



US Army Corps
of Engineers
Seattle District

Public Notice of Application for Permit

US Army Corps of Engineers
Regulatory Branch
Post Office Box 3755
Seattle, WA 98124-3755
Telephone: (206) 316-3822
ATTN: Andrew Shuckhart,
Project Manager

Public Notice Date: March 16, 2021
Expiration Date: April 15, 2021

Reference No.: NWS-2017-1054-WRD
Name: Pierce County Public Works
(Canyon Road Extension)

The Corps will review the work in accordance with Section 404 of the Clean Water Act (CWA). The Washington Department of Ecology (Ecology) will review the work separately pursuant to Section 401 of the CWA, with applicable provisions of State water pollution control laws and the Coastal Zone Management Act.

APPLICANT:

Attention: Mr. Brian Stacy
Pierce County Planning and Public Works
2702 South 42nd Street, Suite 109
Tacoma, Washington, 98409

Telephone: (253) 789-7250

AGENT:

Attention: Ms. Gretchen Mallari
Pierce County Planning and Public Works
2702 South 42nd Street, Suite 109
Tacoma, Washington, 98409

Telephone: (253) 789-3729

LOCATION: In Canyon Creek and an unnamed tributary, and in wetlands adjacent to the Puyallup River near Puyallup, Pierce County, Washington.

WORK: Pierce County proposes to place fill in wetlands and modify stream channels to construct a new roadway alignment.

PURPOSE: The purpose of this project is to expand roadway capacity for freight on a direct route between Frederickson and the Port of Tacoma.

ADDITIONAL INFORMATION:

Pierce County Planning and Public Works is proposing to expand, re-align and extend Canyon Road East from its intersection with Pioneer Way East, north to 62nd Avenue East. Canyon Road East will be extended along a new alignment from south of Pioneer Way East approximately ½ mile to the north and east to 62nd Avenue East. A new intersection with Canyon Road East and 52nd Street East will be constructed where these two roadways meet. The

Canyon Road East approach south of the existing intersection with Pioneer Way East will be expanded to the west to avoid impacts to wetland and stream habitat located east of the current alignment. The cut section at this location requires a substantial retaining wall. A grade separation will be constructed over the BNSF railroad tracks where Canyon Road East is extended north to 52nd Street East. 52nd Street East will be terminated at a point approximately 1,000 feet west of the new Canyon Road East and 52nd Street East intersection and the existing at-grade railroad crossing between this point and Pioneer Way East will be decommissioned. The culvert conveying Canyon Creek under 52nd Street East at this location will be removed and the stream channel opened.

Three new stormwater facilities will be constructed to meet stormwater quality and flow control demands of the new roadway. Maintenance roads will also be constructed to access each of these facilities.

Canyon Creek will be realigned within the expanded intersection of Canyon Road East and Pioneer Way East including upgrading the existing culvert there with two new wider culverts. The new culverts will create additional stream habitat and improve fish passage at this location. An existing culvert located upstream of the intersection with Pioneer Way East where Canyon Creek is conveyed under Canyon Road East will also be upgraded. The culvert upgrade at this location is part of the mitigation plan and will involve relocating Canyon Creek upstream (south) of the current crossing under Canyon Road East and constructing a new wider culvert with a shorter, lower gradient crossing. This culvert upgrade will result in restoring degraded stream habitat and improving fish access and passage within Canyon Creek. Culverts associated with non-fish bearing drainage features within the project area adjacent to the Canyon Road East and Pioneer Way East intersection will be reconfigured to accommodate the expanded intersection and the expansion of Canyon Road East where it approaches the intersection. Project-related compensatory wetland mitigation is proposed throughout the project area. Wetland mitigation includes preserving, enhancing, and restoring existing and degraded wetland and riparian habitat associated with Canyon Creek.

Overall project impacts would include 2.75 acres of permanent fill to wetlands and 0.32 of an acre of wetland converted to stream channel.

The wetland boundaries shown on the project drawings have not been verified by the U.S. Army Corps of Engineers (Corps). If the Corps determines the boundaries of the wetland/waters are substantially inaccurate a new public notice may be published.

MITIGATION: As wetland mitigation, Pierce County proposes to rehabilitate 3.49 acres of wetlands, re-establish 2.01 acres of wetlands, and enhance 4.64 acres of wetlands. As stream mitigation, Pierce County proposes to restore 2,863 linear feet of stream, and restore 858 linear feet of off-channel areas to provide rearing habitat.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat. The Washington State Department of Transportation under delegated authority from the Federal Highway Administration, as the lead agency for ESA consultation, has consulted with the NMFS and the USFWS as required under Section 7 of the ESA. They have determined that the project may affect, but is not likely to adversely affect proposed and/or listed species and their designated critical habitat. Concurrence was issued on April 6, 2015 for NMFS, and November 18, 2015 for USFWS.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The proposed action would impact EFH in the project area. The Washington State Department of Transportation under delegated authority from the Federal Highway Administration, as the lead agency for a

determination regarding EFH, will consult with the National Marine Fisheries Services if necessary. They have determined that the project would not adversely affect EFH species.

CULTURAL RESOURCES: The Washington State Department of Transportation under delegated authority from the Federal Highway Administration, as the lead agency for determining compliance with Section 106 of the National Historic Preservation Act, has consulted with the State Historic Preservation Officer and Native American Tribes as appropriate.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

