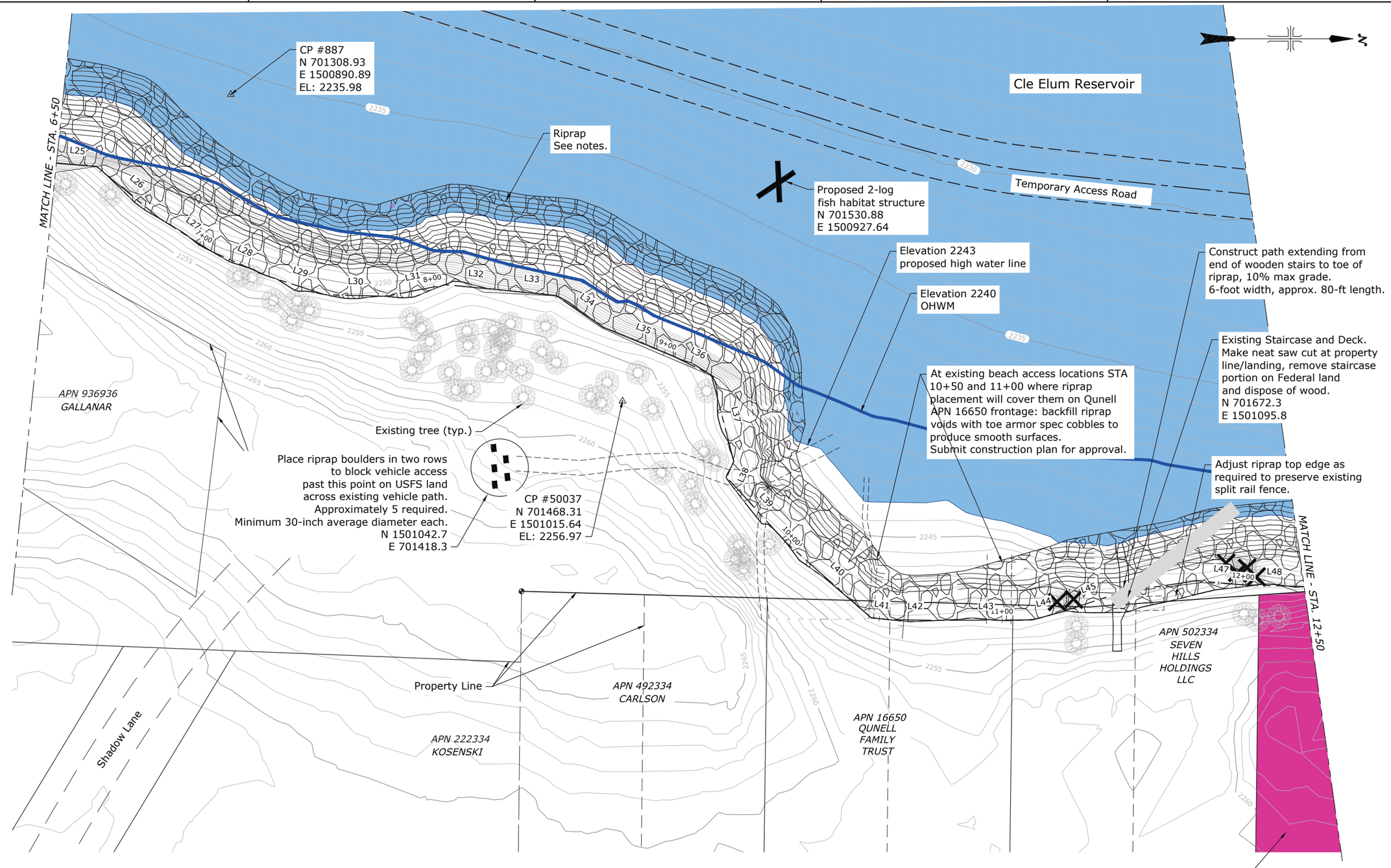


## NOTES:

1. Riprap to be placed at El. 2251.5' and extending down to existing grade as shown in typical section on 33-109-60009.
2. Top of riprap alignment table is provided in 60011 for reference.

TREE REMOVAL SYMBOLS

TREE TO BE REMOVED

0 10' 20' 40'

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CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

| | | |
|---|---|---|
| 3 | 2026-02-11 Matt DeAmico, P.E. | NOTES UPDATE. DELETED REMOVED TREES. |
| 2 | 2025-12-01 Matt DeAmico, P.E. | REVISED PATHS PER ABAS REQUIREMENTS. |
| 1 | 2025-06-11 Matt DeAmico, P.E. | ADDED SYMBOL FOR TREES ALREADY REMOVED. ADDED FISH HABITAT LOG STRUCTURES. |

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CCAO, YAKIMA, WA 2024-11-01

PLAN VIEW
RIPRAP PLACEMENT

STA. 6+50 THRU
STA. 12+50

33-109-60005

SHEET 5

LAST SAVED DATE 2026-02-11
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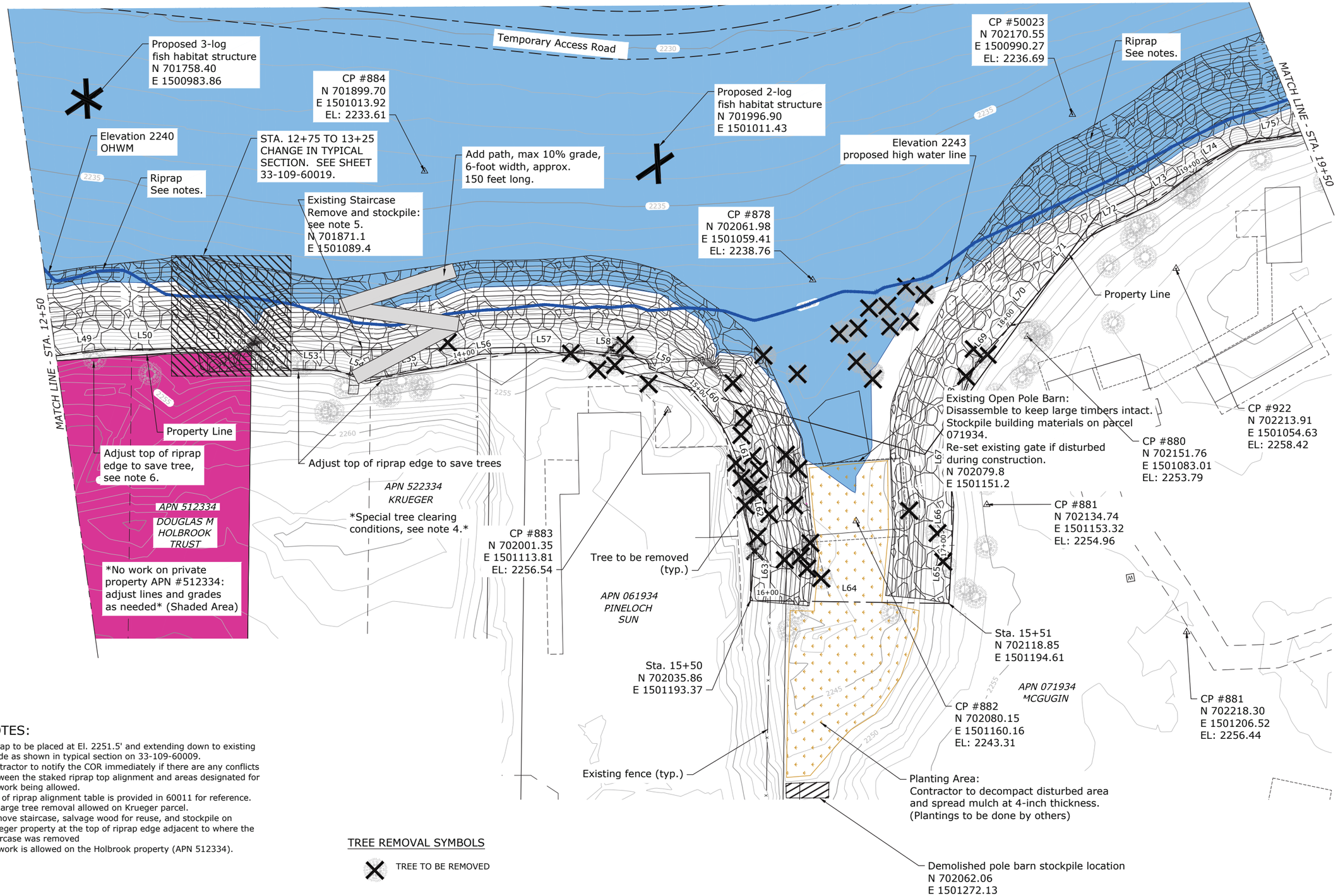
CAD SYSTEM AutoCAD Civil 3D 2025 (LMS TECH)
CAD FILENAME 33-109-60005-REV2ABAS_20251201.DWG




## NOTES:

1. Riprap to be placed at El. 2251.5' and extending down to existing grade as shown in typical section on 33-109-60009.
2. Contractor to notify the COR immediately if there are any conflicts between the staked riprap top alignment and areas designated for no work being allowed.
3. Top of riprap alignment table is provided in 60011 for reference.
4. No large tree removal allowed on Krueger parcel.
5. Remove staircase, salvage wood for reuse, and stockpile on Krueger property at the top of riprap edge adjacent to where the staircase was removed
6. No work is allowed on the Holbrook property (APN 512334).

TREE REMOVAL SYMBOLS

TREE TO BE REMOVED

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CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

| | | | |
|---|---|---|---|
| 3 | 2026-02-11 Matt DeAmico, P.E. | 109 | NOTE UPDATES. |
| 2 | 2025-12-01 Matt DeAmico, P.E. | 109 | REVISED PATH PER ABAS REQUIREMENTS. |
| 1 | 2025-06-11 Matt DeAmico, P.E. | 109 | ADDED SYMBOLS FOR TREES ALREADY REMOVED. ADDED FISH HABITAT LOGS. |

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PLAN VIEW
RIPRAP PLACEMENT

STA. 12+50 THRU
STA. 19+50

33-109-60006

SHEET 6

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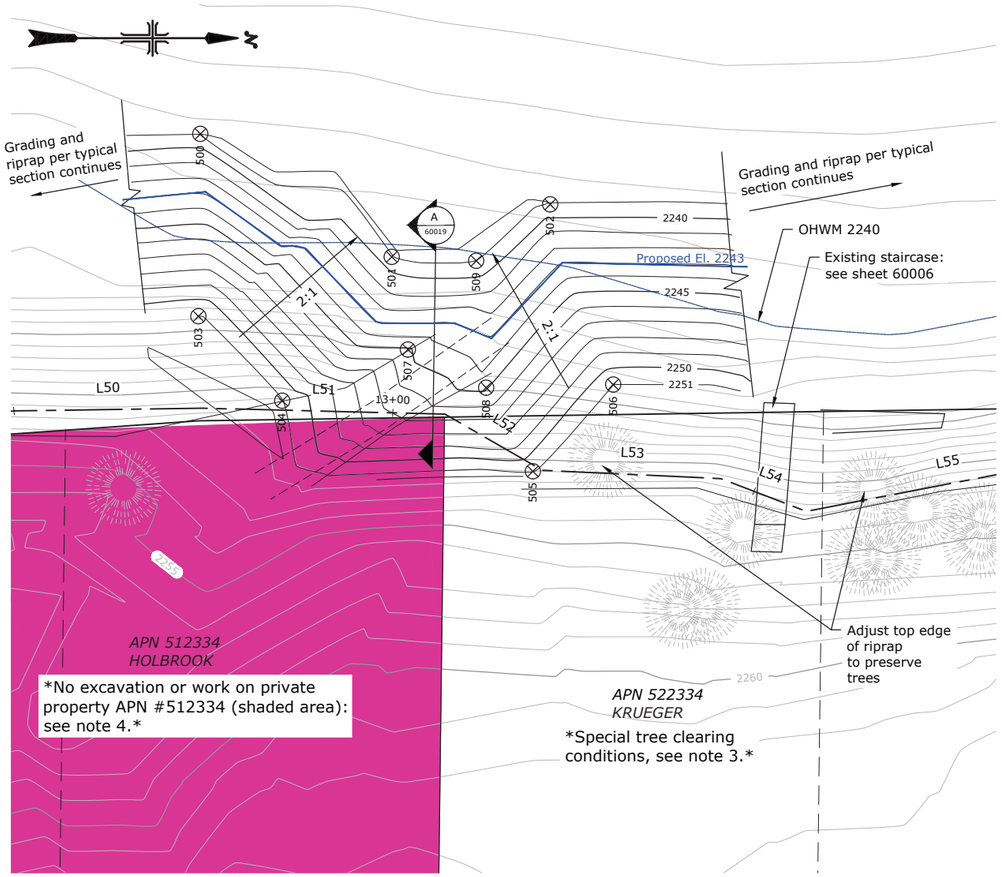
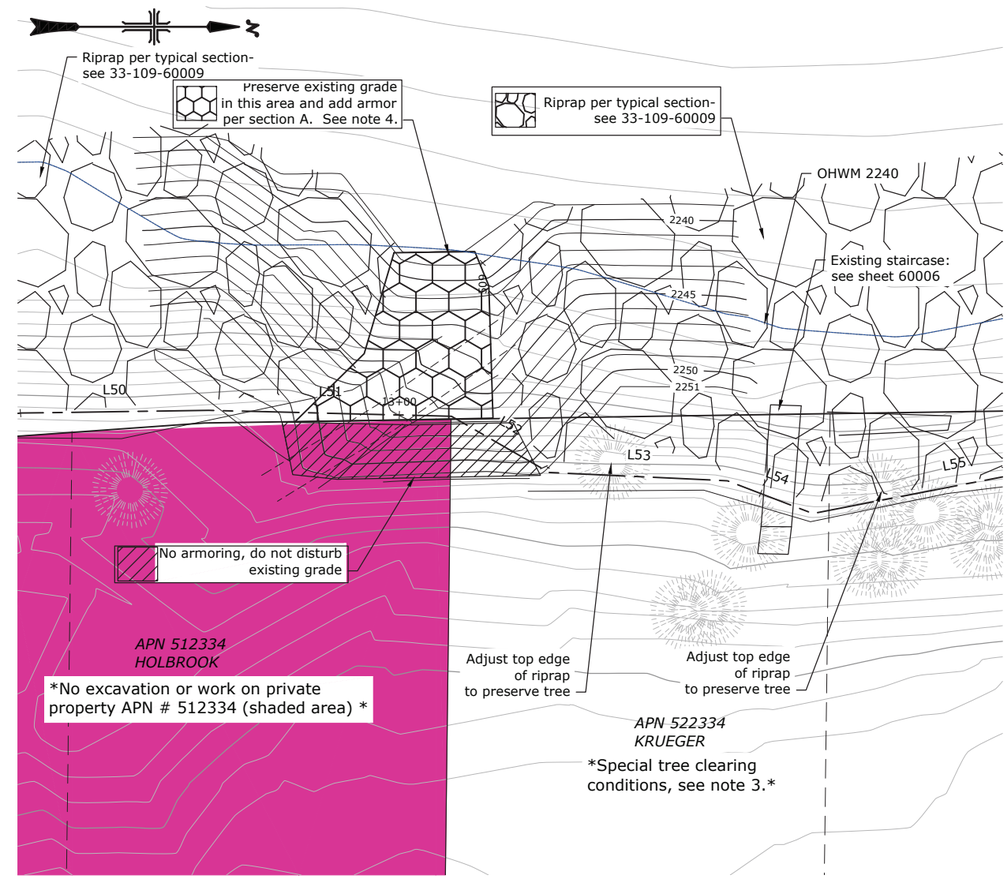
CAD SYSTEM AutoCAD Civil 3D (LMS TECH)
CAD FILENAME 33-109-60006-RD-1.DWG




## PLAN - GRADING STA. 12+75 TO 13+25

0 5' 10' 20'




## PLAN - ARMOR ZONING STA. 12+75 TO 13+25

0 5' 10' 20'

## GRADING POINT TABLE

Point Table

| Point # | Northing | Easting | Elevation | Description |
|---|---|---|---|---|
| 500 | 701795.07 | 1501051.89 | 2239.00 | TOE |
| 501 | 701820.33 | 1501068.12 | 2239.00 | TOE |
| 502 | 701841.23 | 1501061.21 | 2239.00 | TOE |
| 503 | 701794.82 | 1501075.95 | 2251.00 | TOP |
| 504 | 701805.82 | 1501087.13 | 2251.00 | TOP |
| 505 | 701838.95 | 1501096.41 | 2251.00 | TOP |
| 506 | 701849.55 | 1501084.97 | 2251.00 | TOP |
| 507 | 701822.45 | 1501080.35 | 2245.00 | 2245 |
| 508 | 701832.79 | 1501085.38 | 2245.00 | 2245 |
| 509 | 701831.47 | 1501068.63 | 2239.00 | TOE |

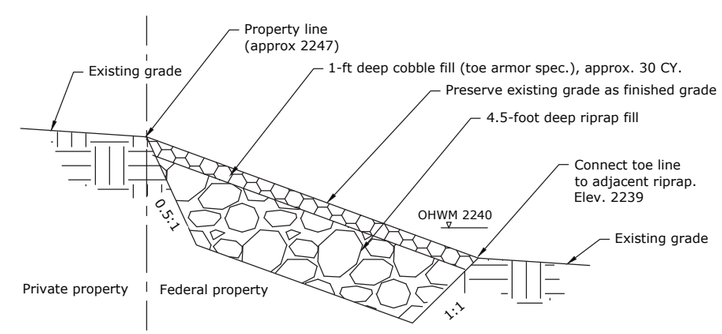
## NOTES:

1. Riprap to be placed at El. 2251.5' and extending down to existing grade as shown in typical section on 33-109-60009.
2. Top of riprap alignment table is provided in 60011 for reference. Do not disturb Holbrook property APN 512334.
3. No large tree removal allowed on Krueger parcel.
4. No work allowed on Holbrook private property APN #512334 (shaded area).
5. Proposed paths not shown for clarity, see 60006 for path construction information.

## SECTION - ARMORING AT EXISTING GRADE

A 60019

0 5' 10'




LAST SAVED DATE 2025-04-03
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CAD SYSTEM AutoCADCIVIL3D (LMS TECH)
CAD FILENAME 33-109-60019-HLBRK GRADE WORKING.DWG

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SPEELYI SHORELINE PROTECTION

| REV NO | DATE | DESCRIPTION |
|---|---|---|
| 2 | 2026-02-11 | NOTE UPDATES. ADDED SHADING TO EMPHASIZE NO WORK ALLOWED AREA. |
| 1 | 2025-04-03 | ADDED OHWM IN SECTION VIEW. |

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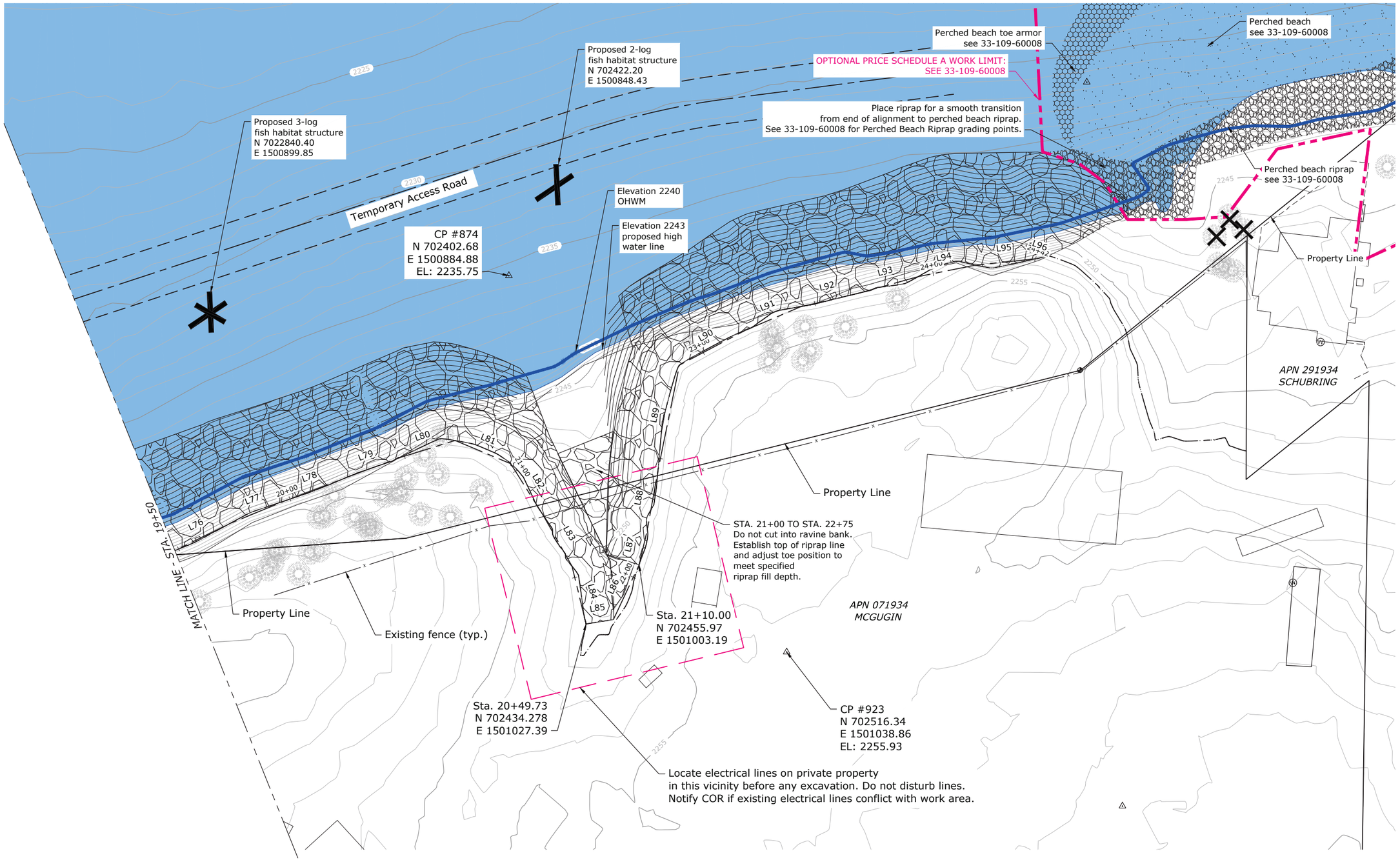
CCAO, YAKIMA, WA 2024-11-01

RIPRAP PLACEMENT
STA. + 12+75 TO 13+25

PLAN AND SECTION

33-109-60019

SHEET 7




## NOTES:

1. Riprap to be placed at El. 2251.5' and extending down to existing grade as shown in typical section on 33-109-60009.
2. Top of riprap alignment table is provided in 60011 for reference.