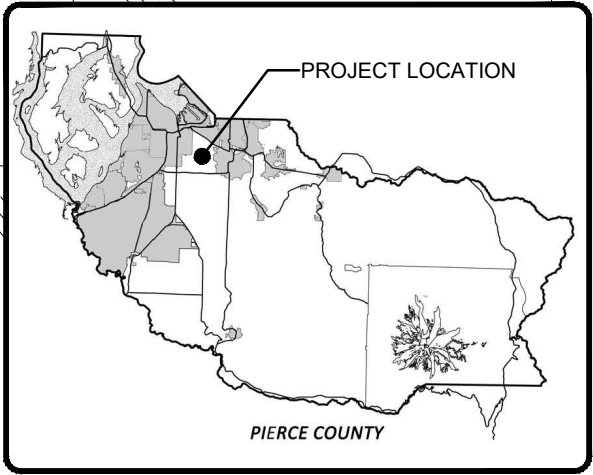
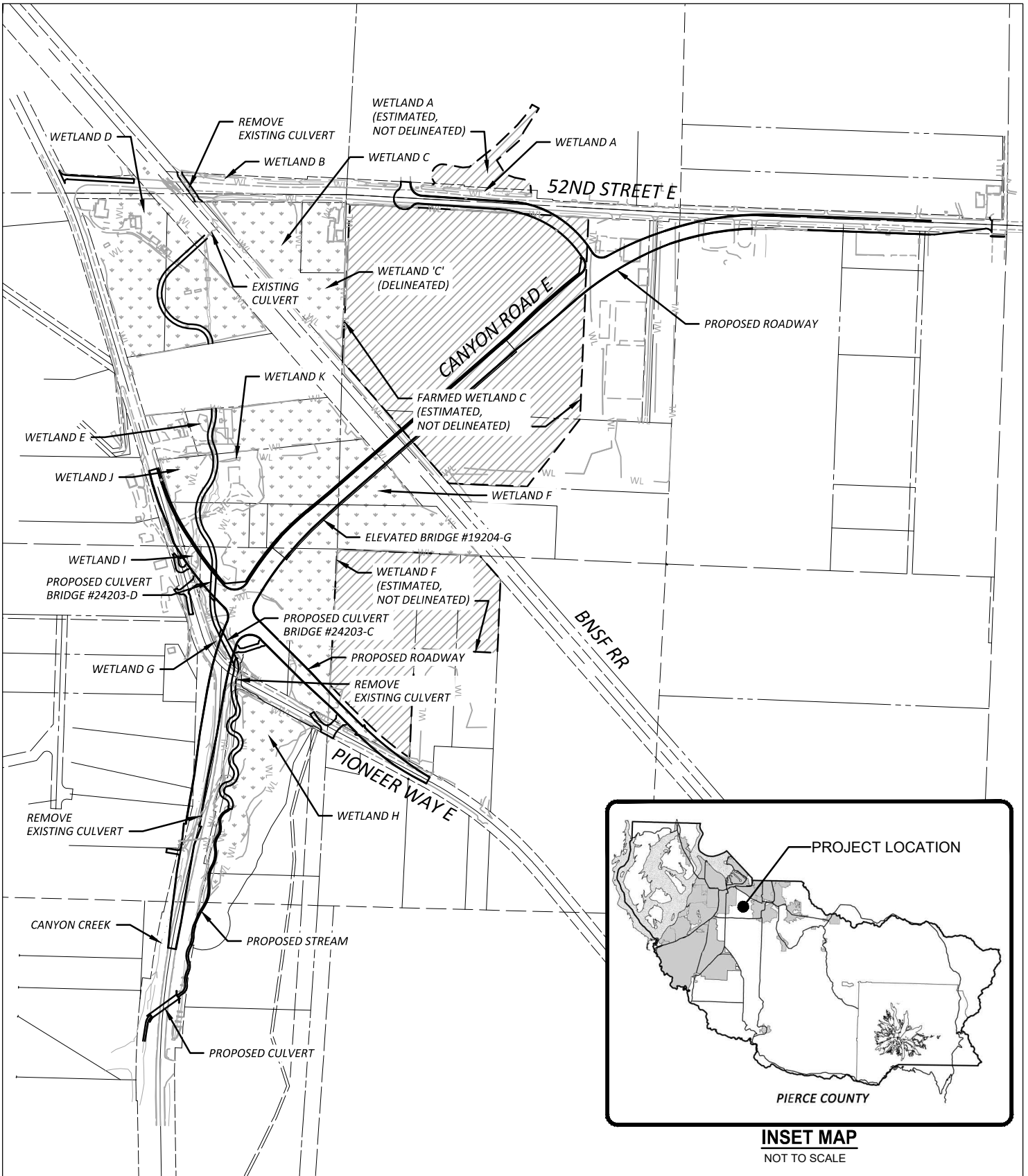
COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether authorizing the work would not be contrary to the public interest. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. All e-mail comments should be sent to: andrew.j.shuckhart@usace.army.mil

Conventional mail comments should be sent U.S. Army Corps of Engineers, Regulatory Branch, Post Office Box 3755, Seattle, Washington, 98124-3755. Either conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commenter's name, address, and phone number. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act including any personally identifiable information such as names, phone numbers, and addresses. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration. Please include the following name and reference number:

Pierce County Public Works (Canyon Road East Extension), 2017-1054-WRD

Encl: Figures (29 pages)

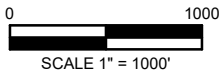
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INSET MAP
NOT TO SCALE

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E
BASIN: CLEAR CREEK, PUYALLUP RIVER
ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C
REFERENCE NUMBER: NWS-2017-1054-WRD

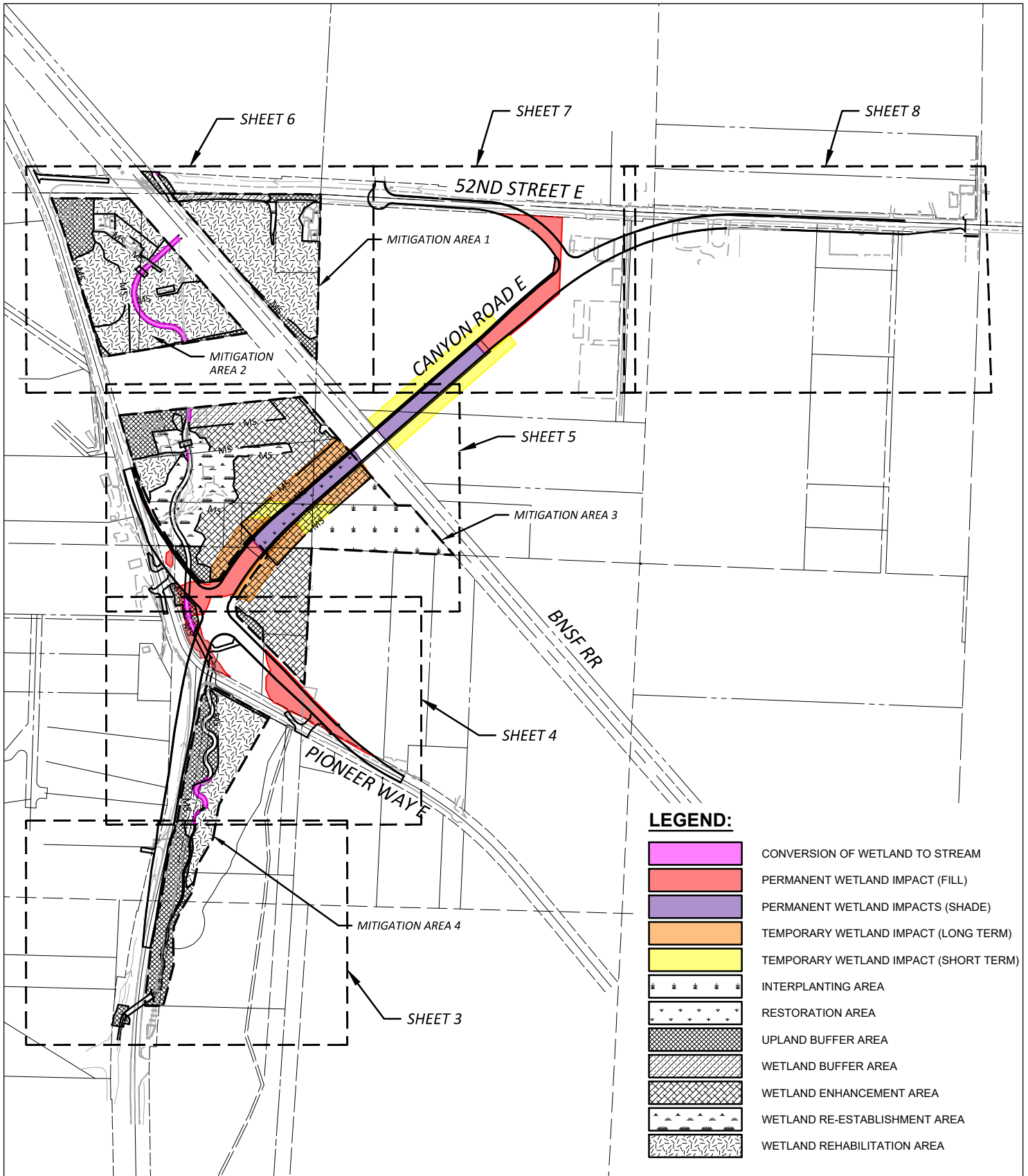
VICINITY MAP














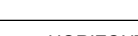
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)
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 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E
DATE: AUGUST 2020 **SHEET:** 1 of 29

FILE: 1588-5643J-02 LAYOUT: 02 PATH: U:\P50\Projects\Clients\PierceCo\214-1588-068 ConynmRu N CRP5643\995ves\CADD\FIGURES\ARPA PLOTTED BY: purgabut DATE: Tuesday, August 11, 2020 4:43:23 PM



LEGEND:

-  CONVERSION OF WETLAND TO STREAM
-  PERMANENT WETLAND IMPACT (FILL)
-  PERMANENT WETLAND IMPACTS (SHADE)
-  TEMPORARY WETLAND IMPACT (LONG TERM)
-  TEMPORARY WETLAND IMPACT (SHORT TERM)
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-  RESTORATION AREA
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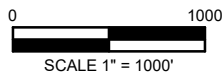
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WETLAND AND STREAM IMPACTS SHEET INDEX



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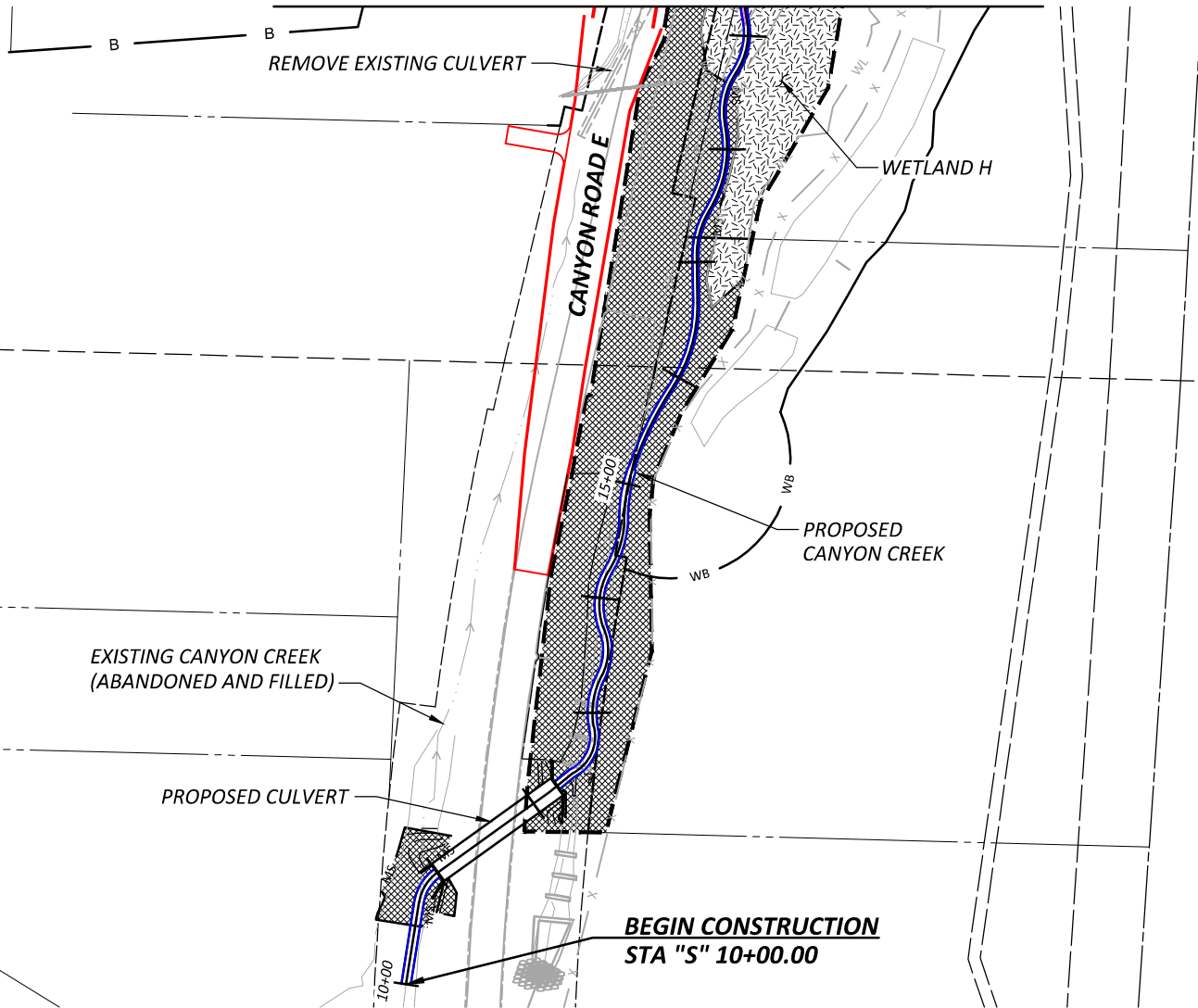
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SHEET: 2 of 29

FILE: 1588-5643J-03 LAYOUT: J3 PATH: U:\P50\Projects\Clients\1588-PierceCo\214-1588-068 CanyonRd N CRP5643\995ves\CADD\FIGURES\ARPA PLOTTED BY: purgabut DATE: Tuesday, August 11, 2020 4:44:08 PM

SEE SHEET 4



LEGEND:

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| | WL | EXISTING WETLAND BOUNDARY | | INTERPLANTING AREA |
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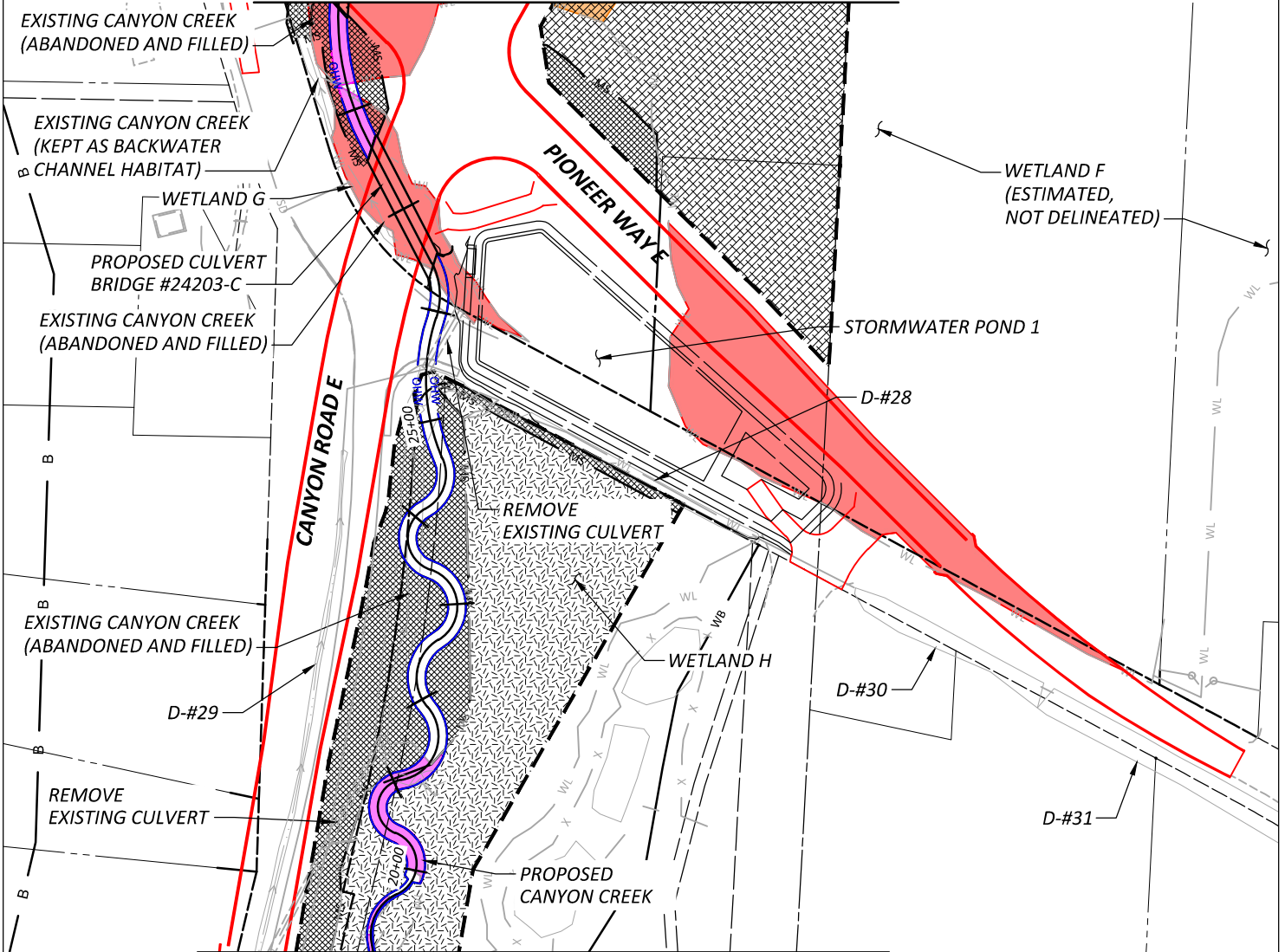
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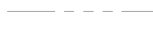
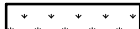
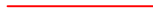








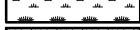


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SEE SHEET 5



SEE SHEET 3

LEGEND:

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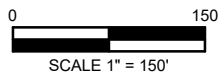
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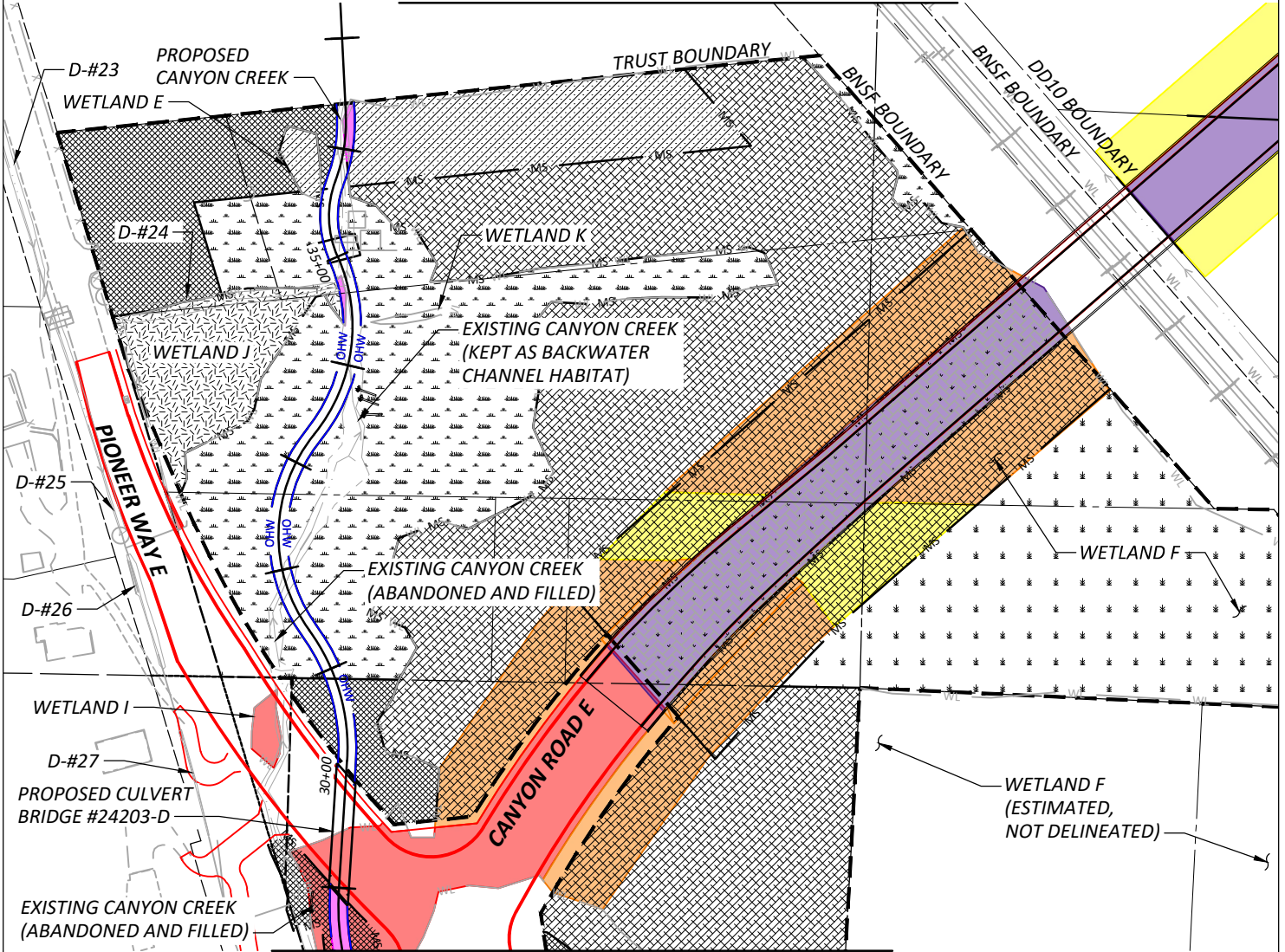
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SEE SHEET 6