TREE REMOVAL SYMBOLS

TREE TO BE REMOVED

0 10' 20' 40'

N

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CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

| REV NO | | |
|---|---|---|
| 2 | 2026-02-11<br>109<br>Matt DeAmico, P.E. | DELETED TREES THAT HAVE BEEN REMOVED AND UPDATED NOTES. |
| 1 | 2025-03-25<br>109<br>Matt DeAmico, P.E. | ADDED OPTIONAL PRICE SCHEDULE A WORK LIMIT BOUNDARY. ADDED FISH HABITAT LOGS. |

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PLAN VIEW
RIPRAP PLACEMENT

STA. 19+50 THRU
END

33-109-60007

SHEET 8

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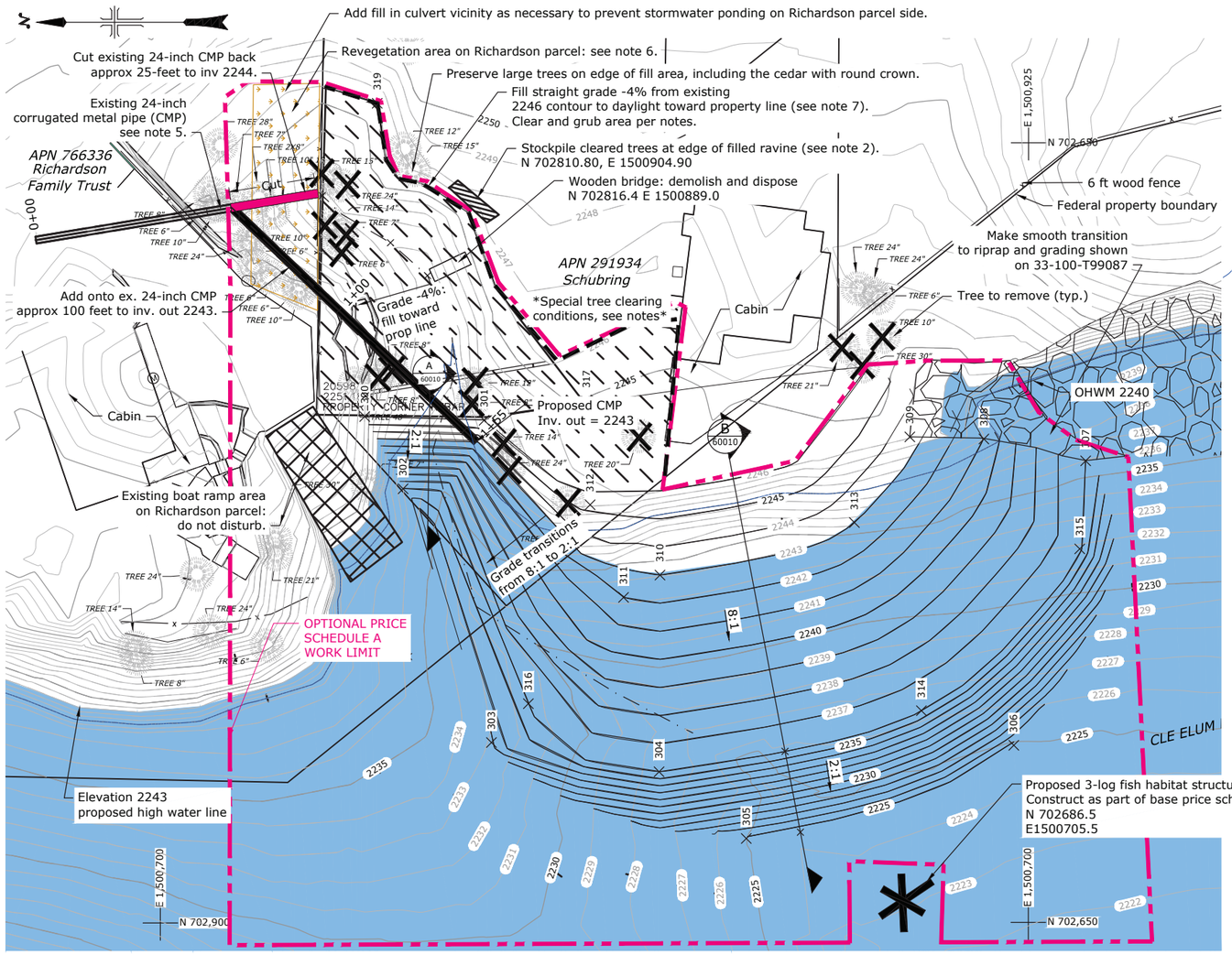
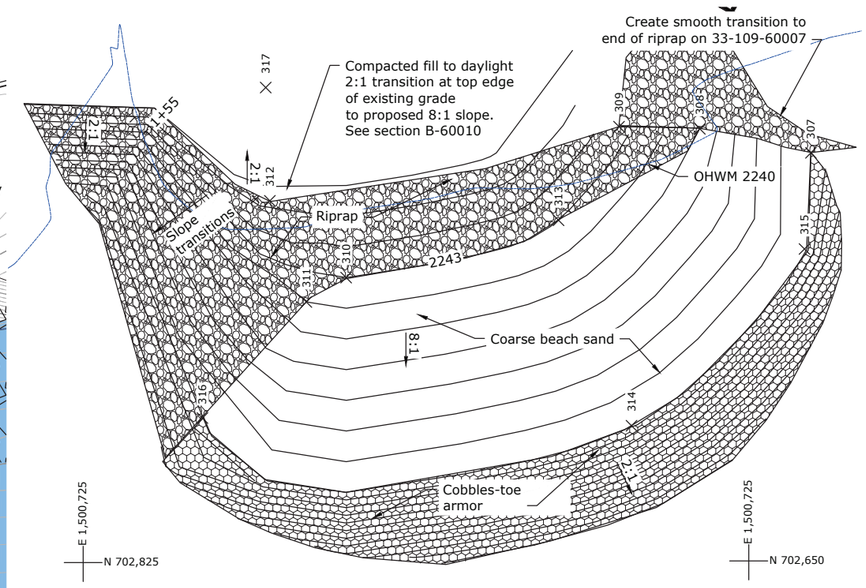
CAD FILENAME
33-109-60007-RD-1.DWG




PLAN - PERCHED BEACH

0 10' 20' 40'




PLAN - PERCHED BEACH ZONING

0 10' 20' 40'

## GRADING POINT TABLE

Point Table

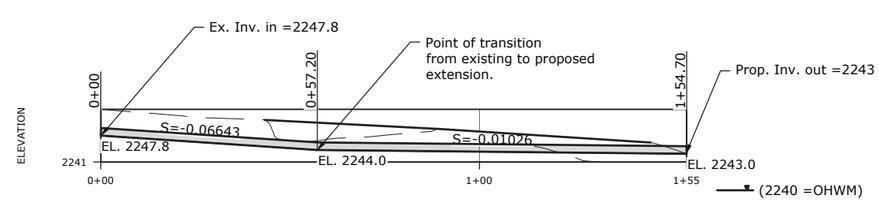
| Point # | Northing | Easting | Elevation | Description |
|---|---|---|---|---|
| | | | | |
| 300 | 702841.01 | 1500845.84 | 2246.00 | TOP |
| 301 | 702806.58 | 1500844.78 | 2246.00 | TOP |
| 302 | 702829.96 | 1500825.01 | 2236.00 | GROIN |
| 303 | 702804.49 | 1500751.88 | 2233.00 | TOE |
| 304 | 702756.20 | 1500743.45 | 2236.00 | EDGE |
| 305 | 702731.05 | 1500724.21 | 2225.00 | TOE |
| 306 | 702653.96 | 1500751.09 | 2225.00 | TOE |
| 307 | 702633.26 | 1500833.07 | 2236.00 | EDGE |
| 308 | 702662.58 | 1500839.40 | 2241.00 | EDGE |
| 309 | 702683.91 | 1500839.99 | 2243.50 | EDGE |
| 310 | 702755.93 | 1500800.14 | 2243.00 | 2243 |
| 311 | 702766.42 | 1500793.72 | 2242.00 | 2242 |
| 312 | 702776.05 | 1500820.43 | 2245.50 | RIPRAP |
| 313 | 702699.88 | 1500815.29 | 2243.00 | 2243 |
| 314 | 702680.60 | 1500761.07 | 2236.00 | 2236 |
| 315 | 702634.96 | 1500807.70 | 2236.00 | 2236 |
| 316 | 702793.84 | 1500763.09 | 2236.00 | 2236 |
| 317 | 702777.15 | 1500850.32 | 2246.00 | 2246 |
| 319 | 702837.42 | 1500936.16 | 2246.00 | 2246 |
| 320 | 702808.91 | 1500838.62 | 2243.00 | CMP INV OUT |

## TREE REMOVAL SYMBOLS

TREE TO BE REMOVED

## NOTES:

1. Notify the COR a minimum two weeks in advance for access to private property via the Schubring Parcel (12301 SR 903) or Richardson Parcel (12351 SR 903) to perform culvert work and grading.
2. Stockpile all cleared trees greater than 6-inches D.B.H. on Schubring parcel.
3. Remove all cleared vegetation and dispose of off site other than as listed in note 2.
4. Remove all stumps when clearing Schubring site.
5. Modify existing 24-inch corrugated metal pipe culvert. Set culvert grade to daylight at riprap with minimum exit invert of 2243. Minimize disturbance to trees. Existing culvert location on Richardson property is approximate. Replace any existing wood fence that is disturbed in kind. Contractor to locate and mark any power, water, sewer, and fiber in excavation vicinity before starting work; do not disturb existing utilities.
6. Contractor to decompact disturbed area to be planted and spread mulch in a 4-inch thick layer. Planting to be conducted by others in disturbed area on Richardson parcel.
7. Grade and fill with sandy material to ensure no low points below 2246 and to facilitate site drainage away from house and toward the reservoir.




CULVERT PROPOSED PROFILE

0 10' 20' 40'

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

| REV NO | DATE | DESCRIPTION |
|---|---|---|
| 2 | 2026-02-11 109 MATT DEAMICO | UPDATED NOTE LANGUAGE TO ALIGN WITH FEDERAL ACQUISITION REGULATION UPDATES. |
| 1 | 2025-06-12 105 MATT DEAMICO | ADDED OPTIONAL PRICE SCHEDULE A WORK LIMIT BOUNDARY AND NOTES. ADDED HABITAT STRUCTURE. |

Matt DeAmico, P.E.
DESIGNED
Matt DeAmico, P.E.
DRAWN
Wade Warner
CHECKED
MATT DEAMICO
TECH. APPR. P.E., Civil Engineer
WYLIE DUKE
APPROVED P.E., Civil Engineer
ADMIN APPROVAL

CCAO, YAKIMA, WA 2024-11-01

PLAN

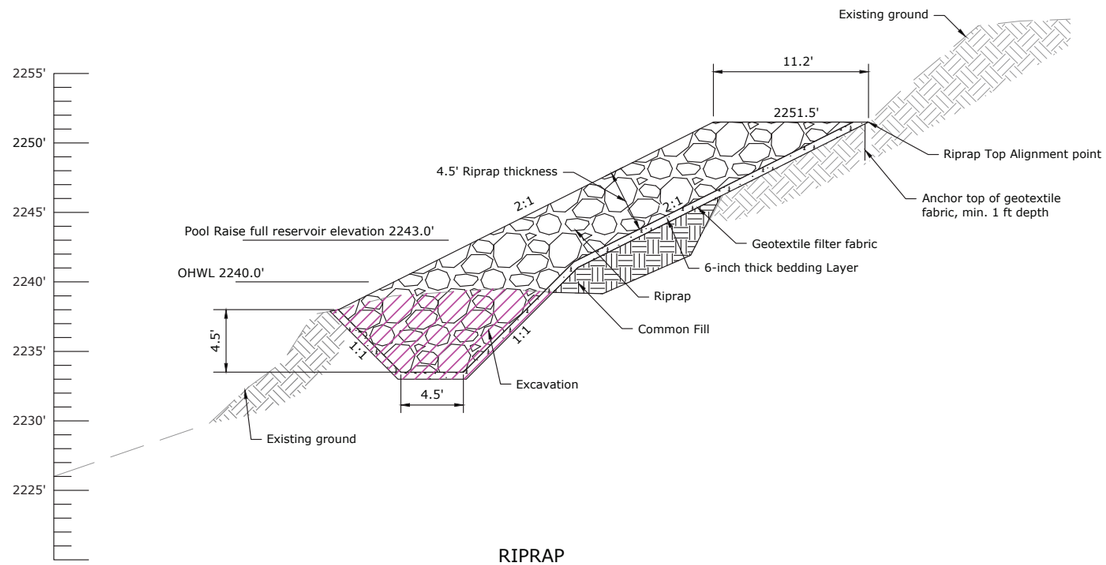
PERCHED BEACH

33-109-60008

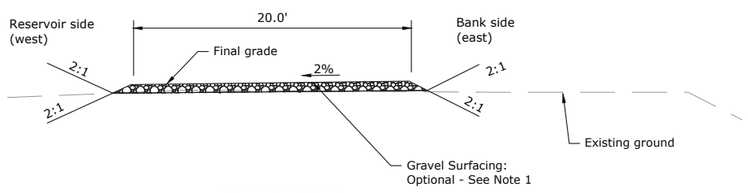
SHEET 9

LAST SAVED DATE 2026-02-11
LAST SAVED BY MDEAMICO

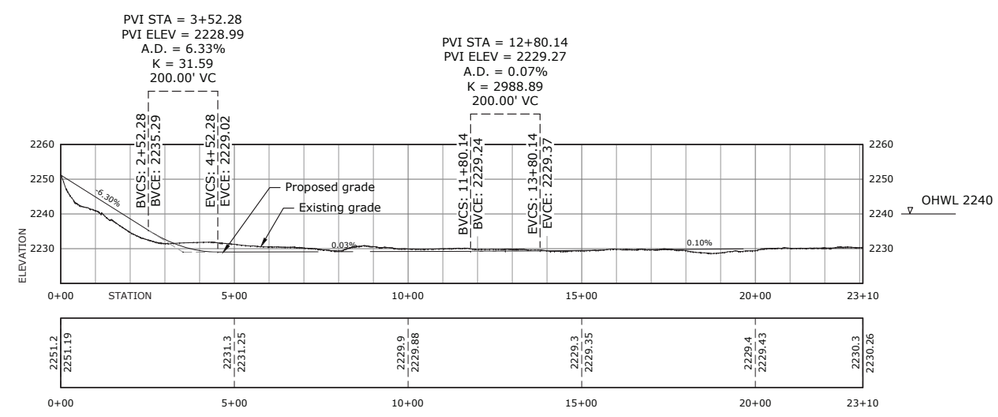
CAD SYSTEM AutoCAD Civil 3D 2025 (LMS TECH)
CAD FILENAME 33-109-60008 PERCHED BEACH.DWG




RIPRAP
TYPICAL SECTION




ACCESS ROAD
TYPICAL SECTION




ACCESS ROAD
PROFILE

0 100' 200' 400'
HORIZONTAL

VERTICAL EXAGGERATION = 10X

## NOTES:

1. Gravel surfacing is optional and may be placed by the Contractor as necessary. Surfacing material may be taken from the approved borrow area limit as shown on 60002. If imported material is used for surfacing, all imported material must be removed from the work site upon removal of the road and restoration of the site or disposed of above elevation 2240. Locally borrowed material may be graded back into the site upon road removal.

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI BEACH SHORELINE PROTECTION

| REV NO | | | |
|---|---|---|---|
| 2 | 2026-02-11 | MATT DEAMICO | 109 NOTE UPDATES. |
| 1 | 2025-04-03 | MATT DEAMICO | 109 ADDED 2243 OWHL MARKS IN SECTION VIEWS. |

Matt DeAmico, P.E.
DESIGNED
Matt DeAmico, P.E.
DRAWN
Wade Warner
CHECKED
MATT DEAMICO, P.E.
TECH. APPR. P.E., Civil Engineer
WYLIE DUKE, P.E.
APPROVED
ADMIN APPROVAL - P.E., Civil Engineer

CCAO, YAKIMA, WA 2024-11-01

ACCESS ROAD / RIPRAP

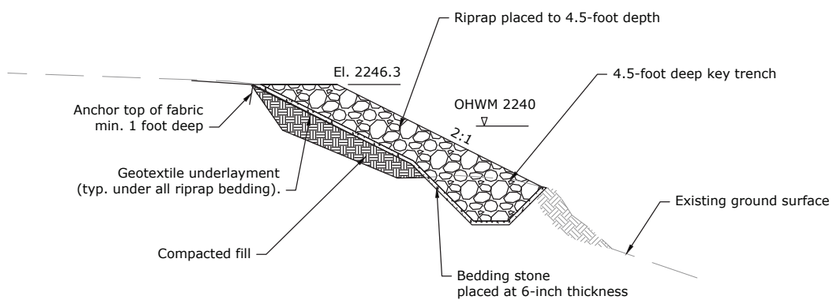
TYPICAL SECTIONS

33-109-60009

SHEET 10

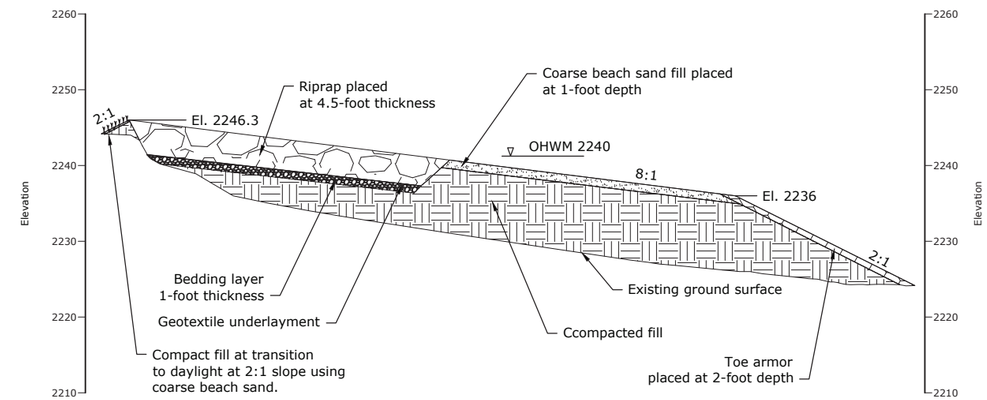
LAST SAVED DATE 2026-02-12 LAST SAVED BY MDEAMICO

CAD SYSTEM AUTODESK CADDS (LMS TECH) CAD FILENAME 33-109-60009-RD-1.DWG




A 60008 SECTION - PERCHED BEACH, 2:1 FILL ZONE

0 10' 20'




B 60008 SECTION - PERCHED BEACH

0 10' 20'

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BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

| REV NO | | | |
|---|---|---|---|
| 2 | 2026-02-12 | 109 | CALLOUT UPDATES: |
| | Matt DeAmico, P.E. | | |
| 1 | 2025-04-03 | 109 | ADDED OHWM MARK TO SECTION VIEWS. |
| | Matt DeAmico, P.E. | | |

Matt DeAmico, P.E.
DESIGNED
Matt DeAmico, P.E.
DRAWN
Wade Warner
CHECKED
MATT DEAMICO
TECH. APPR. P.E., Civil Engineer
WYLIE DUKE
APPROVED P.E., Civil Engineer
ADMIN APPROVAL