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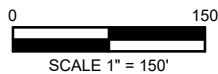
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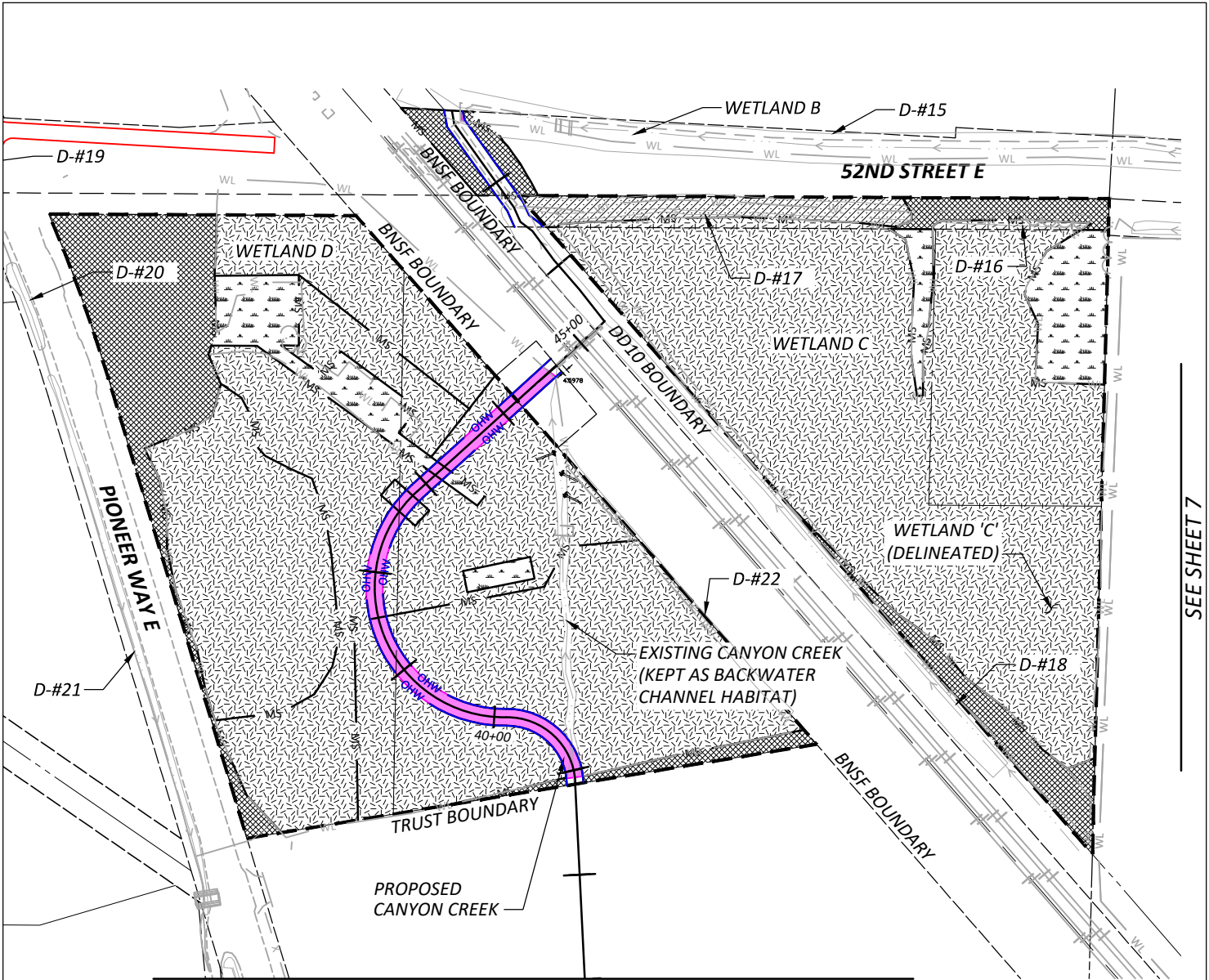
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FILE: 1588-5643J-03 LAYOUT: 06 PATH: U:\P50\Projects\Clients\1588-PierceCo\214-1588-068 CanyonRd N CRP5643\995ves\CADD\FIGURES\ARPA PLOTTED BY: purgabut DATE: Tuesday, August 11, 2020 4:44:38 PM



SEE SHEET 5

SEE SHEET 7

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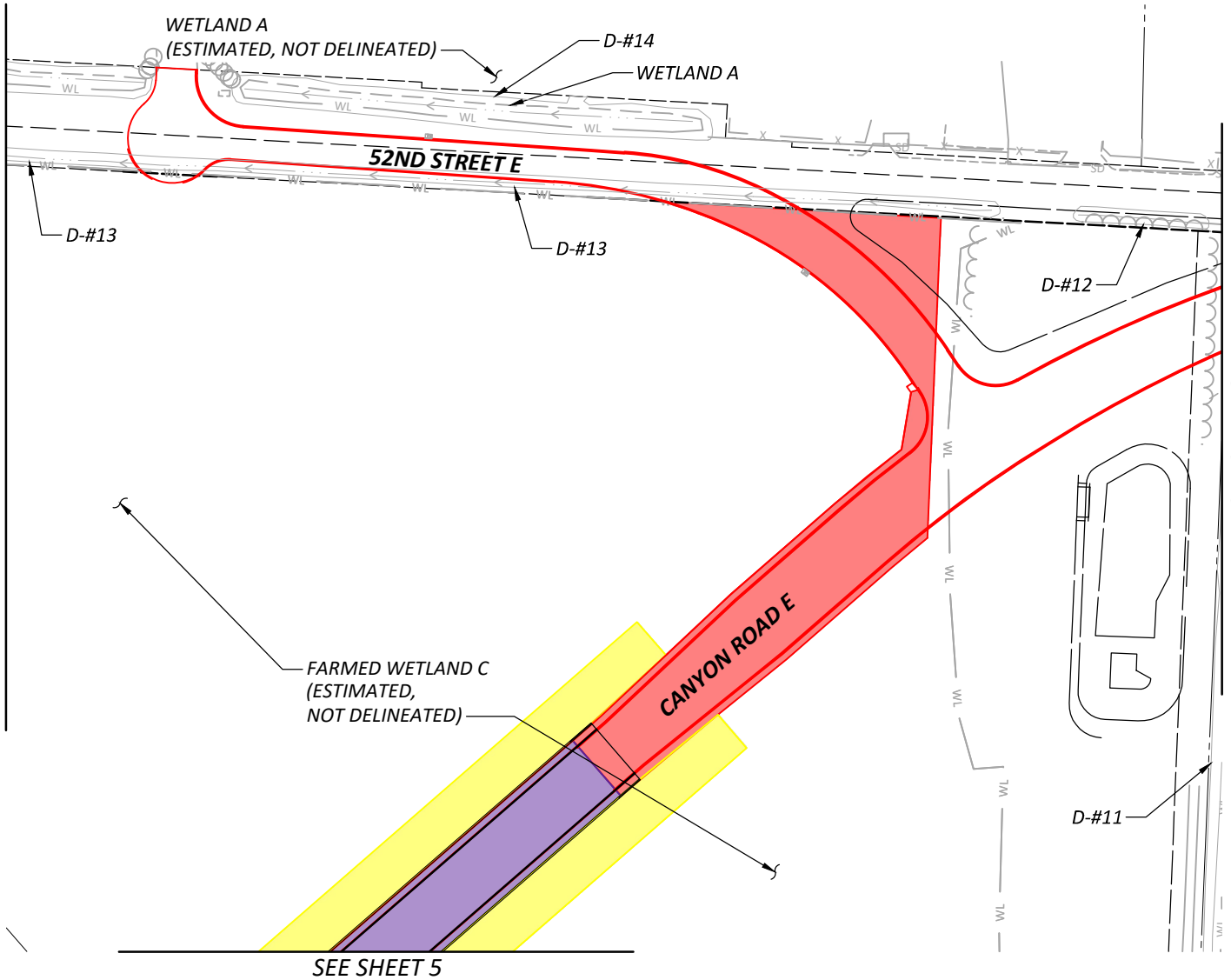
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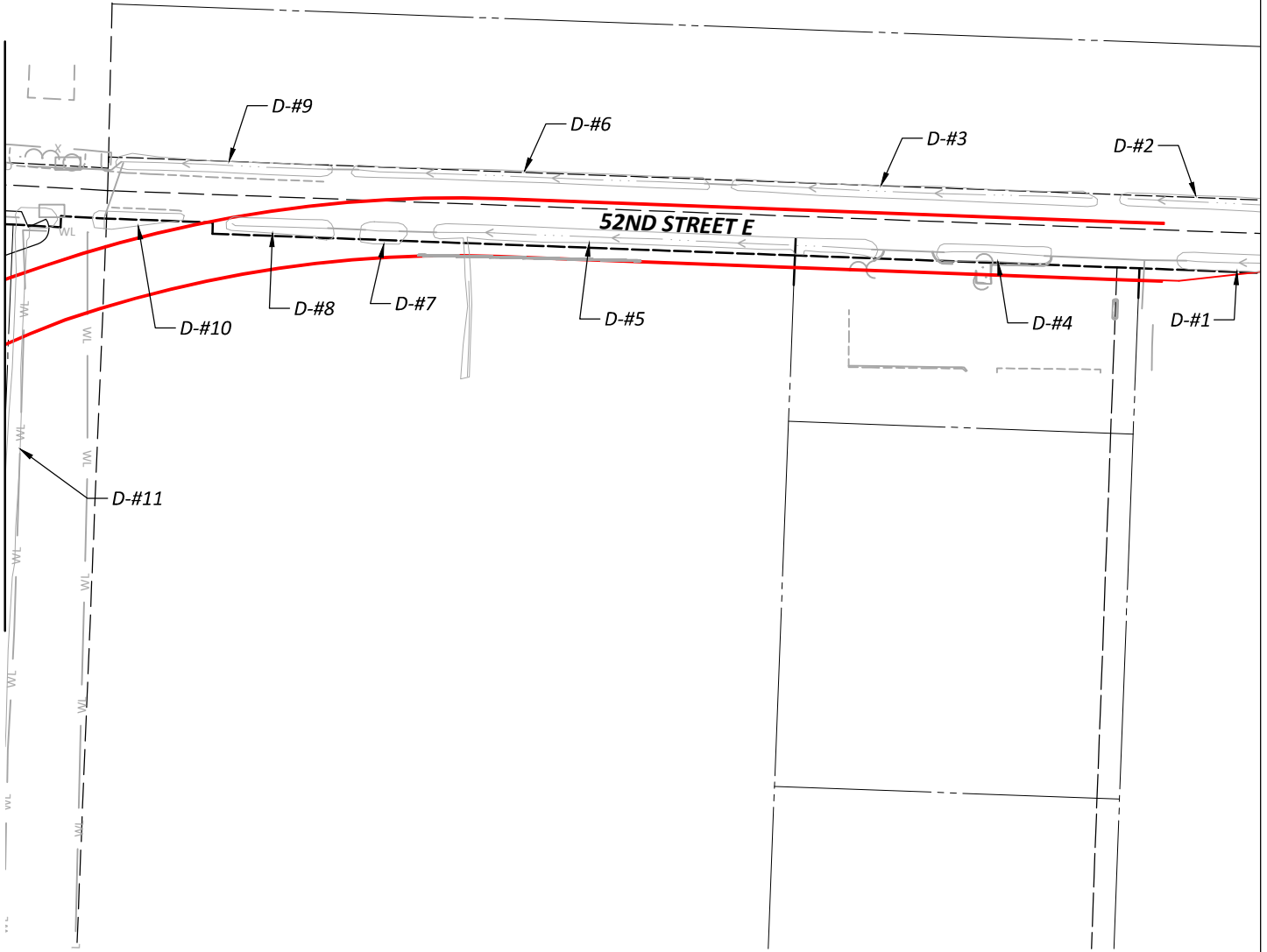
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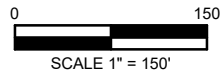
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APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

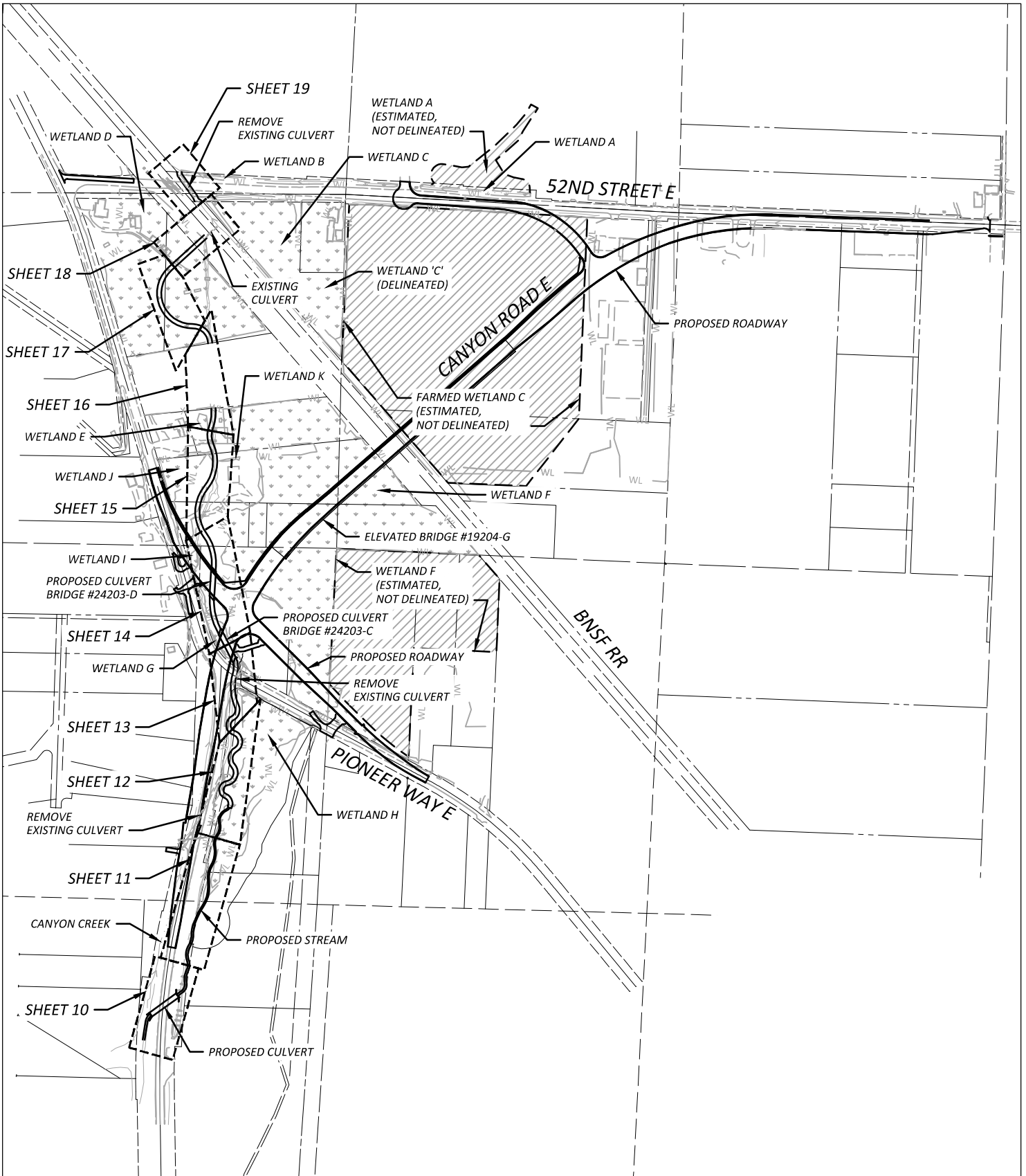
DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020