CCAO, YAKIMA, WA 2024-11-01

SECTION

PERCHED BEACH

33-109-60010

SHEET 11

LAST SAVED DATE
2026-06-17
LAST SAVED BY
MDEAMICO

CAD SYSTEM
AutoCAD Civil 3D (LMS TECH)
CAD FILENAME
33-109-60010 PERCHED BEACH
SECTION.DWG

## Line Table: Alignments

| Line # | Length | Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
|---|---|---|---|---|---|---|
| L1 | 24.61 | N37° 56' 11.35"W | 700748.18 | 1500800.51 | 700767.59 | 1500785.39 |
| L2 | 24.87 | N17° 51' 03.35"W | 700767.59 | 1500785.39 | 700791.26 | 1500777.76 |
| L3 | 24.96 | N5° 50' 49.39"W | 700791.26 | 1500777.76 | 700816.09 | 1500775.22 |
| L4 | 25.00 | N0° 03' 37.87"E | 700816.09 | 1500775.22 | 700841.09 | 1500775.25 |
| L5 | 24.95 | N6° 43' 32.46"E | 700841.09 | 1500775.25 | 700865.87 | 1500778.17 |
| L6 | 24.99 | N10° 27' 31.90"E | 700865.87 | 1500778.17 | 700890.45 | 1500782.70 |
| L7 | 24.77 | N21° 25' 59.56"E | 700890.45 | 1500782.70 | 700913.51 | 1500791.76 |
| L8 | 24.93 | N29° 55' 03.27"E | 700913.51 | 1500791.76 | 700935.12 | 1500804.19 |
| L9 | 25.00 | N49° 44' 10.82"E | 700935.12 | 1500804.19 | 700951.28 | 1500823.27 |
| L10 | 25.00 | N50° 55' 19.07"E | 700951.28 | 1500823.27 | 700967.03 | 1500842.67 |
| L11 | 24.87 | N64° 24' 14.49"E | 700967.03 | 1500842.67 | 700977.78 | 1500865.10 |
| L12 | 24.98 | N67° 30' 40.96"E | 700977.78 | 1500865.10 | 700987.33 | 1500888.18 |
| L13 | 22.69 | N50° 54' 06.54"E | 700987.33 | 1500888.18 | 701001.64 | 1500905.79 |
| L14 | 24.77 | N44° 49' 58.60"E | 701001.64 | 1500905.79 | 701019.21 | 1500923.26 |
| L15 | 49.52 | N70° 09' 53.30"E | 701019.21 | 1500923.26 | 701036.01 | 1500969.84 |
| L16 | 7.00 | N73° 04' 27.32"E | 701036.01 | 1500969.84 | 701038.05 | 1500976.54 |
| L17 | 61.26 | N35° 56' 42.27"W | 701038.05 | 1500976.54 | 701087.65 | 1500940.58 |
| L18 | 17.84 | N68° 45' 33.88"W | 701087.65 | 1500940.58 | 701094.11 | 1500923.96 |
| L19 | 24.74 | N26° 53' 01.33"W | 701094.11 | 1500923.96 | 701116.17 | 1500912.77 |
| L20 | 24.83 | N9° 56' 59.38"W | 701116.17 | 1500912.77 | 701140.63 | 1500908.48 |

## Line Table: Alignments

| Line # | Length | Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
|---|---|---|---|---|---|---|
| L21 | 24.91 | N9° 22' 48.42"W | 701140.63 | 1500908.48 | 701165.20 | 1500904.42 |
| L22 | 20.42 | N16° 15' 51.60"E | 701165.20 | 1500904.42 | 701184.80 | 1500910.14 |
| L23 | 29.55 | N2° 49' 20.34"E | 701184.80 | 1500910.14 | 701214.32 | 1500911.59 |
| L24 | 24.73 | N16° 54' 48.45"E | 701214.32 | 1500911.59 | 701237.98 | 1500918.79 |
| L25 | 16.38 | N4° 59' 13.27"E | 701237.98 | 1500918.79 | 701254.30 | 1500920.21 |
| L26 | 33.43 | N39° 21' 30.17"E | 701254.30 | 1500920.21 | 701280.14 | 1500941.41 |
| L27 | 24.94 | N32° 28' 12.70"E | 701280.14 | 1500941.41 | 701301.18 | 1500954.80 |
| L28 | 24.85 | N23° 43' 22.75"E | 701301.18 | 1500954.80 | 701323.93 | 1500964.79 |
| L29 | 24.52 | N17° 50' 56.20"E | 701323.93 | 1500964.79 | 701347.27 | 1500972.31 |
| L30 | 24.81 | N1° 36' 39.74"E | 701347.27 | 1500972.31 | 701372.07 | 1500973.01 |
| L31 | 24.47 | N11° 06' 23.31"W | 701372.07 | 1500973.01 | 701396.07 | 1500968.29 |
| L32 | 24.39 | N5° 18' 15.29"E | 701396.07 | 1500968.29 | 701420.36 | 1500970.55 |
| L33 | 21.16 | N6° 02' 50.45"E | 701420.36 | 1500970.55 | 701441.40 | 1500972.78 |
| L34 | 22.97 | N33° 49' 27.98"E | 701441.40 | 1500972.78 | 701460.48 | 1500985.56 |
| L35 | 30.80 | N22° 27' 55.55"E | 701460.48 | 1500985.56 | 701488.95 | 1500997.33 |
| L36 | 17.34 | N26° 25' 30.34"E | 701488.95 | 1500997.33 | 701504.48 | 1501005.05 |
| L37 | 36.14 | N75° 23' 35.89"E | 701504.48 | 1501005.05 | 701513.59 | 1501040.02 |
| L38 | 7.19 | S66° 20' 08.88"E | 701513.59 | 1501040.02 | 701510.71 | 1501046.60 |
| L39 | 35.66 | N47° 44' 29.54"E | 701510.71 | 1501046.60 | 701534.69 | 1501073.00 |
| L40 | 46.33 | N41° 30' 24.48"E | 701534.69 | 1501073.00 | 701569.38 | 1501103.70 |

## Line Table: Alignments

| Line # | Length | Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
|---|---|---|---|---|---|---|
| L41 | 7.77 | N6° 36' 45.57"E | 701569.38 | 1501103.70 | 701577.10 | 1501104.60 |
| L42 | 20.55 | N0° 36' 30.44"E | 701577.10 | 1501104.60 | 701597.66 | 1501104.82 |
| L43 | 37.17 | N0° 11' 14.50"W | 701597.66 | 1501104.82 | 701634.83 | 1501104.69 |
| L44 | 13.26 | N15° 19' 52.04"W | 701634.83 | 1501104.69 | 701647.62 | 1501101.19 |
| L45* | 25.44 | N18° 13' 01.45"W | 701647.62 | 1501101.19 | 701671.78 | 1501093.24 |
| L46* | 30.35 | N8° 30' 48.52"W | 701671.78 | 1501093.24 | 701701.79 | 1501088.74 |
| L47* | 19.51 | N4° 58' 36.52"E | 701701.79 | 1501088.74 | 701721.23 | 1501090.44 |
| L48 | 24.54 | N1° 32' 12.58"E | 701721.23 | 1501090.44 | 701745.77 | 1501091.09 |
| L49 | 24.96 | N6° 06' 37.28"W | 701745.77 | 1501091.09 | 701770.59 | 1501088.44 |
| L50 | 24.75 | N0° 49' 28.66"W | 701770.59 | 1501088.44 | 701795.33 | 1501088.08 |
| L51** | 32.02 | N1° 23' 39.62"E | 701795.33 | 1501088.08 | 701827.35 | 1501088.86 |
| L52** | 14.86 | N29° 57' 05.98"E | 701827.35 | 1501088.86 | 701840.22 | 1501096.28 |
| L53** | 23.56 | N2° 40' 02.26"E | 701840.22 | 1501096.28 | 701863.76 | 1501097.38 |
| L54** | 12.07 | N20° 57' 50.64"E | 701863.76 | 1501097.38 | 701875.03 | 1501101.69 |
| L55** | 39.20 | N10° 55' 20.70"W | 701875.03 | 1501101.69 | 701913.52 | 1501094.27 |
| L56 | 24.41 | N10° 25' 03.72"W | 701913.52 | 1501094.27 | 701937.53 | 1501089.85 |
| L57 | 24.31 | N0° 01' 52.91"W | 701937.53 | 1501089.85 | 701961.84 | 1501089.84 |
| L58 | 24.73 | N3° 48' 25.60"E | 701961.84 | 1501089.84 | 701986.51 | 1501091.48 |
| L59 | 23.75 | N27° 51' 05.53"E | 701986.51 | 1501091.48 | 702007.51 | 1501102.58 |
| L60 | 24.74 | N47° 28' 40.46"E | 702007.51 | 1501102.58 | 702024.23 | 1501120.81 |

## Line Table: Alignments

| Line # | Length | Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
|---|---|---|---|---|---|---|
| L61 | 24.59 | N72° 46' 17.20"E | 702024.23 | 1501120.81 | 702031.51 | 1501144.29 |
| L62 | 24.74 | N78° 28' 29.58"E | 702031.51 | 1501144.29 | 702036.45 | 1501168.53 |
| L63 | 24.84 | S88° 37' 32.33"E | 702036.45 | 1501168.53 | 702035.86 | 1501193.37 |
| L64 | 83.01 | N0° 51' 32.84"E | 702035.86 | 1501193.37 | 702118.85 | 1501194.61 |
| L65 | 23.99 | N86° 45' 52.04"W | 702118.85 | 1501194.61 | 702120.21 | 1501170.66 |
| L66 | 24.92 | S89° 23' 51.62"W | 702120.21 | 1501170.66 | 702119.95 | 1501145.73 |
| L67 | 24.77 | N88° 30' 13.49"W | 702119.95 | 1501145.73 | 702120.59 | 1501120.97 |
| L68 | 24.85 | N70° 33' 13.69"W | 702120.59 | 1501120.97 | 702128.87 | 1501097.54 |
| L69 | 24.75 | N50° 13' 38.17"W | 702128.87 | 1501097.54 | 702144.70 | 1501078.52 |
| L70 | 24.98 | N49° 45' 08.70"W | 702144.70 | 1501078.52 | 702160.84 | 1501059.45 |
| L71 | 25.00 | N46° 45' 10.87"W | 702160.84 | 1501059.45 | 702177.97 | 1501041.24 |
| L72 | 24.92 | N28° 31' 40.46"W | 702177.97 | 1501041.24 | 702199.86 | 1501029.34 |
| L73 | 24.81 | N33° 46' 37.25"W | 702199.86 | 1501029.34 | 702220.48 | 1501015.55 |
| L74 | 24.76 | N30° 59' 08.55"W | 702220.48 | 1501015.55 | 702241.71 | 1501002.80 |
| L75 | 24.90 | N12° 36' 04.80"W | 702241.71 | 1501002.80 | 702266.01 | 1500997.37 |
| L76 | 24.97 | N26° 10' 59.98"W | 702266.01 | 1500997.37 | 702288.42 | 1500986.35 |
| L77 | 24.92 | N22° 23' 15.85"W | 702288.42 | 1500986.35 | 702311.47 | 1500976.85 |
| L78 | 24.99 | N20° 42' 23.42"W | 702311.47 | 1500976.85 | 702334.84 | 1500968.02 |
| L79 | 24.25 | N20° 35' 09.77"W | 702334.84 | 1500968.02 | 702357.54 | 1500959.49 |
| L80 | 24.21 | N17° 12' 36.86"W | 702357.54 | 1500959.49 | 702380.67 | 1500952.33 |

## Line Table: Alignments

| Line # | Length | Direction | Start Point Northing | Start Point Easting | End Point Northing | End Point Easting |
|---|---|---|---|---|---|---|
| L81 | 24.67 | N22° 40' 16.11"E | 702380.67 | 1500952.33 | 702403.43 | 1500961.83 |
| L82 | 24.44 | N57° 44' 59.26"E | 702403.43 | 1500961.83 | 702416.48 | 1500982.51 |
| L83 | 24.42 | N60° 28' 44.76"E | 702416.48 | 1500982.51 | 702428.51 | 1501003.76 |
| L84 | 24.32 | N76° 17' 23.09"E | 702428.51 | 1501003.76 | 702434.28 | 1501027.39 |
| L85 | 11.32 | N9° 10' 17.65"W | 702434.28 | 1501027.39 | 702445.45 | 1501025.59 |
| L86 | 24.52 | N64° 46' 45.57"W | 702445.45 | 1501025.59 | 702455.90 | 1501003.40 |
| L87 | 15.04 | N76° 44' 35.31"W | 702455.90 | 1501003.40 | 702459.35 | 1500988.76 |
| L88 | 24.52 | N79° 49' 38.95"W | 702459.35 | 1500988.76 | 702463.68 | 1500964.63 |
| L89 | 44.03 | N78° 28' 50.15"W | 702463.68 | 1500964.63 | 702472.47 | 1500921.48 |
| L90 | 30.54 | N27° 51' 18.24"W | 702472.47 | 1500921.48 | 702499.47 | 1500907.21 |
| L91 | 24.50 | N23° 03' 39.52"W | 702499.47 | 1500907.21 | 702522.01 | 1500897.62 |
| L92 | 24.99 | N13° 10' 35.09"W | 702522.01 | 1500897.62 | 702546.35 | 1500891.92 |
| L93 | 24.71 | N15° 36' 07.32"W | 702546.35 | 1500891.92 | 702570.14 | 1500885.28 |
| L94 | 23.96 | N11° 23' 13.80"W | 702570.14 | 1500885.28 | 702593.63 | 1500880.55 |
| L95 | 24.60 | N5° 56' 37.73"W | 702593.63 | 1500880.55 | 702618.09 | 1500878.00 |
| L96 | 0.02 | N19° 32' 35.38"E | 702618.09 | 1500878.00 | 702618.11 | 1500878.01 |

## NOTES:

1. * Denotes field adjustments may be required to riprap top edge, see sheet 60005.
2. ** Denotes adjustments to alignment may be required for top riprap edge, see sheets 60006 and 60019.

BUREAU OF RECLAMATION

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BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

DESIGNED Matt DeAmico, P.E.
DRAWN Matt DeAmico, P.E.
CHECKED Wade Warner
MATHEW DEAMICO Digitally signed by MATTHEW DEAMICO Date: 2024-11-14 13:06 -08'00'
TECH. APPR. P.E., Civil Engineer
WYLIE DUKE Digitally signed by WYLIE DUKE Date: 2024.11.08 11:52:14 -08'00'
APPROVED ADMIN APPROVAL - P.E., Civil Engineer
CCAO, YAKIMA, WA 2024-11-01

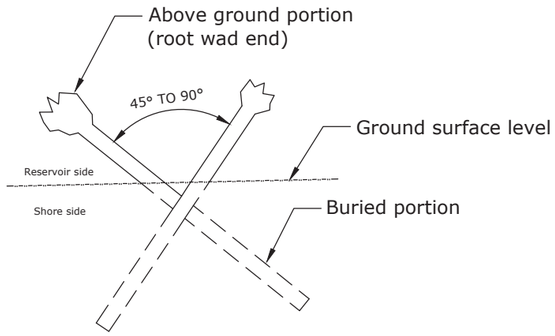
RIPRAP TOP ALIGNMENT TABLES

33-109-60011

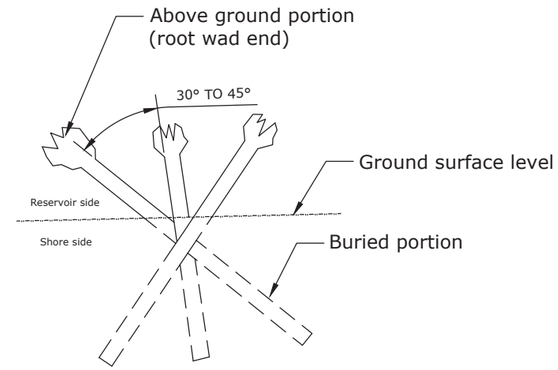
SHEET 12

LAST SAVED DATE 2024-11-14 LAST SAVED BY MDEAMICO

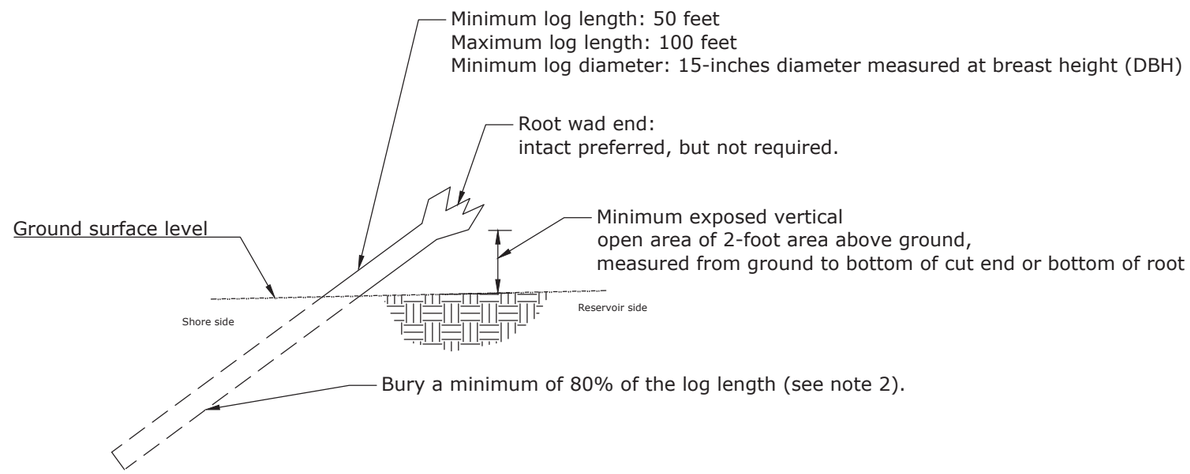
CAD SYSTEM AutoCAD Civil 3D (LMS TECH) CAD FILENAME 33-109-60011 ALIGNMENT TABLES.DWG




2- LOG HABITAT STRUCTURE
PLAN VIEW (N.T.S.)




3- LOG HABITAT STRUCTURE
PLAN VIEW (N.T.S.)




TYPICAL LOG HABITAT STRUCTURE
PROFILE VIEW*

*Only one log shown for
clarity

NOTES:

1. Intact root wads are not required for construction. If logs with intact root wads are used, use the root wad end as the exposed end of the structure.
2. Backfill and compact in accordance with the specifications.
3. Keep branches as intact as possible on logs. Branches are not shown for clarity.
4. Do not use any fastenings or mechanical connections to connect the logs together.
5. Do not use any anchors or other devices to restrain the logs into the reservoir bed.

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

| REV NO | | |
|---|---|---|
| 1 | 2026-02-11 Matt DeAmico, P.E. | 109 UPDATED STRUCTURE DIMENSIONS. |

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
ELIZABETH HEETHER
CHECKED
Matt DeAmico, P.E.
TECH. APPR. CIVIL ENGINEER
Chad Stuart
APPROVED YFO Manager
ADMIN APPROVAL

YAKIMA, WA 2025-06-12

FISH HABITAT LOG STRUCTURES

33-109-60047

SHEET 13

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CAD SYSTEM
AutoCAD 2025 (LMS TECH)
CAD FILENAME
33-109-60047-RD-1.DWG

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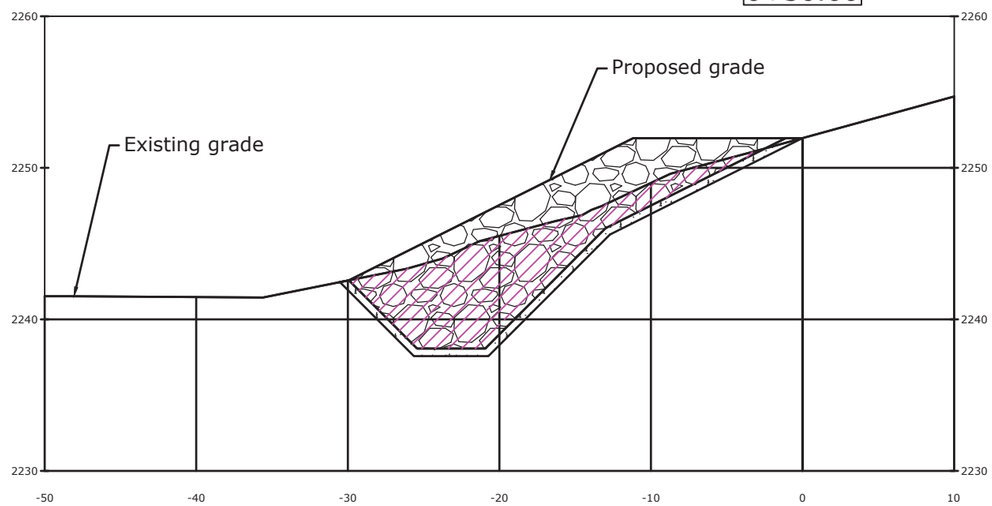


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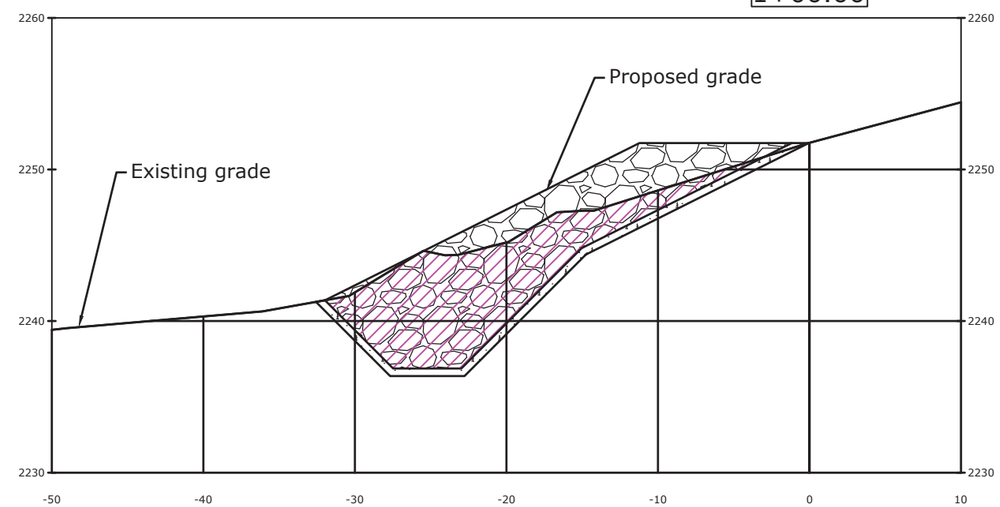


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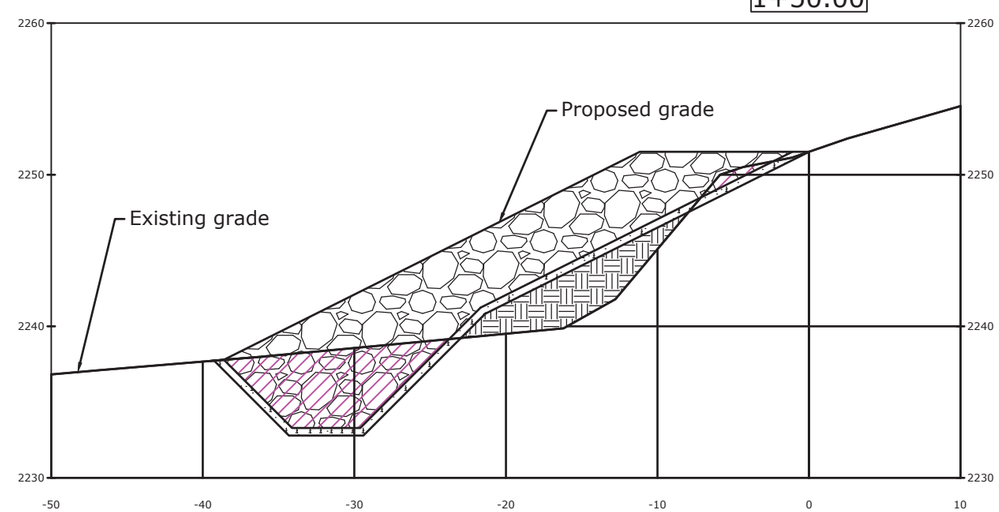


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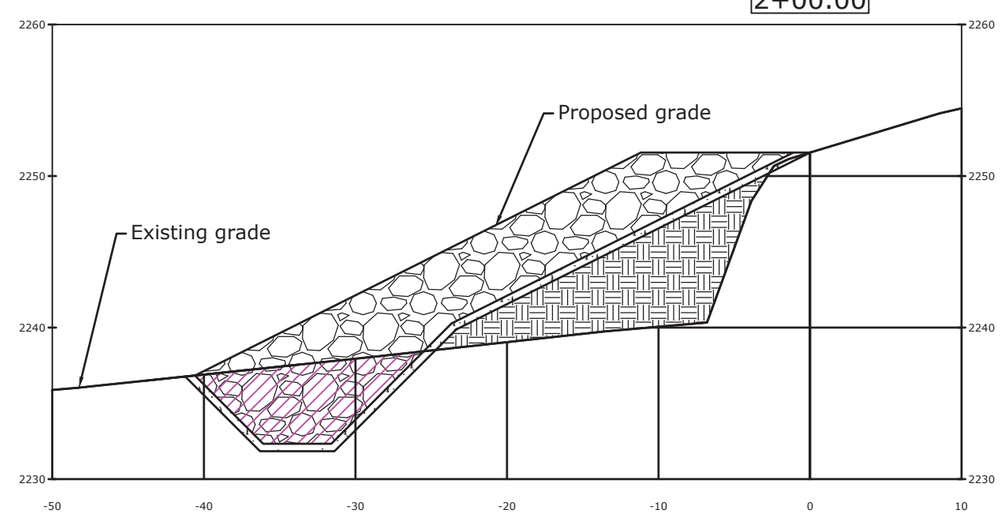


## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO
TECH. APPR.
P.E. CIVIL ENGINEER
CHAD STUART
Digitally signed by CHAD STUART
Date: 2026.02.18 10:16:43 -08'00'
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA
2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 0+50 TO 2+00

33-109-60088

SHEET 14

LAST SAVED DATE
2026-02-11
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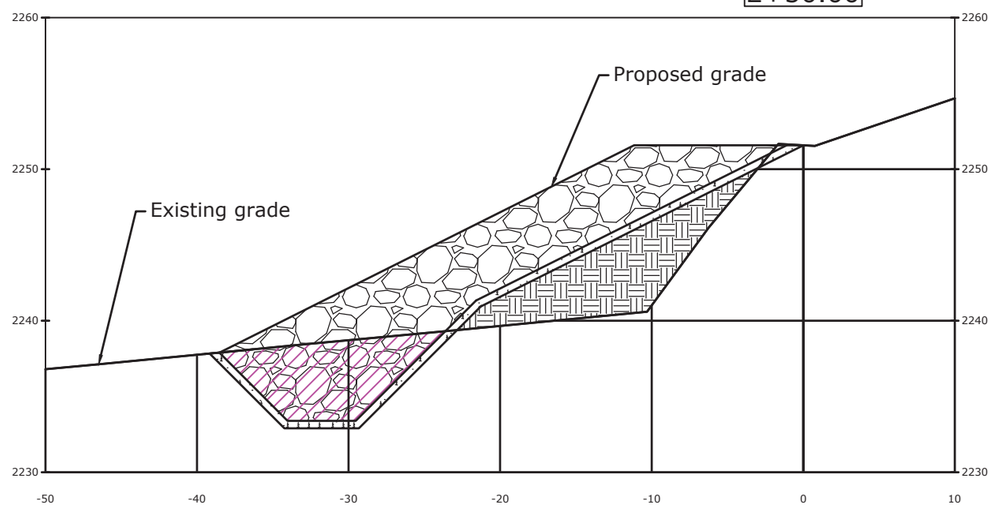
MDEAMICO

CAD SYSTEM
AutoCAD Civil 3D (LMS TECH)
CAD FILENAME
33-109-60089 ALL CROSS SECTION
SHEETS.DWG

## 2+50.00

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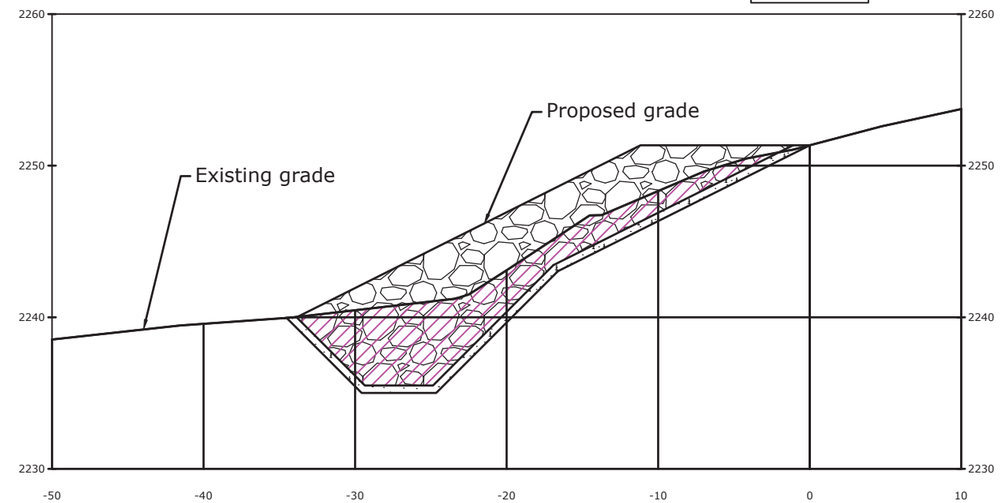
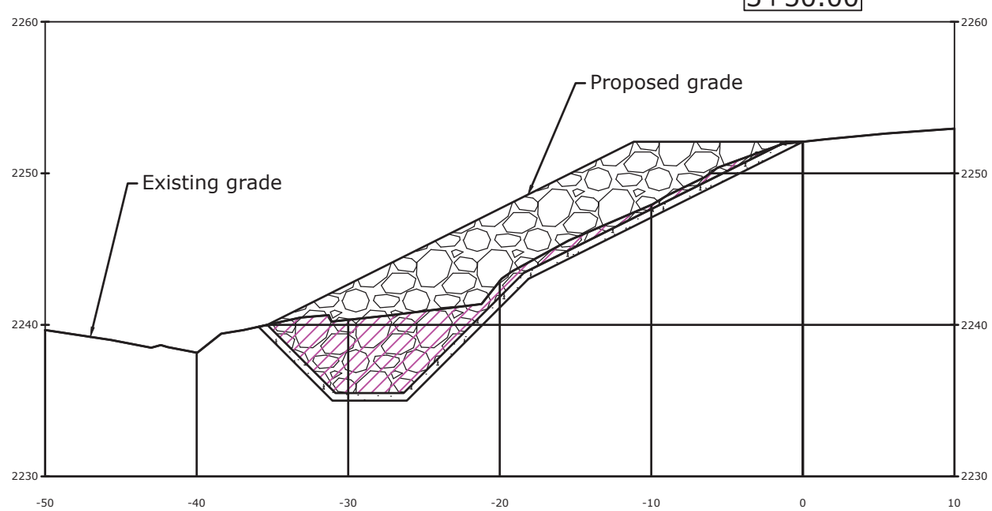
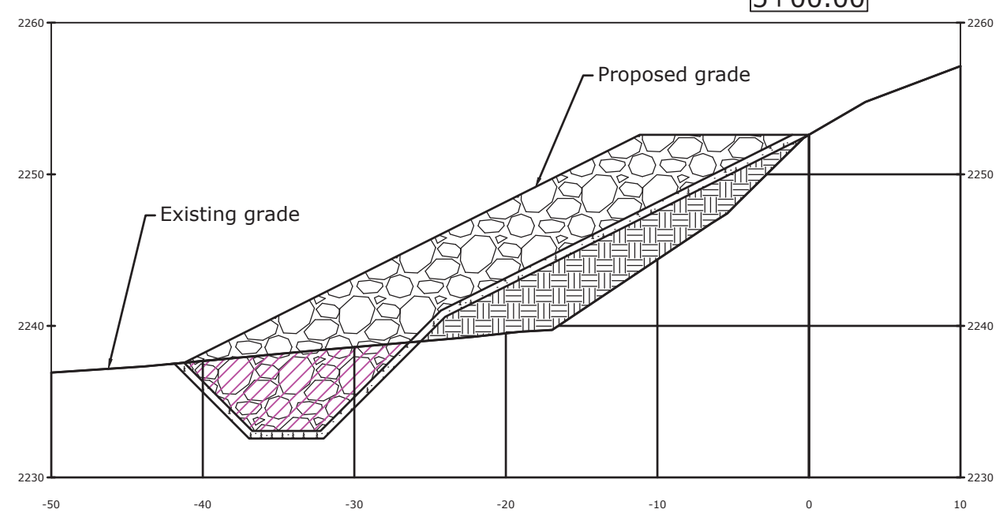



## 3+50.00




## 5+00.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

DESIGNED: MATT DEAMICO, P.E.
DRAWN: MATT DEAMICO, P.E.
CHECKED: WADE WARNER
TECH. APPR. P.E. CIVIL ENGINEER: CHAD STUART — Digitally signed by CHAD STUART Date: 2026.02.18 11:06:12 -08'00'
APPROVED: ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA 2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 2+50 TO 5+00

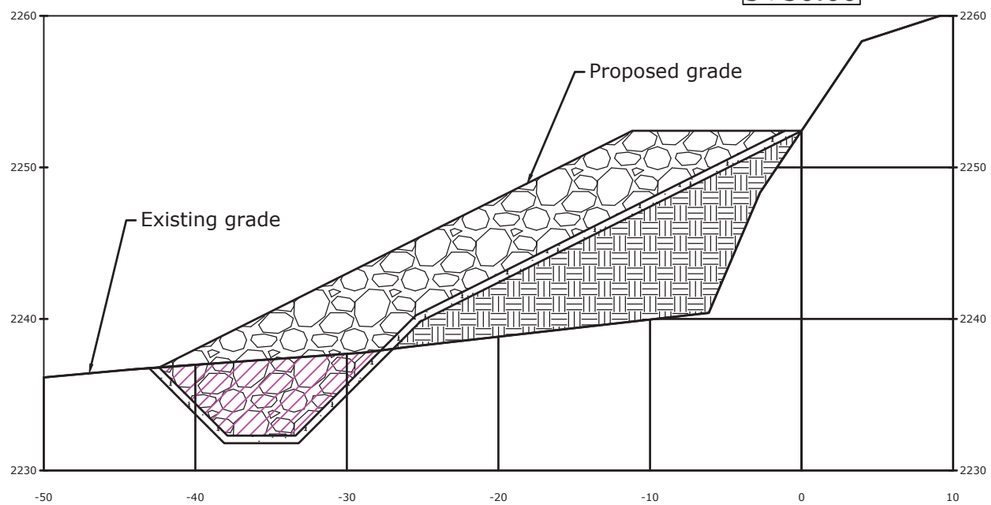
33-109-60089

SHEET 15

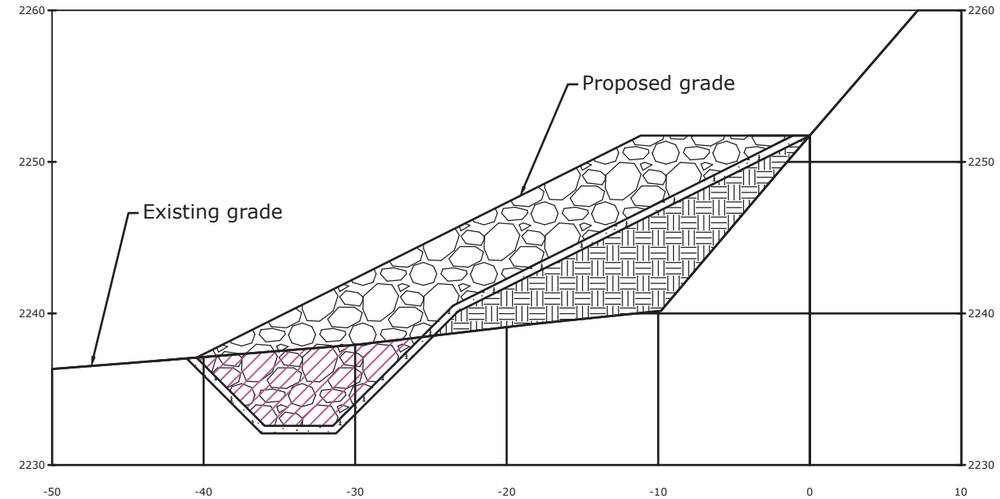
LAST SAVED DATE 2026-02-13
LAST SAVED BY MDEAMICO

CAD SYSTEM AutoCAD 2025.0S (LMS TECH)
CAD FILENAME 33-109-60088 ALL CROSS SECTION SHEETS.DWG

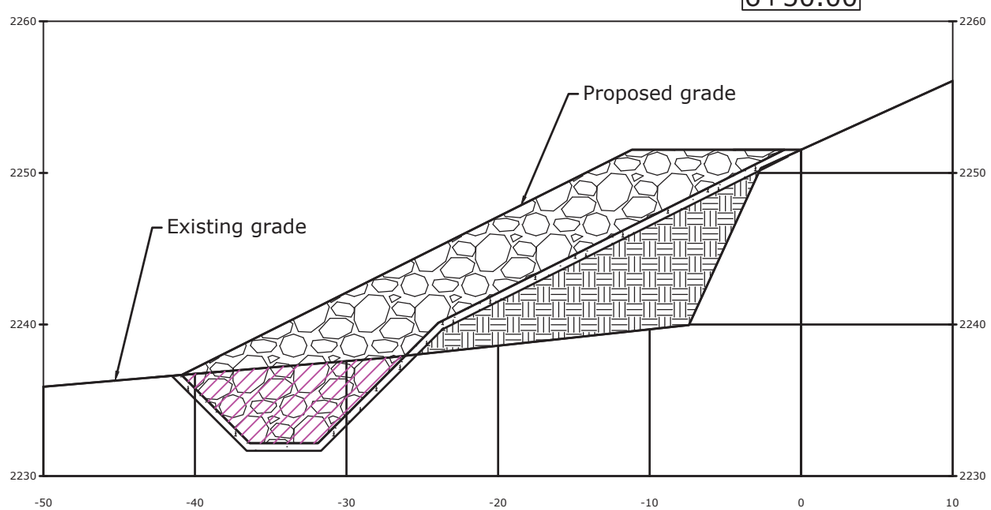
5+50.00



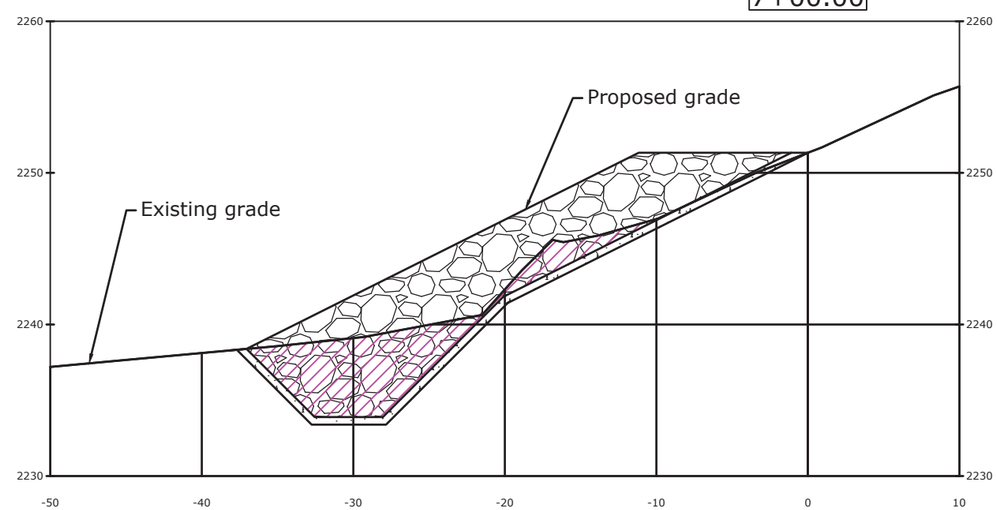

6+00.00




6+50.00




7+00.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO
TECH. APPR. P.E. CIVIL ENGINEER
CHAD STUART
Digitally signed by CHAD STUART
Date: 2026.02.18 11:07:33 -08'00'
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA 2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 5+50 TO 7+00