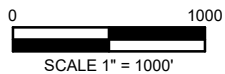
SHEET: 8 of 29

FILE: 1588-5643J-04 LAYOUT: 09 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995ves\CADD\FIGURES\ARPA PLOTTED BY: purgabut DATE: Tuesday, August 11, 2020 4:45:39 PM



PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E
BASIN: CLEAR CREEK, PUYALLUP RIVER
ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C
REFERENCE NUMBER: NWS-2017-1054-WRD

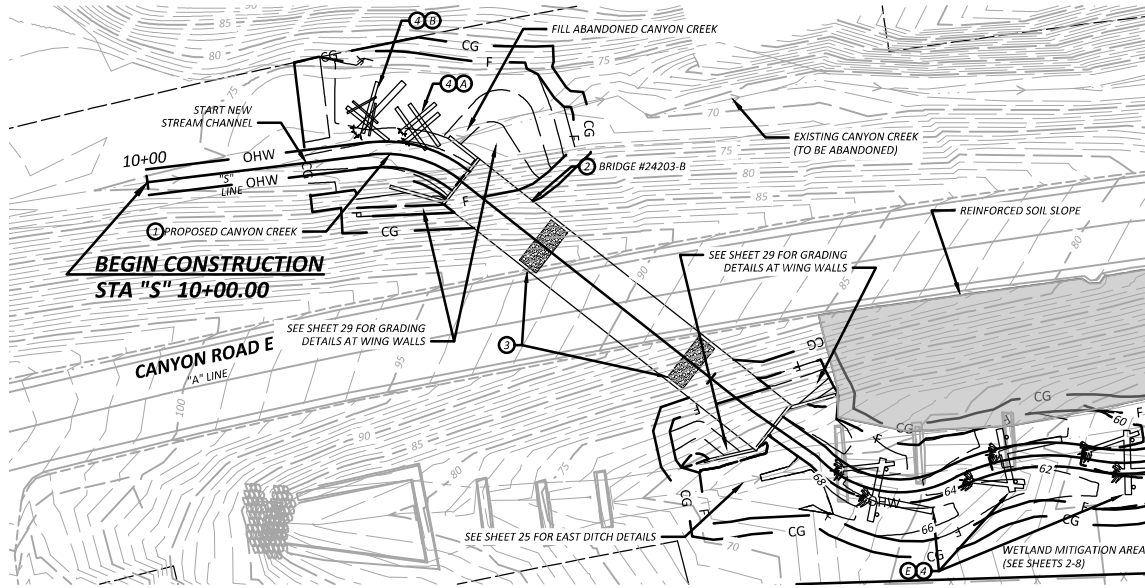
CREEK PLAN AND PROFILE SHEET INDEX



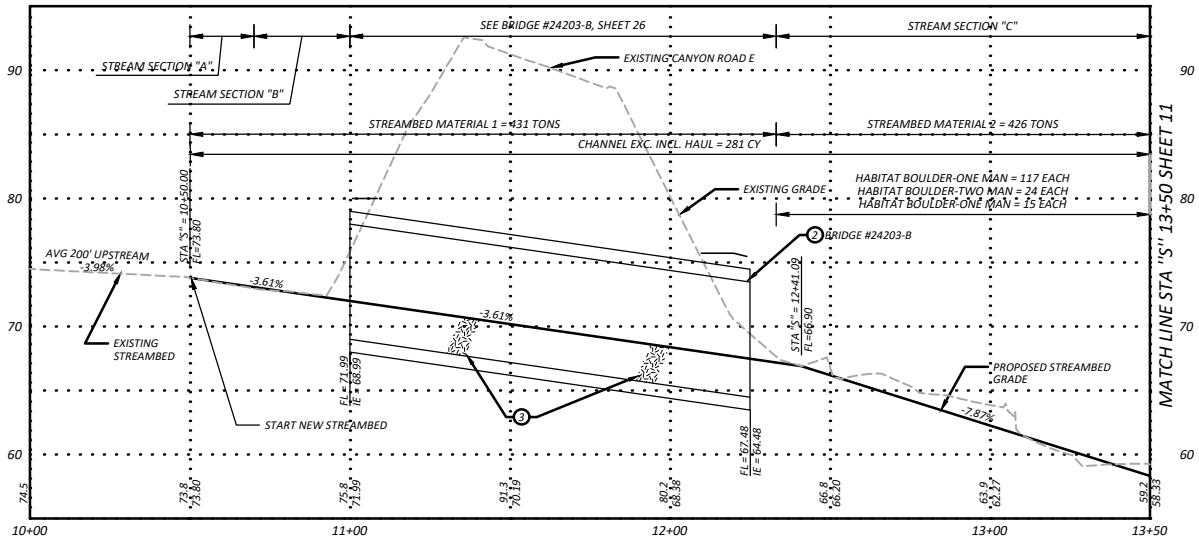
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E
DATE: AUGUST 2020 **SHEET:** 9 of 29

FILE: 1588-56431-05 LAYOUT: 110 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vcs\CADD\FIGURES\ARPA FLOTTED BY: purgabut DATE: Tuesday, August 11, 2020 4:46:27 PM



- CONSTRUCTION NOTES:**
- 1 CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - 2 CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-27.
 - 3 CONSTRUCT COARSE BAND. SEE DETAIL SHEET 25.
 - 4 CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE 1
 - LWD TYPE 2
 - LWD TYPE 3
 - LWD TYPE 4
 - LWD TYPE 5
 - LWD TYPE 6

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

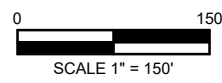
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