33-109-60090

SHEET 16

LAST SAVED DATE
2026-02-13
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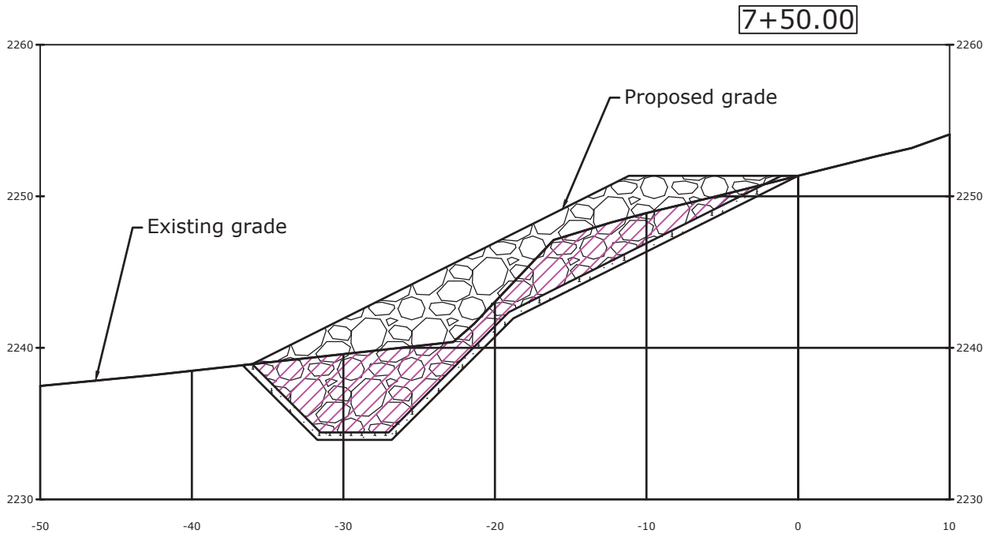
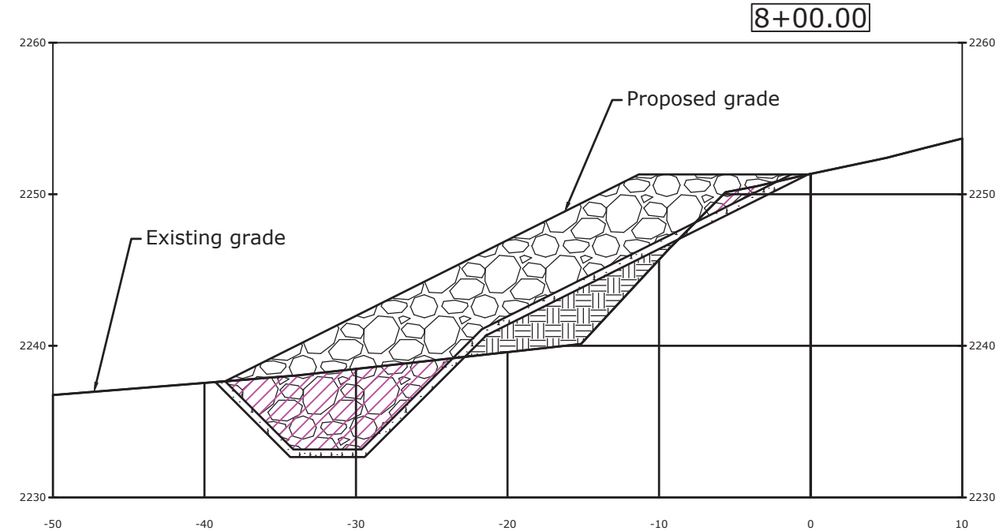
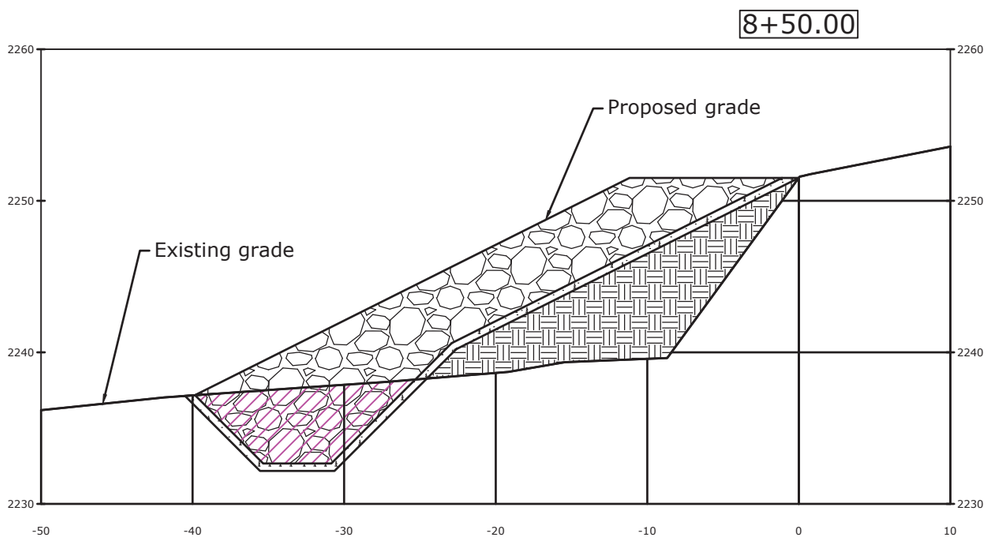
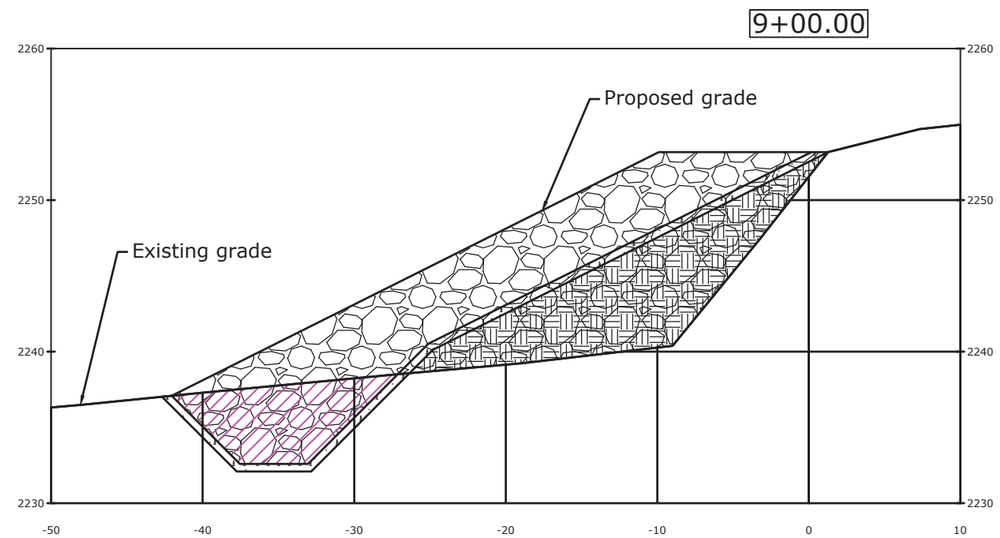
CAD SYSTEM
AutoCAD 2025 (LMS TECH)
CAD FILENAME
33-109-60088 ALL CROSS SECTION
SHEETS.DWG




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

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CAD SYSTEM
AutoCAD Civil 3D (LMS TECH)
CAD FILENAME
33-109-60089 ALL CROSS SECTION
SHEETS.DWG

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO
TECH. APPR. P.E. CIVIL ENGINEER
CHAD STUART Digitally signed by CHAD STUART Date: 2026.02.18 11:08:43 -08'00'
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA 2026-02-11

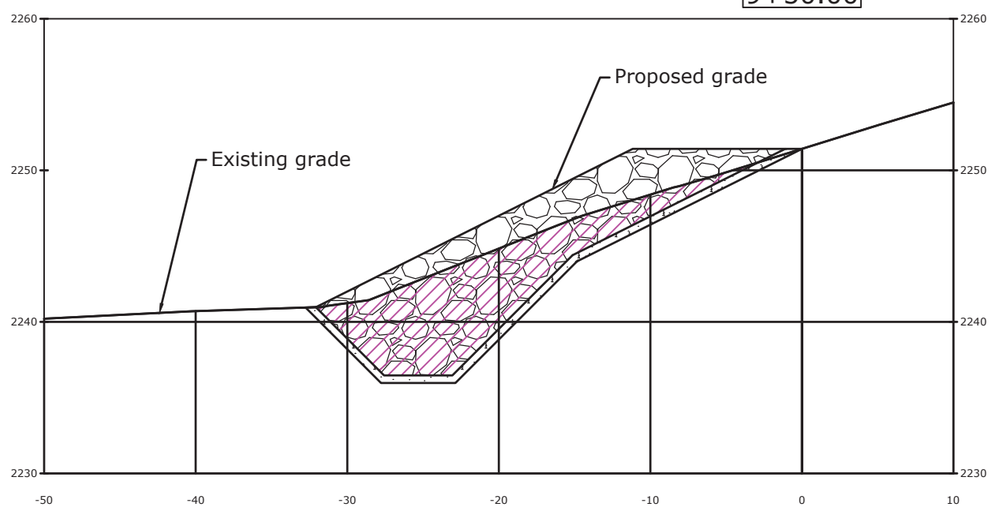
CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 7+50 TO 9+00

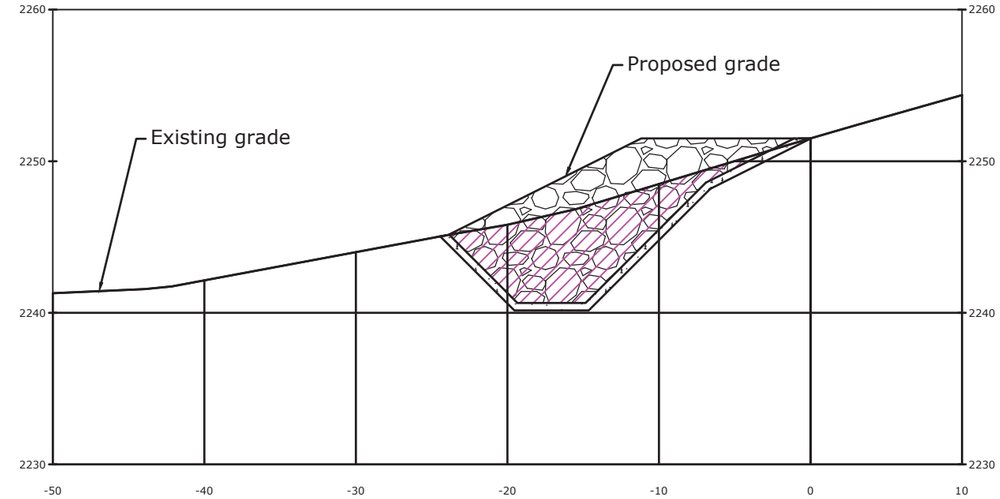
33-109-60091

SHEET 17

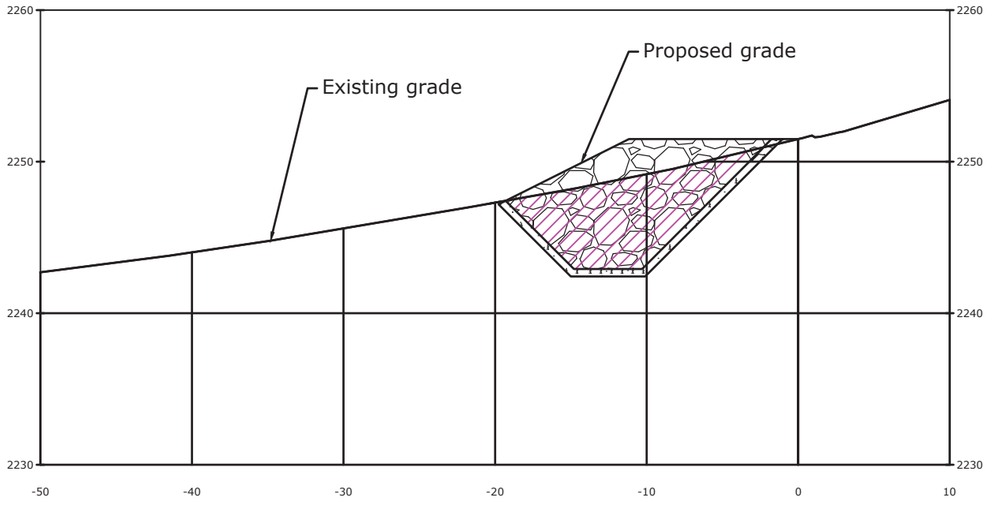
## 9+50.00



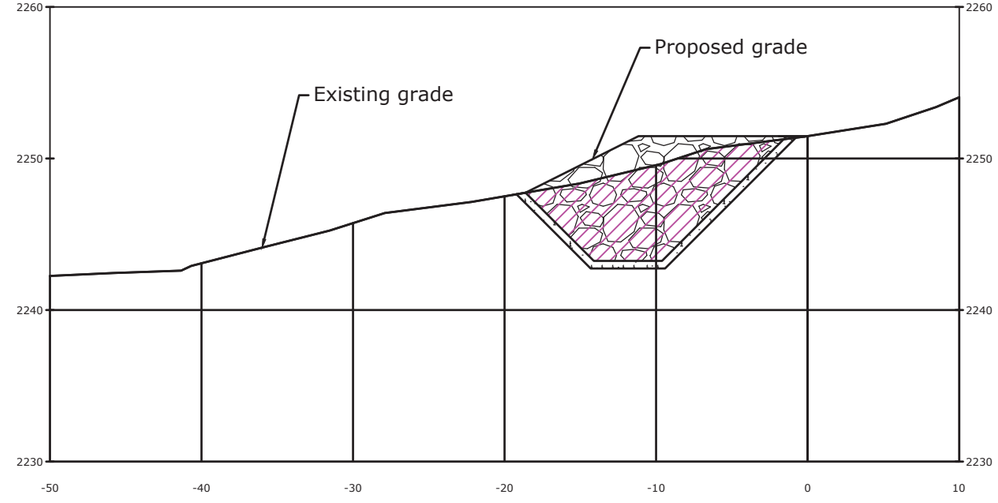

## 10+00.00




## 10+50.00




## 11+00.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

ALWAYS THINK SAFETY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO
TECH. APPR. P.E. CIVIL ENGINEER
CHAD STUART
Digitally signed by CHAD STUART
Date: 2026.02.18 11:10:12 -08'00'
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER

YAKIMA, WA 2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 9+50 TO 11+00

33-109-60092

SHEET 18

LAST SAVED DATE
2026-02-11
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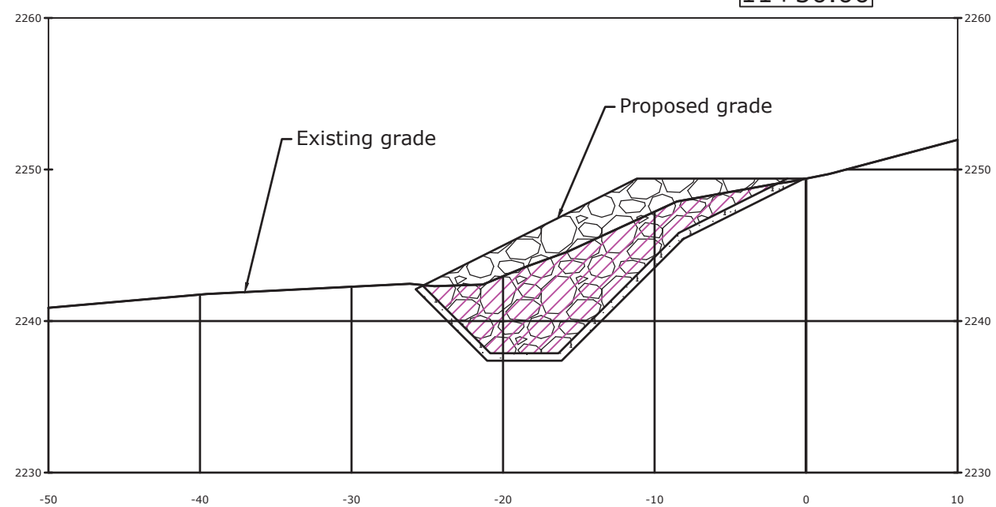
CAD SYSTEM
AutoCAD 2018 (LMS TECH)
CAD FILENAME
33-109-60088 ALL CROSS SECTION
SHEETS.DWG

## 11+50.00

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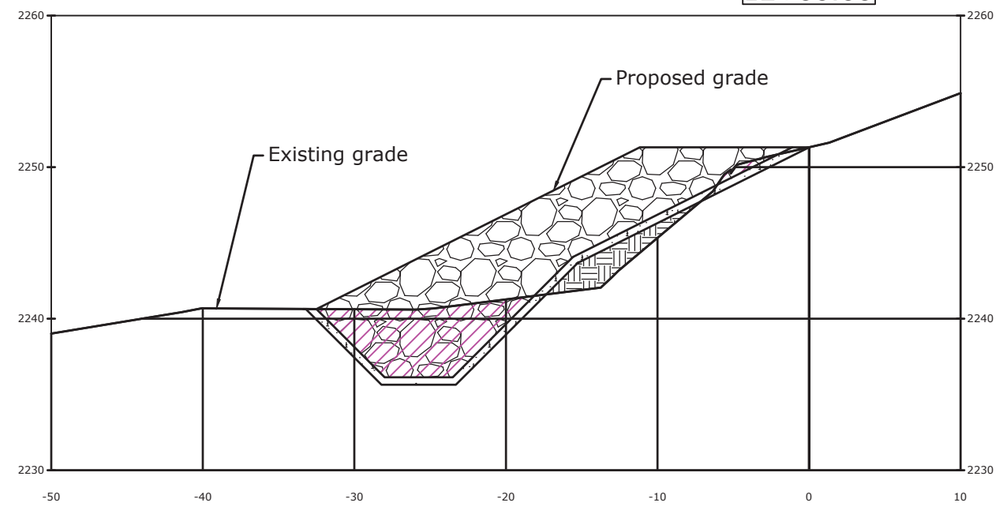


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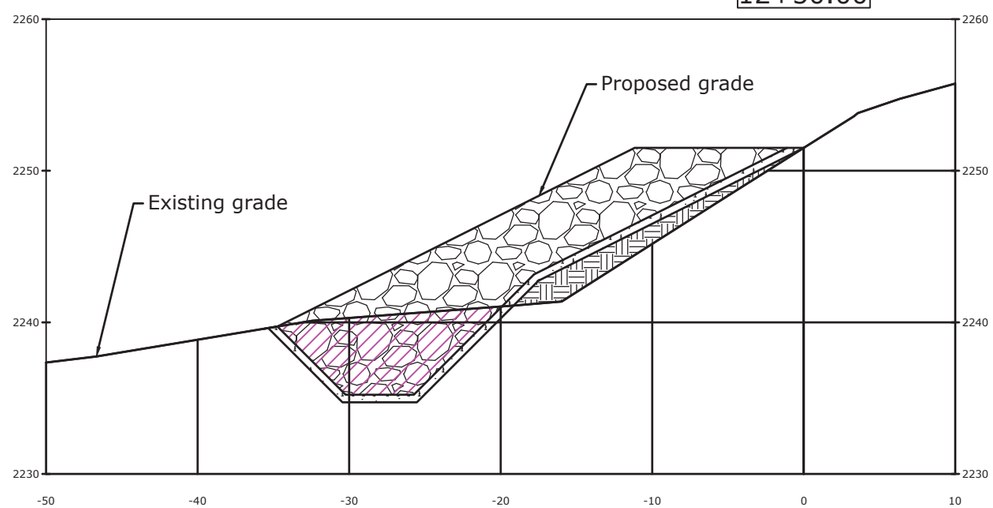


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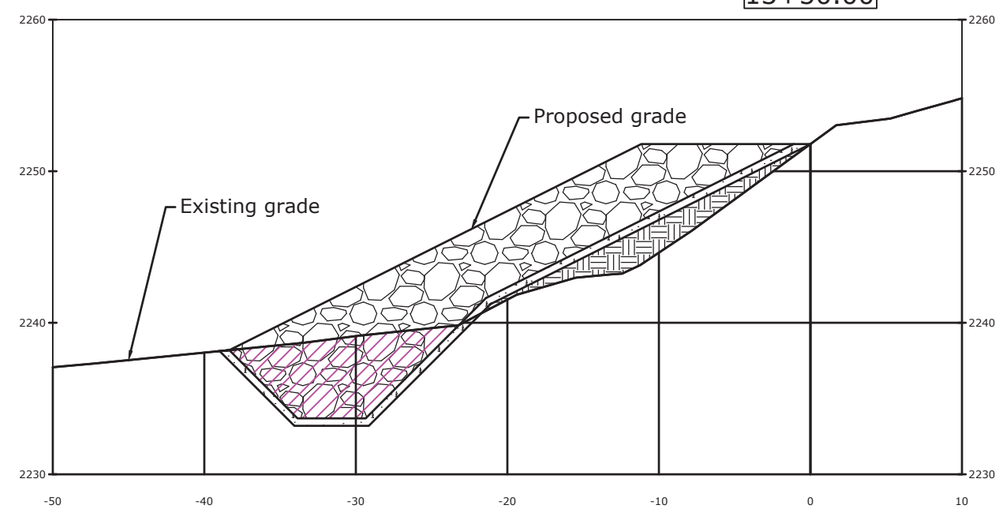


## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

LAST SAVED DATE 2026-02-11
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CAD SYSTEM AutoCAD Civil 3D (LMS TECH)
CAD FILENAME 33-109-60089 ALL CROSS SECTION SHEETS.DWG

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

DESIGNED MATT DEAMICO, P.E.
DRAWN MATT DEAMICO, P.E.
CHECKED WADE WARNER
TECH. APPR. P.E. CIVIL ENGINEER CHAD STUART Digitally signed by CHAD STUART Date: 2026.02.18 11:11:29 -08'00'
APPROVED ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA 2026-02-11

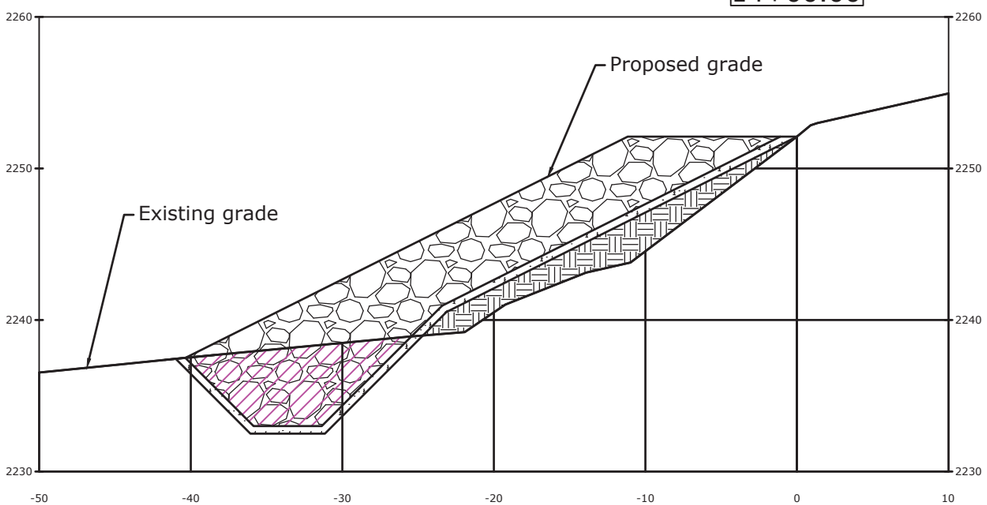
CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 11+50 TO 13+50

33-109-60093

SHEET 19

## 14+00.00

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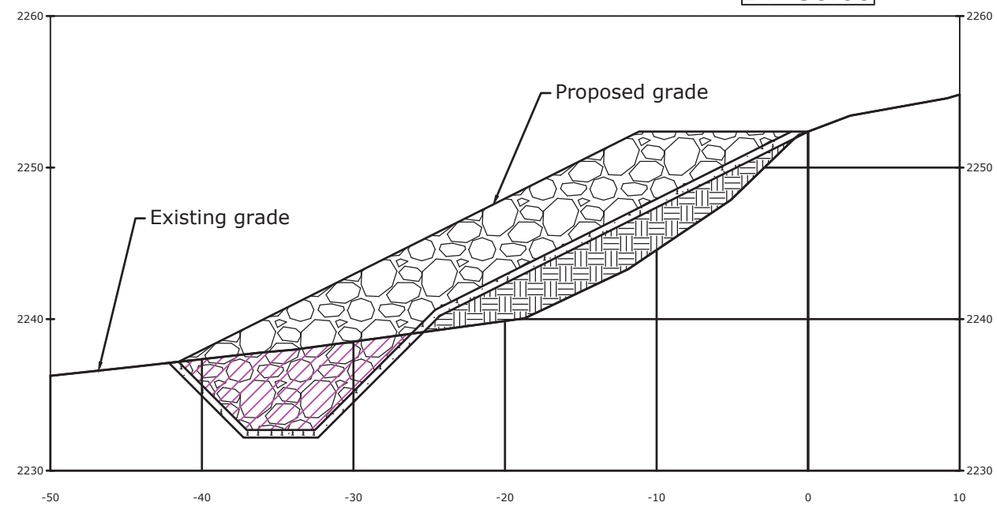
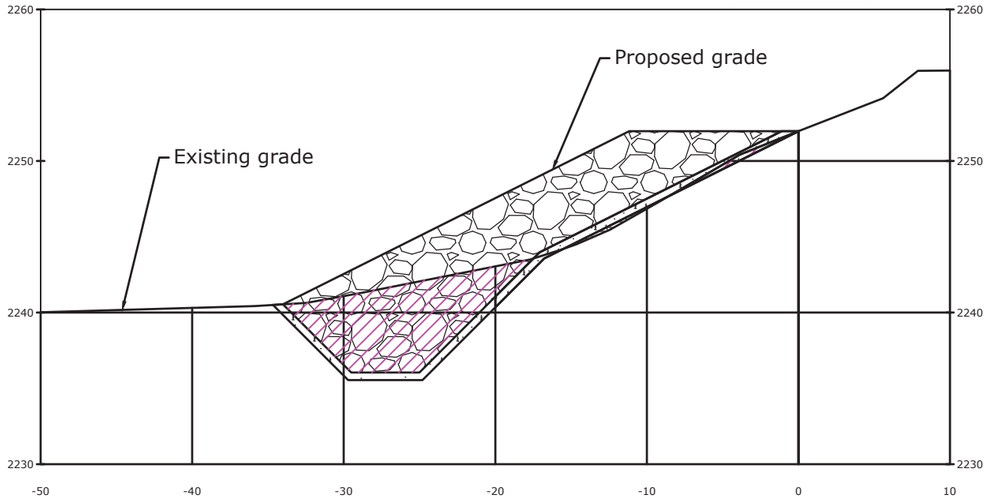
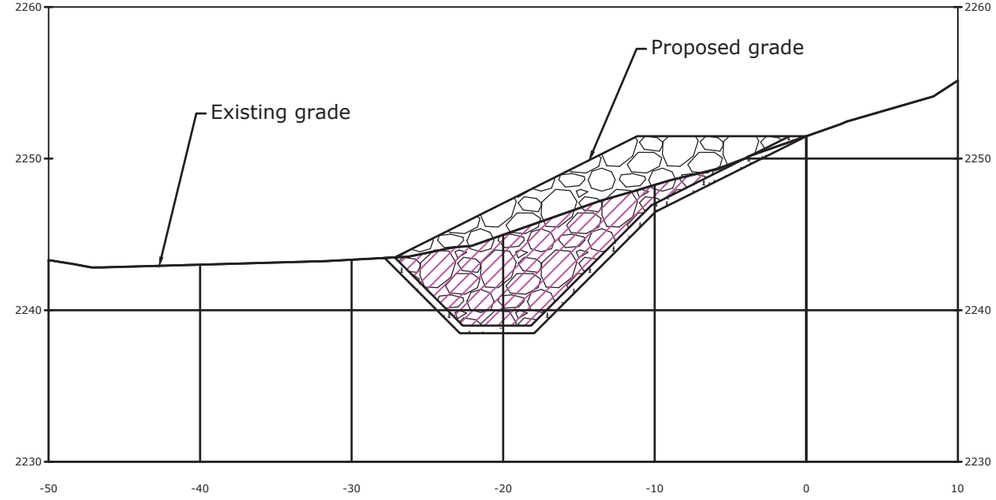



## 15+00.00




## 15+50.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

DESIGNED: MATT DEAMICO, P.E.
DRAWN: MATT DEAMICO, P.E.
CHECKED: WADE WARNER
TECH. APPR.: P.E. CIVIL ENGINEER — CHAD STUART
APPROVED: ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA 2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 14+00 TO 15+50

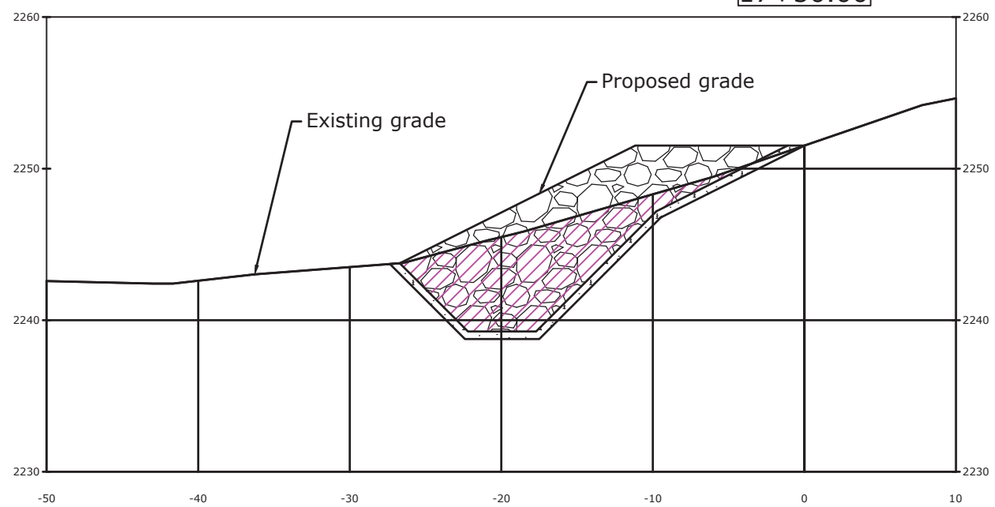
33-109-60094

SHEET 20

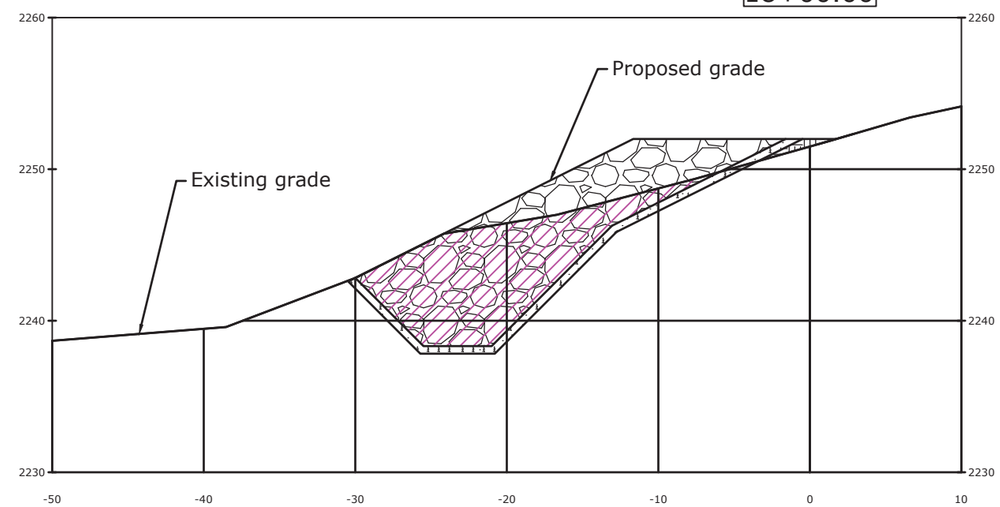
LAST SAVED DATE 2026-02-11
LAST SAVED BY MDEAMICO

CAD SYSTEM AUTOCAD 2025
CAD FILENAME 33-109-60088 ALL CROSS SECTION SHEETS.DWG

17+50.00




18+00.00

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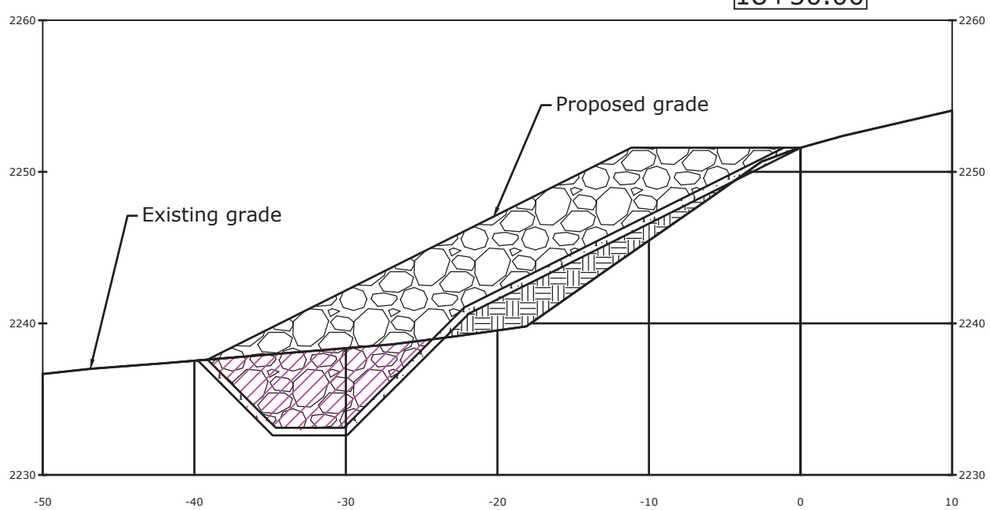
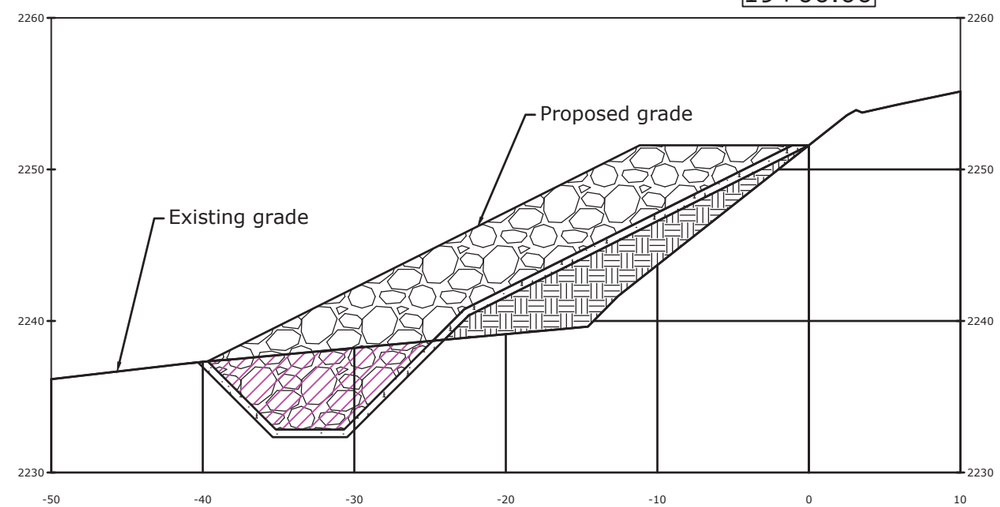



19+00.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

ALWAYS THINK SAFETY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO
TECH. APPR. P.E. CIVIL ENGINEER
CHAD STUART
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER
YAKIMA, WA 2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 17+50 TO 19+00

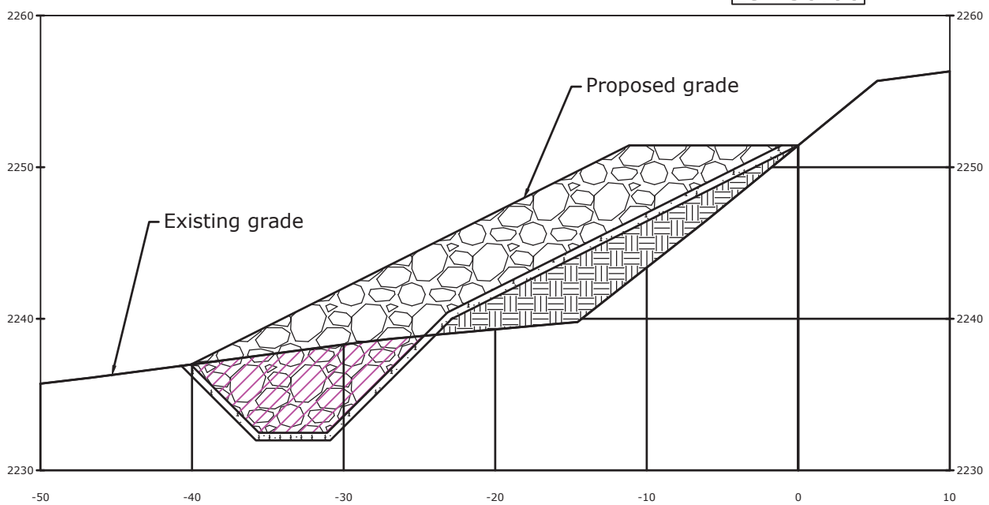
33-109-60095

SHEET 21

LAST SAVED DATE
2026-02-11
LAST SAVED BY
MDEAMICO

CAD SYSTEM
AutoCAD Civil 3D (LMS TECH)
CAD FILENAME
33-109-60088 ALL CROSS SECTION SHEETS.DWG

## 19+50.00

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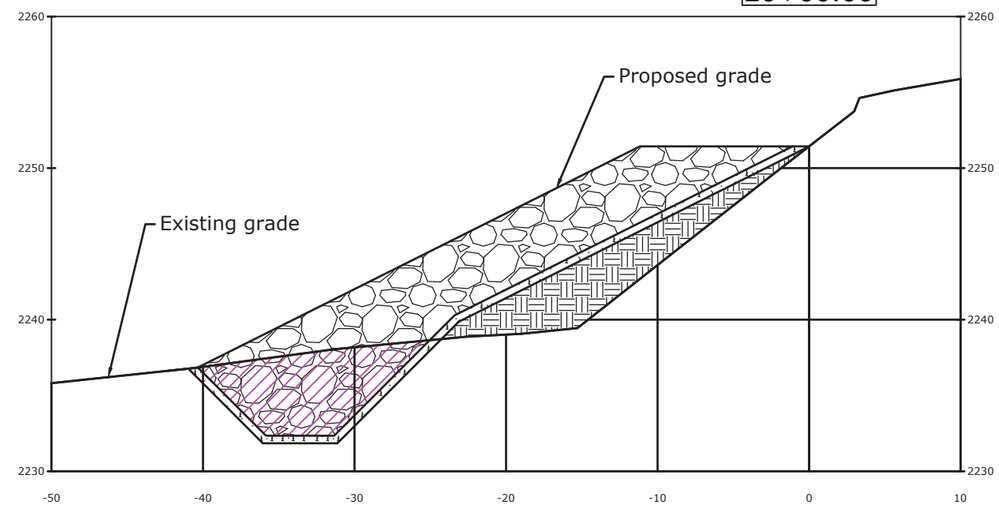
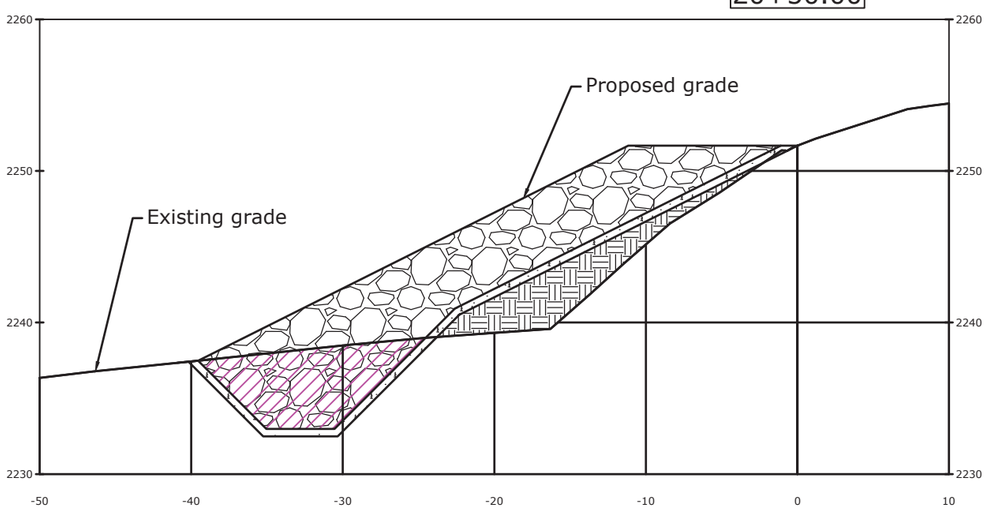
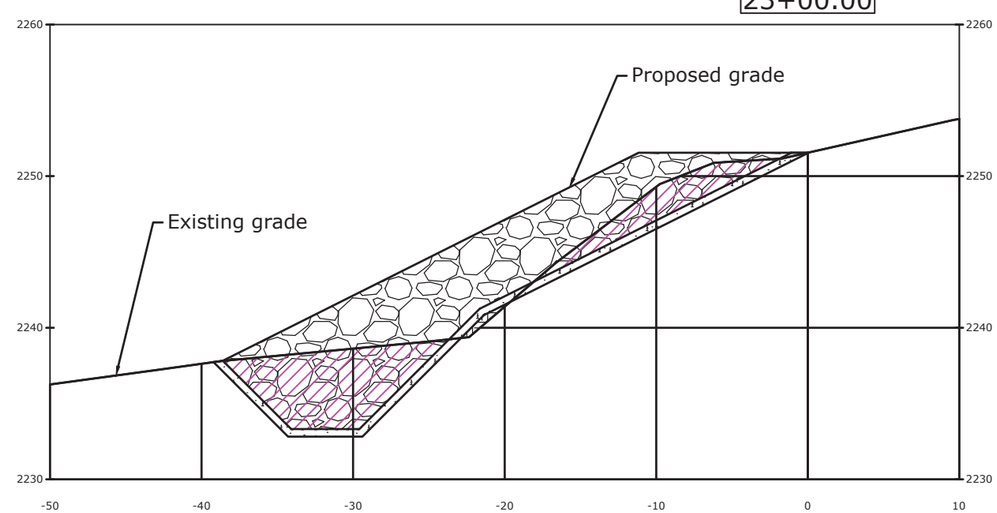



## 20+50.00




## 23+00.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO Digitally signed by MATTHEW DEAMICO Date: 2026.02.17 14:07:12 -08'00'
TECH. APPR. P.E. CIVIL ENGINEER
CHAD STUART Digitally signed by CHAD STUART Date: 2026.02.18 11:24:04 -08'00'
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER

YAKIMA, WA 2026-02-11

CROSS SECTIONS

RIPRAP TOP ALIGNMENT
STA. 19+50 TO 23+00

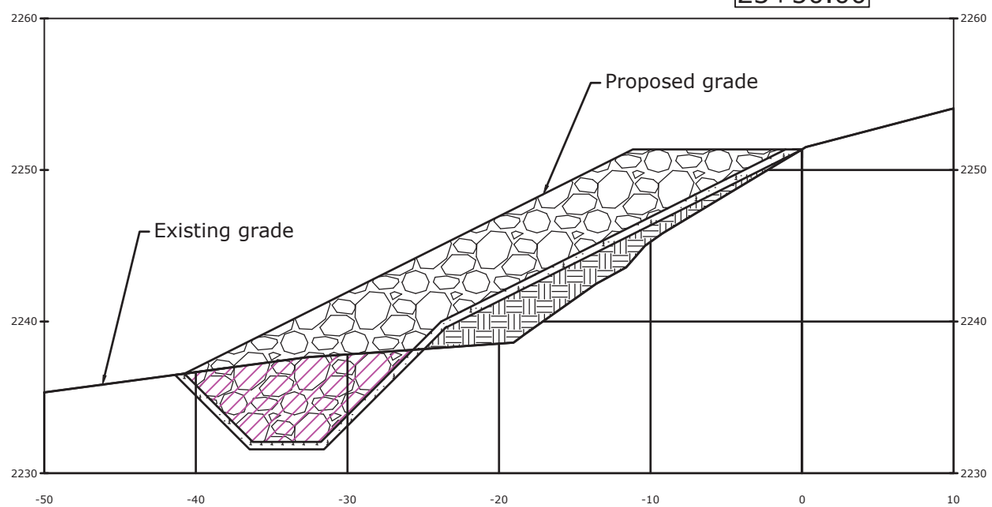
33-109-60096

SHEET 22

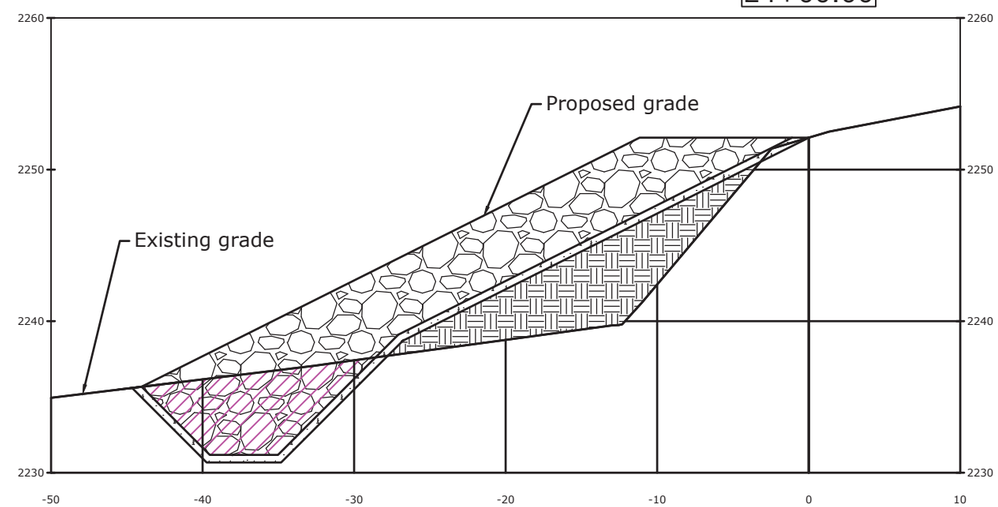
LAST SAVED DATE
2026-02-17
LAST SAVED BY
MDEAMICO

CAD SYSTEM
AutoCAD 2025 OS (LMS TECH)
CAD FILENAME
33-109-60088 ALL CROSS SECTION
SHEET SIZE
ANSI D

23+50.00




24+00.00




## NOTES:

1. See 33-109-60009 for typical section details and dimensions.
2. Stations with cross sections that do not follow the typical section are not included.
3. Geotextile is not shown for clarity.

## HATCH KEY:

- Riprap
- Bedding
- Common Fill
- Cut

BUREAU OF RECLAMATION

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YRBWEP

CLE ELUM DAM AND RESERVOIR

SPEELYI SHORELINE PROTECTION

MATT DEAMICO, P.E.
DESIGNED
MATT DEAMICO, P.E.
DRAWN
WADE WARNER
CHECKED
MATTHEW DEAMICO Digitally signed by MATTHEW DEAMICO Date: 2026.02.17 09:06:28-08'00'
TECH. APPR. P.E. CIVIL ENGINEER
CHAD STUART Digitally signed by CHAD STUART Date: 2026.02.18 11:26:15 -08'00'
APPROVED
ADMIN APPROVAL - ACTING YRBWEP MANAGER

YAKIMA, WA 2026-02-11

CROSS SECTIONS

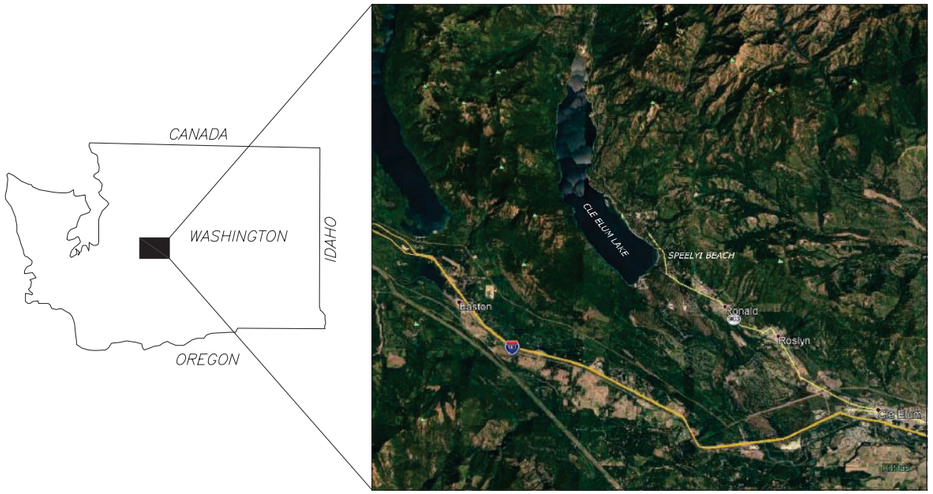
RIPRAP TOP ALIGNMENT
STA. 23+50 TO 24+00

33-109-60097

SHEET 23

LAST SAVED DATE
2026-02-13
LAST SAVED BY
MDEAMICO

CAD SYSTEM
AutoCAD 2025 OS (LMS TECH)
CAD FILENAME
33-109-60088 ALL CROSS SECTION
SHEET 23




## BASIS OF BEARING:

THE BEARINGS SHOWN ON THIS SURVEY ARE BASED ON NAD 83(11) WASHINGTON STATE PLANE, SOUTH ZONE, WITH VERIFICATION MEASUREMENTS TO WSDOT MONUMENTS: #7969 DESIGNATION GP19090-38. # 7977 DESIGNATION GP19090-46 AND #1960 DESIGNATION GP19970-8 RESULTING IN A BEARING OF SOUTH 01°58'08" WEST BETWEEN MONUMENTS FOUND AT THE NORTH 1/4 CORNER AND CENTER OF SECTION 2.

## VERTICAL DATUM:

THE VERTICAL DATUM FOR THIS SURVEY IS U.S. BUREAU OF RECLAMATION DATUM FOR CLE ELUM DAM BASED ON THE ELEVATIONS SHOWN ON THE DRAWING TITLED "LOCATION OF BENCH MARKS ON CLE ELUM DAM" NO. 32-D-344 DATED AUGUST 26, 1933 AND ESTABLISHED BY FIELD SURVEY TIES ON 5 BRASS CAP BENCH MARKS LOCATED AT STATIONS 2+30, 4+50, 6+70, 8+90 AND 9+50.

| | | |
|---|---|---|
| BM BRASS CAP 2+30 | ELEV. = | 2250.012 |
| BM BRASS CAP 4+50 | ELEV. = | 2249.900 |
| BM BRASS CAP 6+70 | ELEV. = | 2249.725 |
| BM BRASS CAP 8+90 | ELEV. = | 2250.064 |
| BM BRASS CAP 9+50 | ELEV. = | 2250.042 |

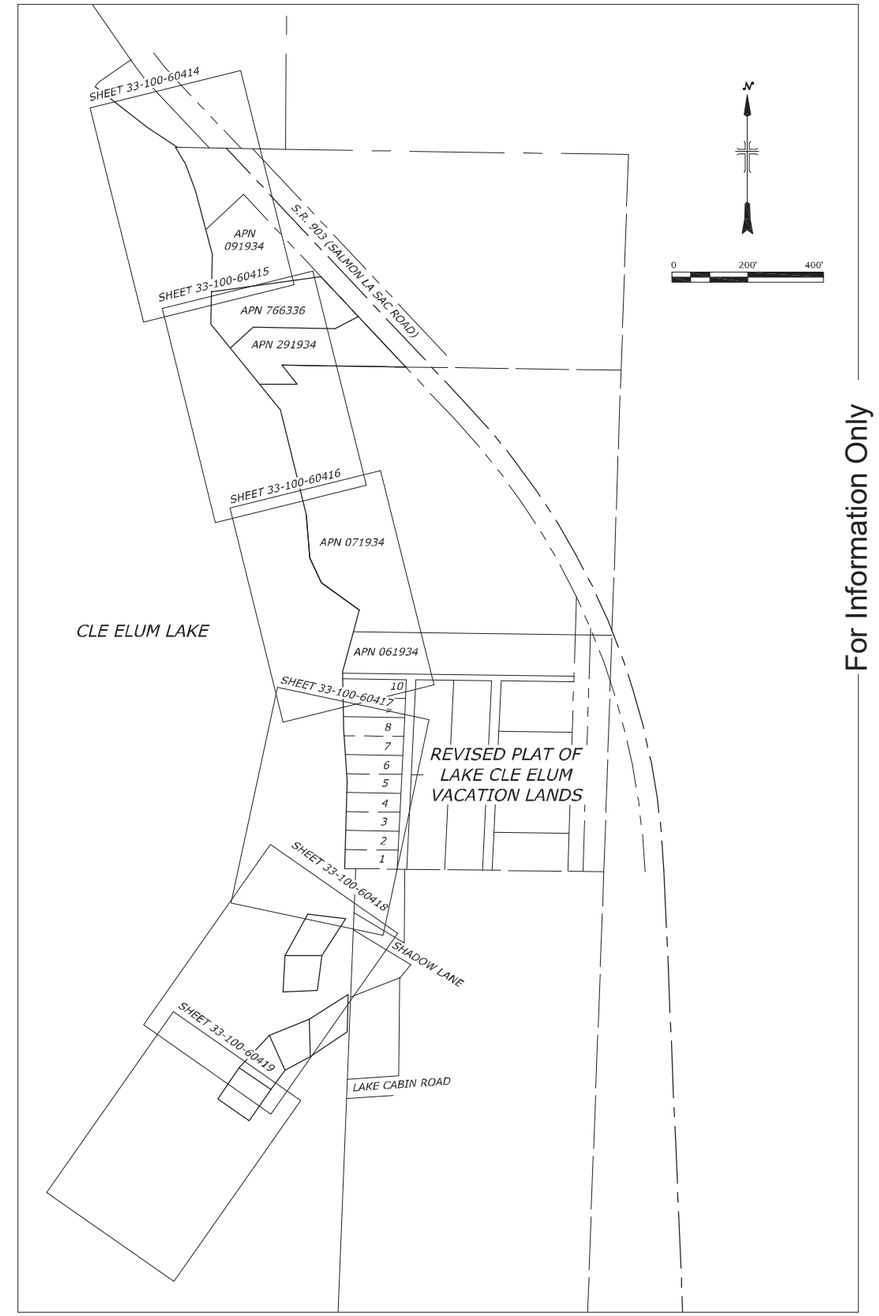
NAVD 88 DATUM WAS ALSO ESTABLISHED TO DETERMINE THE CONVERSION FACTOR FROM CLE ELUM DAM ELEVATIONS TO NAVD 88 BY GPS OBSERVATIONS UTILIZING THE WSRN (WASHINGTON STATE REFERENCE NETWORK) AND MEASUREMENTS TO WSDOT MONUMENTS DESIGNATED GP19090-46 (NAVD 88 ELEV. 1906.400), GP19090-38 (NAVD 88 ELEV. 2006.797), AND GP19970-8 (NAVD 88 ELEV. 1907.536).

THE CONVERSION FACTOR DETERMINED BY SURVEY MEASUREMENTS FROM THE CLE ELUM DAM DATUM TO NAVD 88 DATUM IS AS FOLLOWS:

CLE ELUM DAM ELEV. + 5.20 FEET = NAVD 88

## STATISTICS:

EQUIPMENT: TRIMBLE VX STATION AND TRIMBLE R10 GNSS RECEIVER WITH NETWORK RTK
METHODOLOGY: FIELD TRAVERSE.
MEETS OR EXCEEDS SURVEY STANDARD AS PER:
WAC 332-130-050
WAC 332-130-090
WAC 332-130-100
ALL SURVEY WORK OCCURRED AUGUST TO SEPTEMBER 2018.




For Information Only

RECLAMATION
Managing Water in the West

PACIFIC GEOMATIC SERVICES, INC.
LAND SURVEYING & MAPPING SERVICES
QUALITY SERVICE - CREATIVE SOLUTIONS
6608 216TH STREET SW, STE. 304
MOUNTLAKE TERRACE, WA 98043
PHONE:(425) 778-5620 FAX:(425) 775-2849
WEB: www.PacGeoInc.com
PGS INC

ALWAYS THINK SAFETY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN

CLE ELUM DAM AND RESERVOIR

MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN

Janice Baconguis
ACCEPTED

BOISE, ID 2019-01-28

SPEELYI BEACH

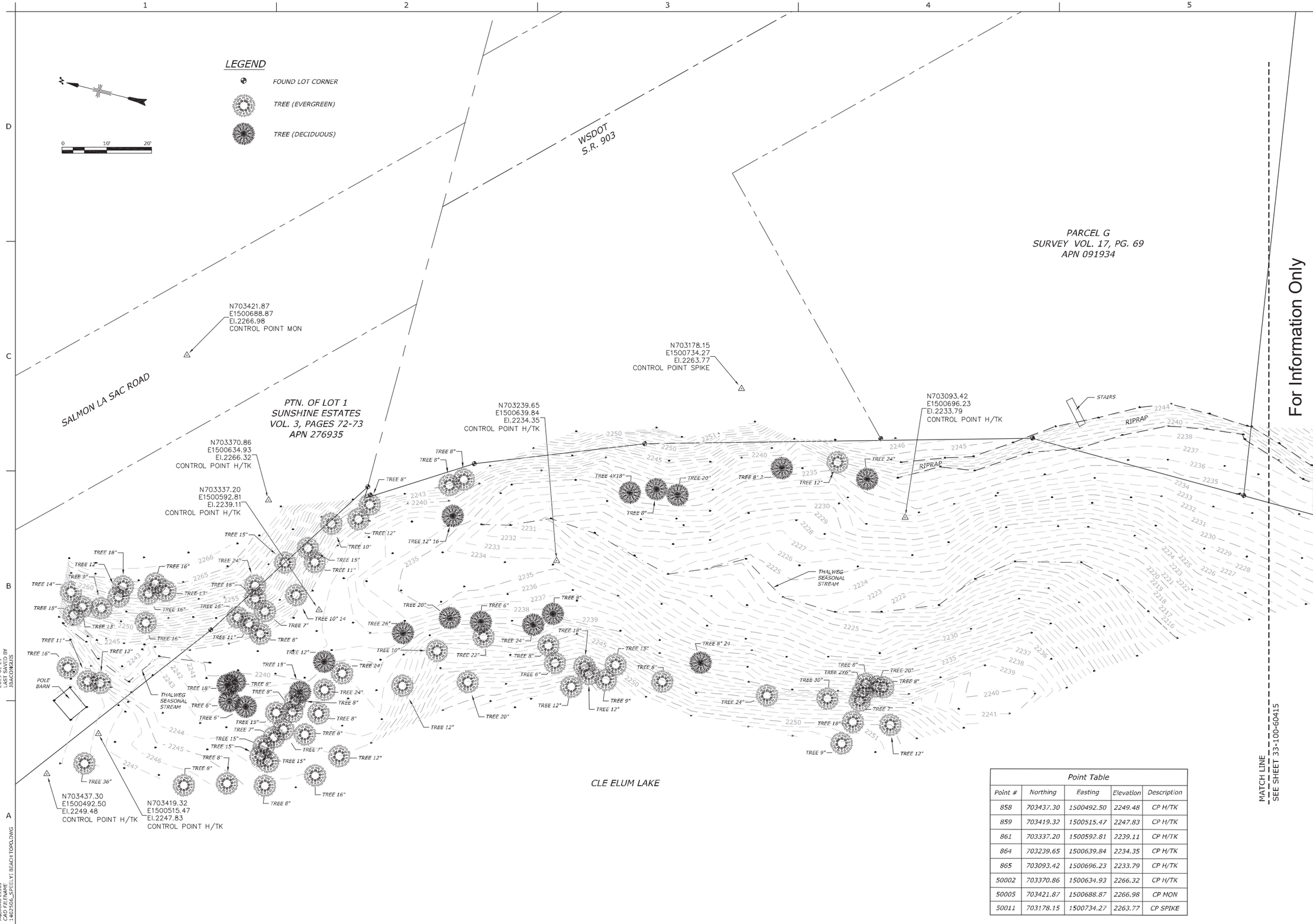
TOPOGRAPHIC SURVEY

33-100-60413

SHEET 1

LAST SAVED DATE
2019-01-28
LAST SAVED BY
JBACONGUIS

CAD SYSTEM
AutoCAD 2017
CAD FILENAME
1402506_SPEELYI BEACH TOPO.DWG




For Information Only

| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 858 | 703437.30 | 1500492.50 | 2249.48 | CP H/TK |
| 859 | 703419.32 | 1500515.47 | 2247.83 | CP H/TK |
| 861 | 703337.20 | 1500592.81 | 2239.11 | CP H/TK |
| 864 | 703239.65 | 1500639.84 | 2234.35 | CP H/TK |
| 865 | 703093.42 | 1500696.23 | 2233.79 | CP H/TK |
| 50002 | 703370.86 | 1500634.93 | 2266.32 | CP H/TK |
| 50005 | 703421.87 | 1500688.87 | 2266.98 | CP MON |
| 50011 | 703178.15 | 1500734.27 | 2263.77 | CP SPIKE |

RECLAMATION
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YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN

CLE ELUM DAM AND RESERVOIR

MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN

Janice Baconguis
ACCEPTED

BOISE, ID 2019-01-28

SPEELYI BEACH

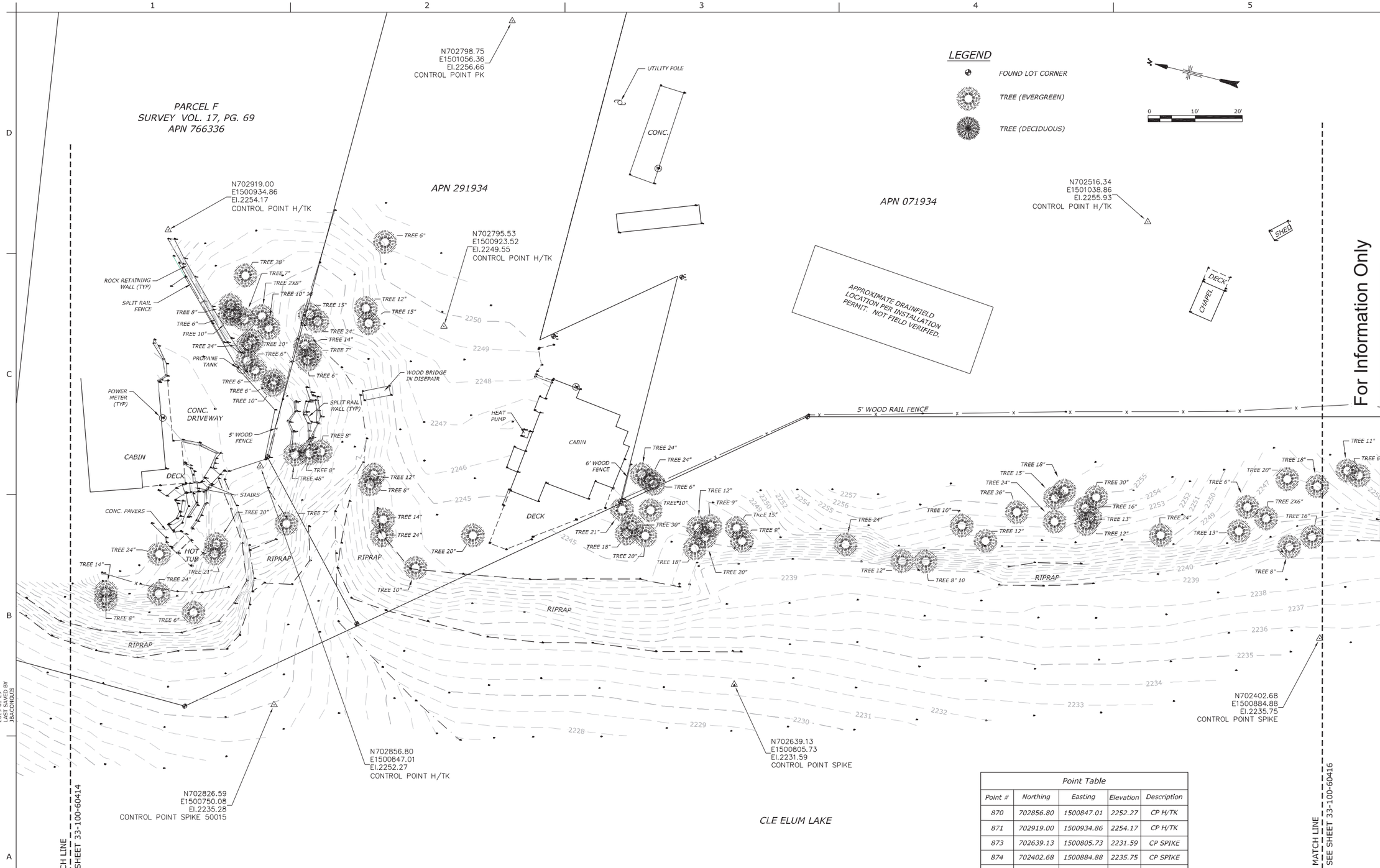
TOPOGRAPHIC SURVEY

33-100-60414

SHEET 1

LAST SAVED DATE
2019-01-28
LAST SAVED BY
JBACONGUIS

CAD SYSTEM
AutoCAD 2012
CAD FILENAME
1402506_SPEELYI BEACH TOPO.DWG




| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 870 | 702856.80 | 1500847.01 | 2252.27 | CP H/TK |
| 871 | 702919.00 | 1500934.86 | 2254.17 | CP H/TK |
| 873 | 702639.13 | 1500805.73 | 2231.59 | CP SPIKE |
| 874 | 702402.68 | 1500884.88 | 2235.75 | CP SPIKE |
| 879 | 702795.53 | 1500923.52 | 2249.55 | CP H/TK |
| 923 | 702516.34 | 1501038.86 | 2255.93 | CP H/TK |
| 931 | 702798.75 | 1501056.36 | 2256.66 | CP PK |
| 50015 | 702826.59 | 1500750.08 | 2235.28 | CP SPIKE 50015 |

For Information Only

RECLAMATION
Managing Water in the West

PACIFIC GEOMATIC SERVICES, INC.
LAND SURVEYING & MAPPING SERVICES
QUALITY SERVICE - CREATIVE SOLUTIONS
6608 216TH STREET SW, STE. 304
MOUNTLAKE TERRACE, WA 98043
PHONE:(425) 778-5620 FAX:(425) 775-2849
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BUREAU OF RECLAMATION
YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN

CLE ELUM DAM AND RESERVOIR

MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN

Janice Baconguis
ACCEPTED

BOISE, ID 2019-01-28

SPEELYI BEACH

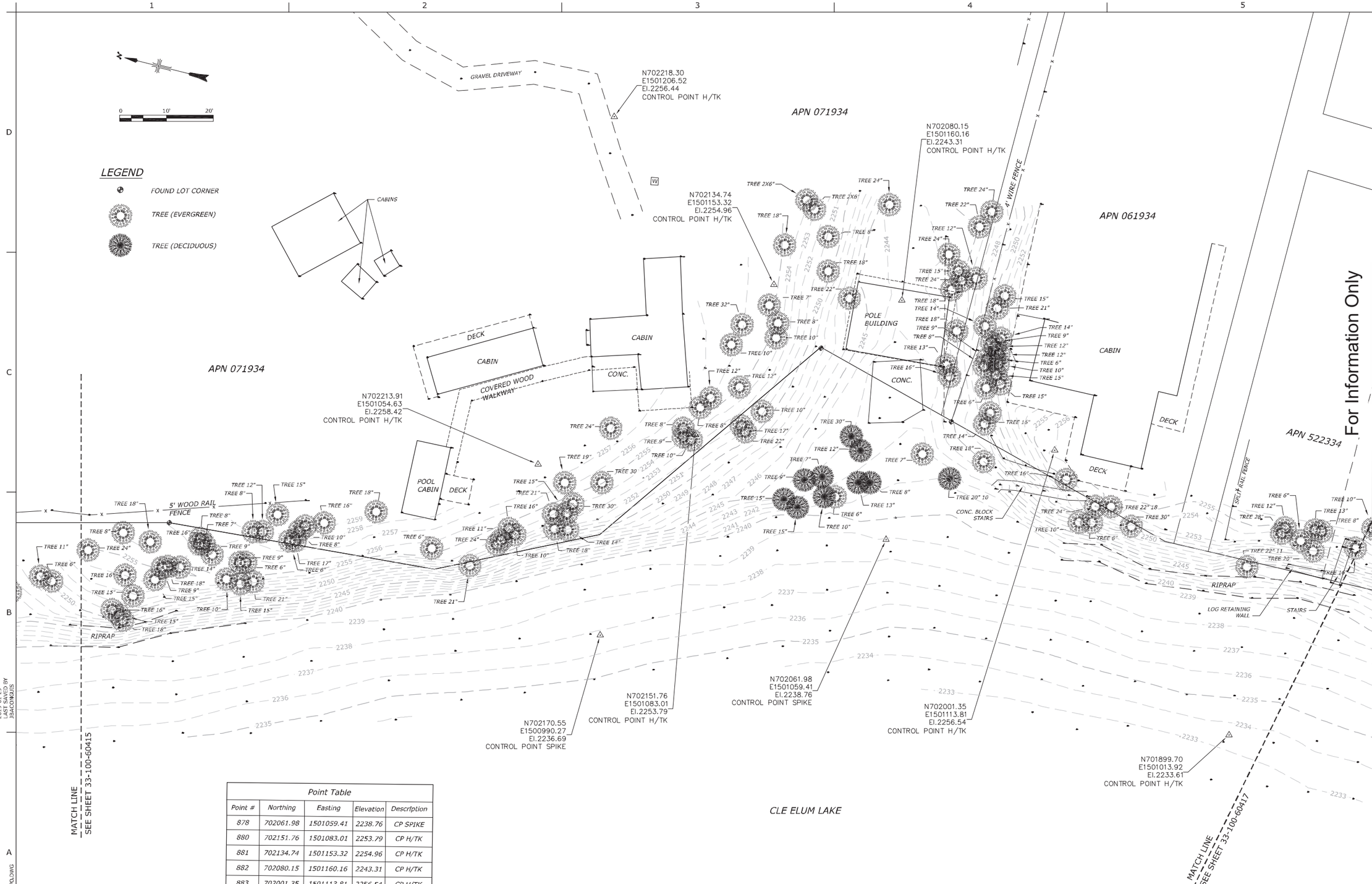
TOPOGRAPHIC SURVEY

33-100-60415

SHEET 1

LAST SAVED DATE
2019-01-28
LAST SAVED BY
JBACONGUIS

CAD SYSTEM
AutoCAD Civil 3D
CAD FILENAME
1402506_SPEELYI BEACH TOPO.DWG




Point Table

| Point # | Northing | Easting | Elevation | Description |
|---|---|---|---|---|
| 878 | 702061.98 | 1501059.41 | 2238.76 | CP SPIKE |
| 880 | 702151.76 | 1501083.01 | 2253.79 | CP H/TK |
| 881 | 702134.74 | 1501153.32 | 2254.96 | CP H/TK |
| 882 | 702080.15 | 1501160.16 | 2243.31 | CP H/TK |
| 883 | 702001.35 | 1501113.81 | 2256.54 | CP H/TK |
| 884 | 701899.70 | 1501013.92 | 2233.61 | CP H/TK |
| 920 | 702218.30 | 1501206.52 | 2256.44 | CP H/TK |
| 922 | 702213.91 | 1501054.63 | 2258.42 | CP H/TK |
| 50023 | 702170.55 | 1500990.27 | 2236.69 | CP SPIKE |

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RECLAMATION
Managing Water in the West

PACIFIC GEOMATIC SERVICES, INC.
LAND SURVEYING & MAPPING SERVICES
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PHONE:(425) 778-5620 FAX:(425) 775-2849
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BUREAU OF RECLAMATION
YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN
CLE ELUM DAM AND RESERVOIR
MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN

Janice Baconguis
ACCEPTED

BOISE, ID 2019-01-28

SPEELYI BEACH

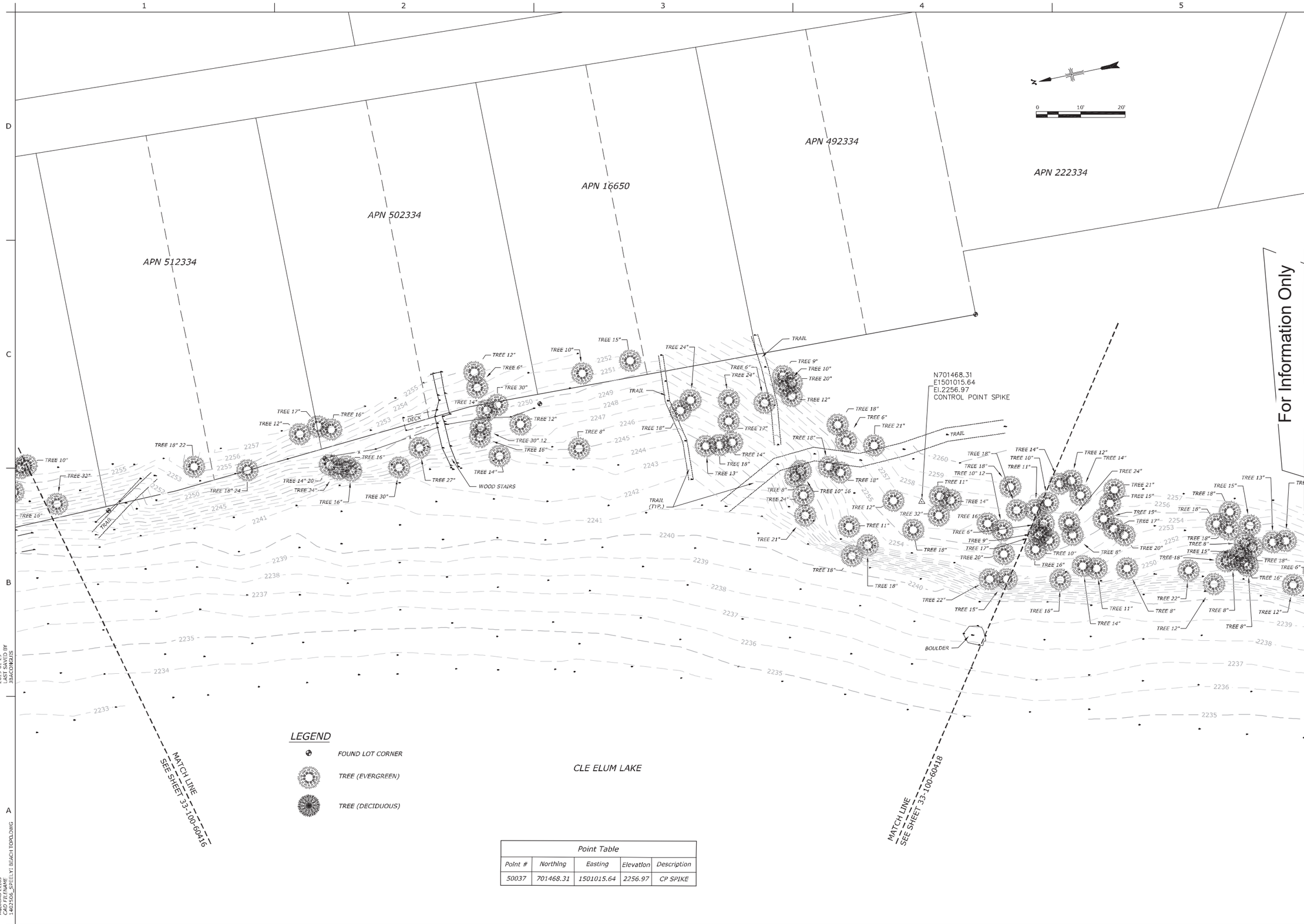
TOPOGRAPHIC SURVEY

33-100-60416

SHEET 1

LAST SAVED DATE
2019-01-28
LAST SAVED BY
JBACONGUIS

CAD SYSTEM
AutoCAD Civil 3D
CAD FILENAME
1402506_SPEELYI BEACH TOPO.DWG




| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 50037 | 701468.31 | 1501015.64 | 2256.97 | CP SPIKE |

For Information Only

RECLAMATION
Managing Water in the West

PACIFIC GEOMATIC SERVICES, INC.
LAND SURVEYING & MAPPING SERVICES
QUALITY SERVICE - CREATIVE SOLUTIONS
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BUREAU OF RECLAMATION
YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN

# CLE ELUM DAM AND RESERVOIR

## MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN
Janice Baconguis
ACCEPTED
BOISE, ID 2019-01-28

SPEELYI BEACH

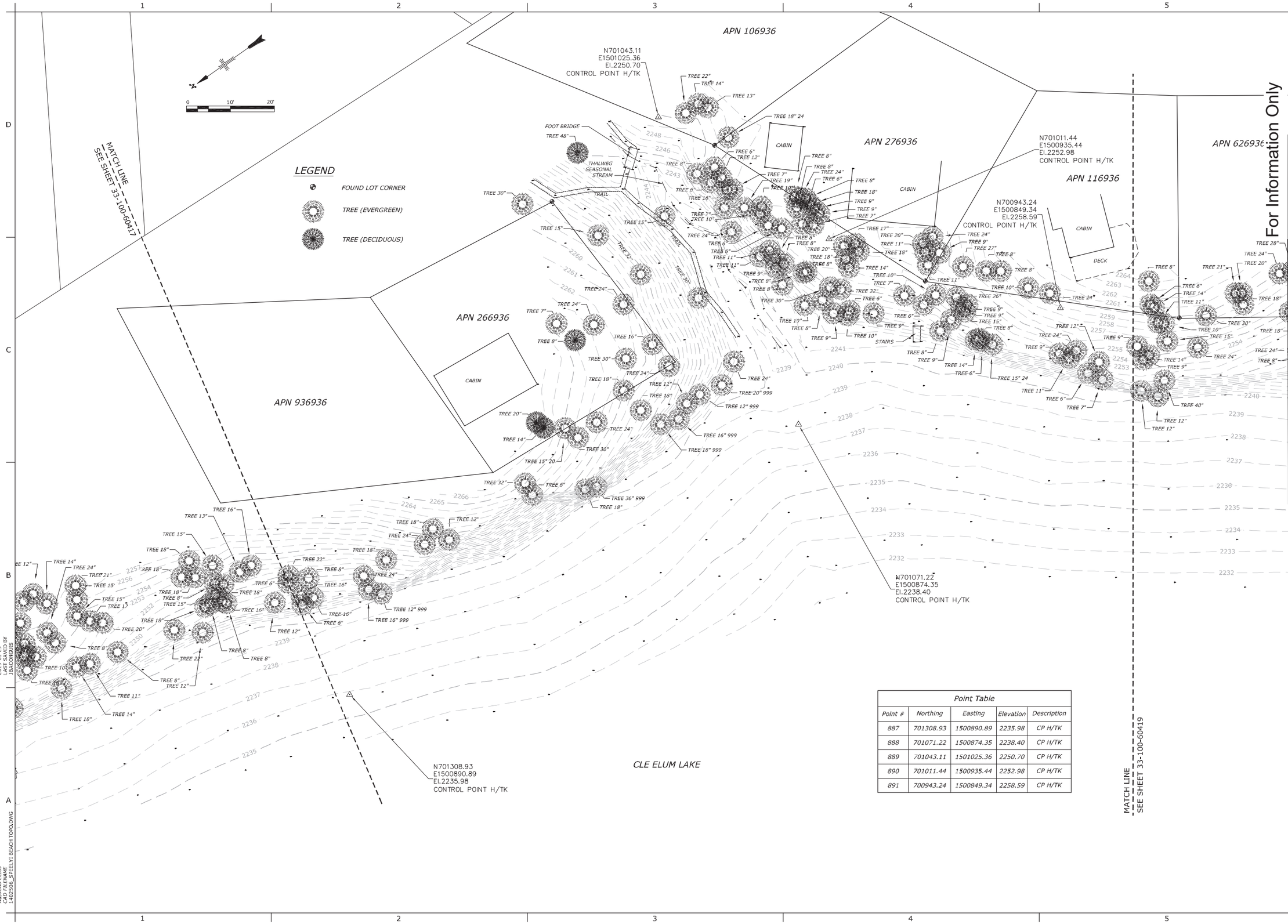
TOPOGRAPHIC SURVEY

33-100-60417

SHEET 1

LAST SAVED DATE 2019-01-28
LAST SAVED BY JBACONGUIS

CAD SYSTEM AutoCAD Civil 3D
CAD FILENAME 140250_SPEELYI BEACH TOPO.DWG




| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 887 | 701308.93 | 1500890.89 | 2235.98 | CP H/TK |
| 888 | 701071.22 | 1500874.35 | 2238.40 | CP H/TK |
| 889 | 701043.11 | 1501025.36 | 2250.70 | CP H/TK |
| 890 | 701011.44 | 1500935.44 | 2252.98 | CP H/TK |
| 891 | 700943.24 | 1500849.34 | 2258.59 | CP H/TK |

RECLAMATION
Managing Water in the West

PACIFIC GEOMATIC SERVICES, INC.
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YAKIMA PROJECT
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJ-INTEGRATED PLAN

CLE ELUM DAM AND RESERVOIR

MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN

Janice Baconguis
ACCEPTED

BOISE, ID 2019-01-28

SPEELYI BEACH

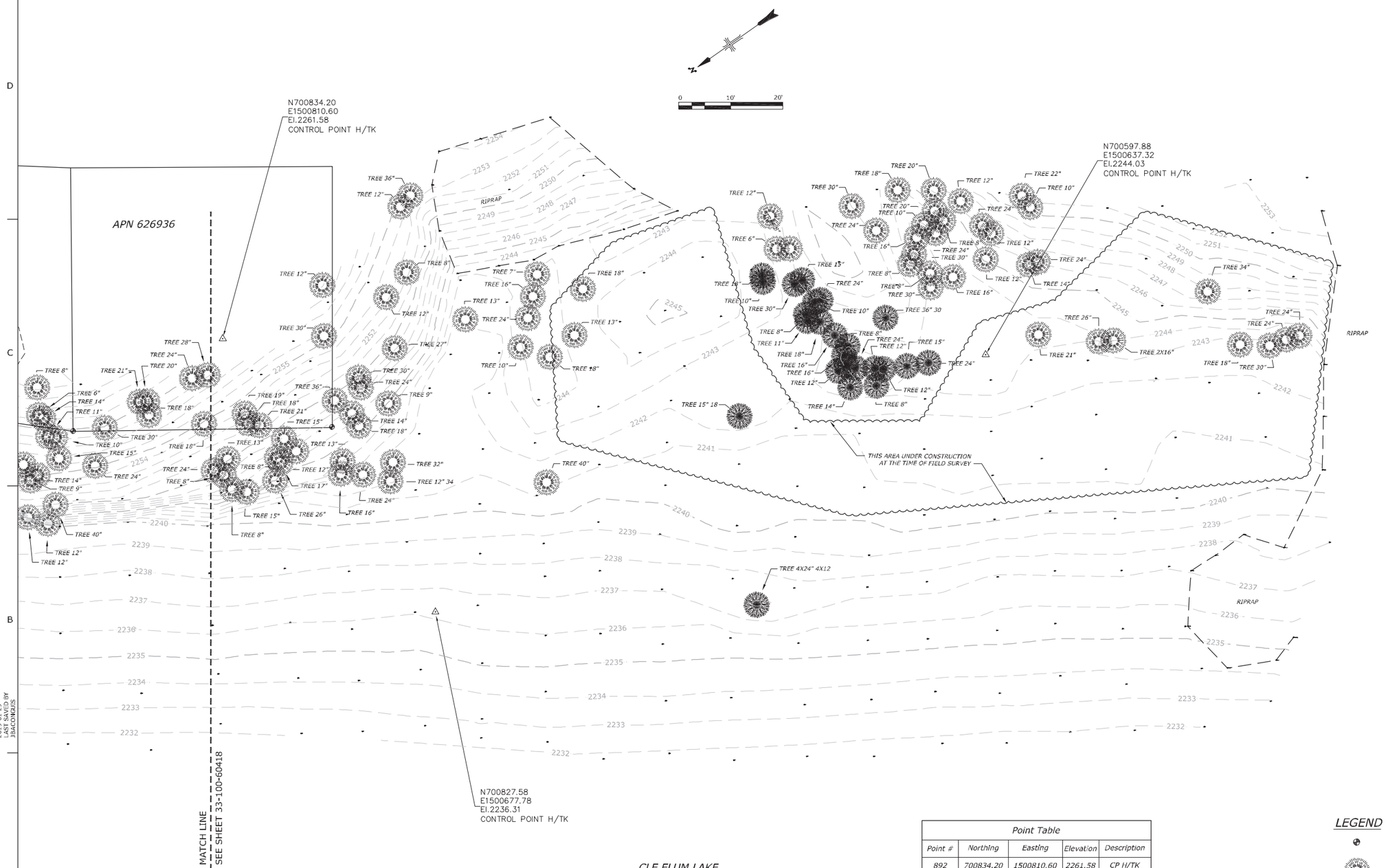
TOPOGRAPHIC SURVEY

33-100-60418

SHEET 1

LAST SAVED DATE
2019-01-28
LAST SAVED BY
JBACONGUIS

CAD SYSTEM
AutoCad 2012
CAD FILENAME
1402506_SPEELYI BEACH TOPO.DWG




| Point Table | | | | |
|---|---|---|---|---|
| Point # | Northing | Easting | Elevation | Description |
| 892 | 700834.20 | 1500810.60 | 2261.58 | CP H/TK |
| 893 | 700827.58 | 1500677.78 | 2236.31 | CP H/TK |
| 894 | 700597.88 | 1500637.32 | 2244.03 | CP H/TK |

## LEGEND

- FOUND LOT CORNER
- TREE (EVERGREEN)
- TREE (DECIDUOUS)

For Information Only

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CLE ELUM DAM AND RESERVOIR

MODIFICATIONS FOR 3' POOL RAISE

CONTRACTOR
DRAWN

Janice Baconguis
ACCEPTED

BOISE, ID 2019-01-28

SPEELYI BEACH

TOPOGRAPHIC SURVEY

33-100-60419

SHEET 1

LAST SAVED DATE
2019-01-28
LAST SAVED BY
JBACONGUIS

CAD SYSTEM
AutoCAD Civil 3D
CAD FILENAME
140256_SPEELYI BEACHTOPO.DWG