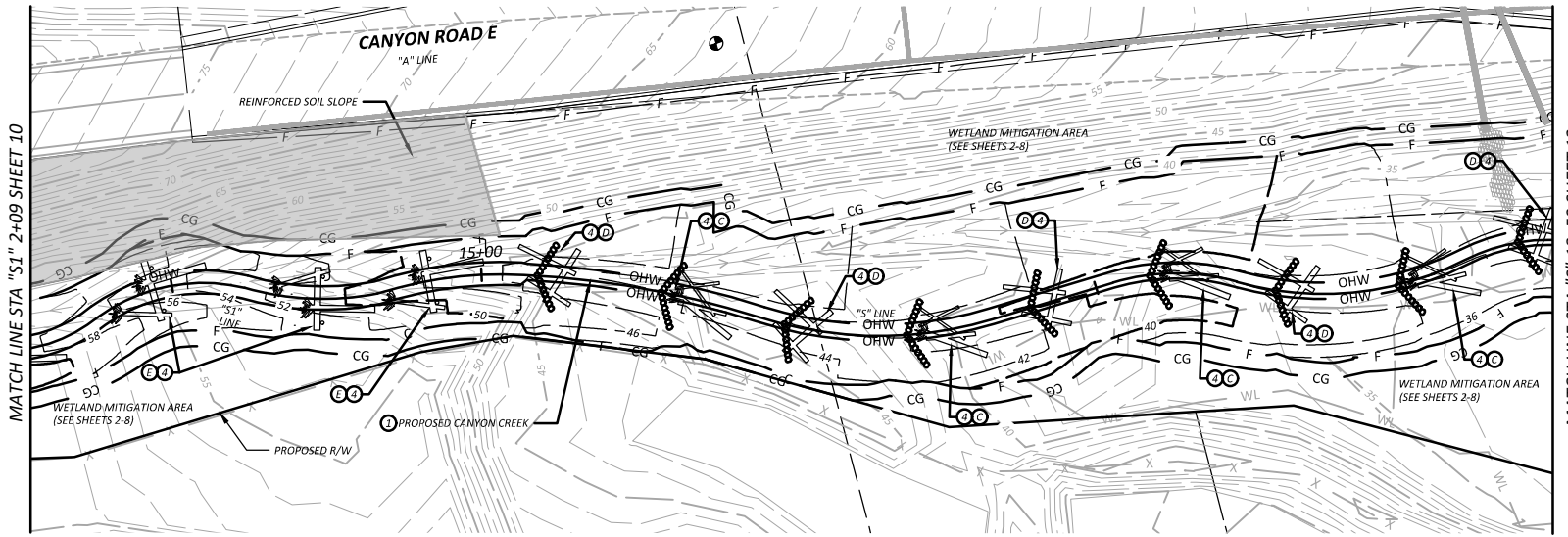
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

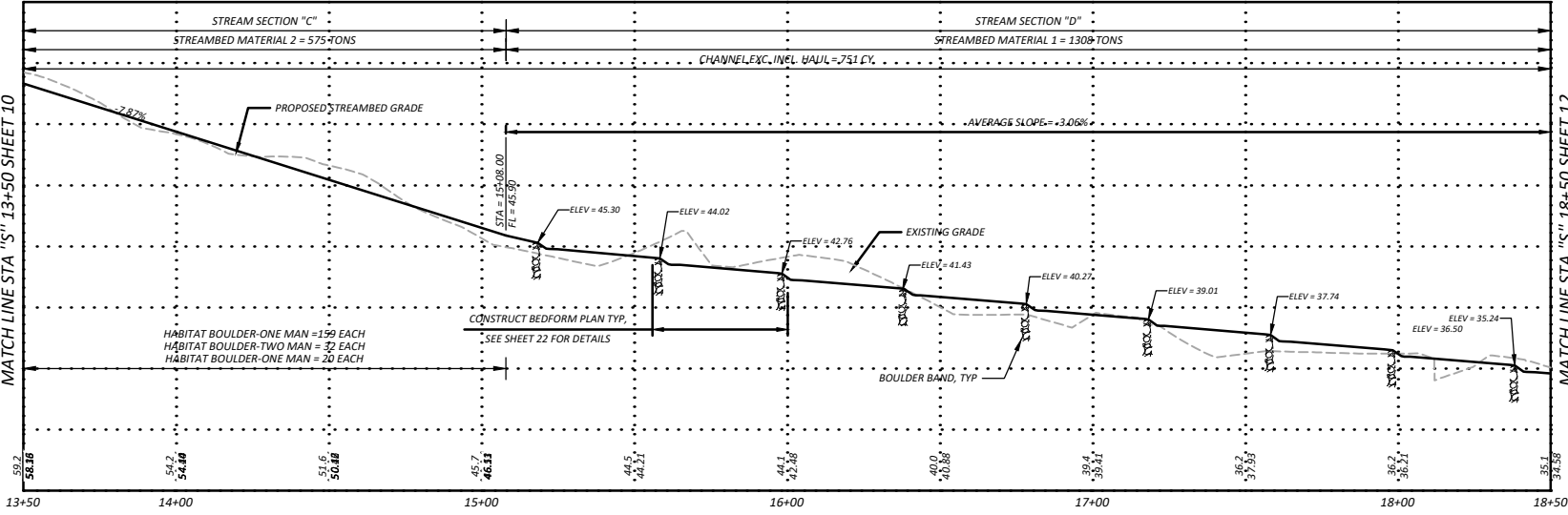
LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 10 of 29

FILE: 1588-56431-05 LAYOUT: J11 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP56431\995ves\CADD\FIGURES\JARPA PLOTTED BY: purgobut DATE: Tuesday, August 11, 2020 4:46:36 PM



- CONSTRUCTION NOTES:**
1. CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 15-16. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 15-16.
 2. CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 3. CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE 1
 - LWD TYPE 2
 - LWD TYPE 3
 - LWD TYPE 4
 - LWD TYPE 5
 - LWD TYPE 6

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

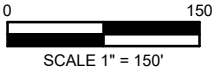
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE

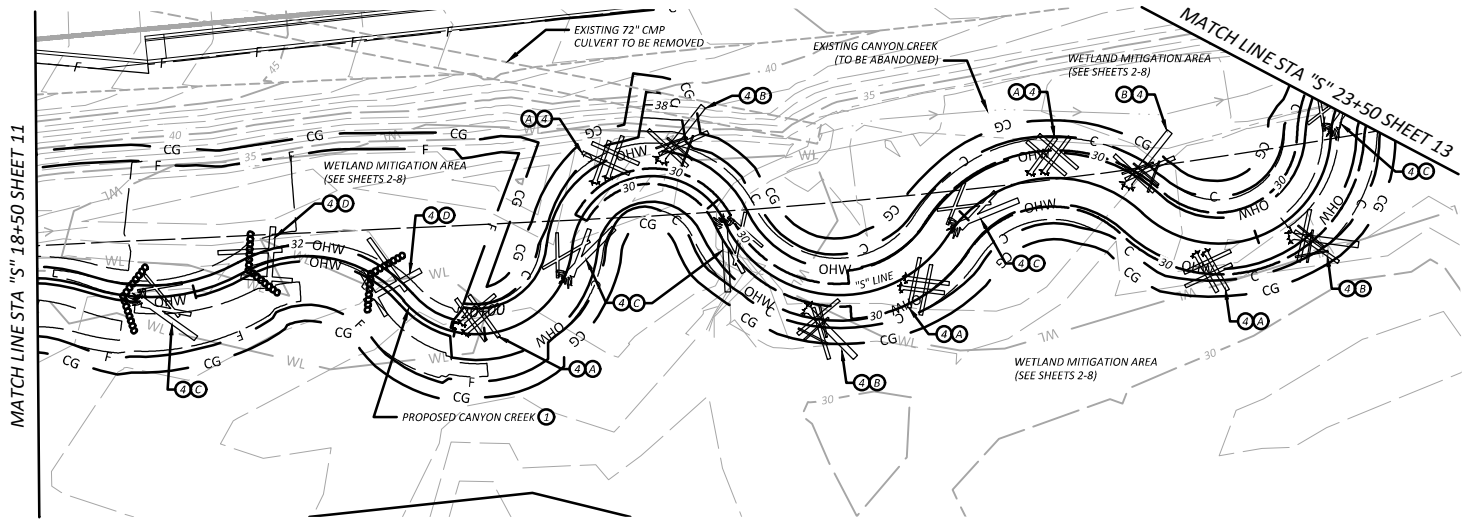


APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

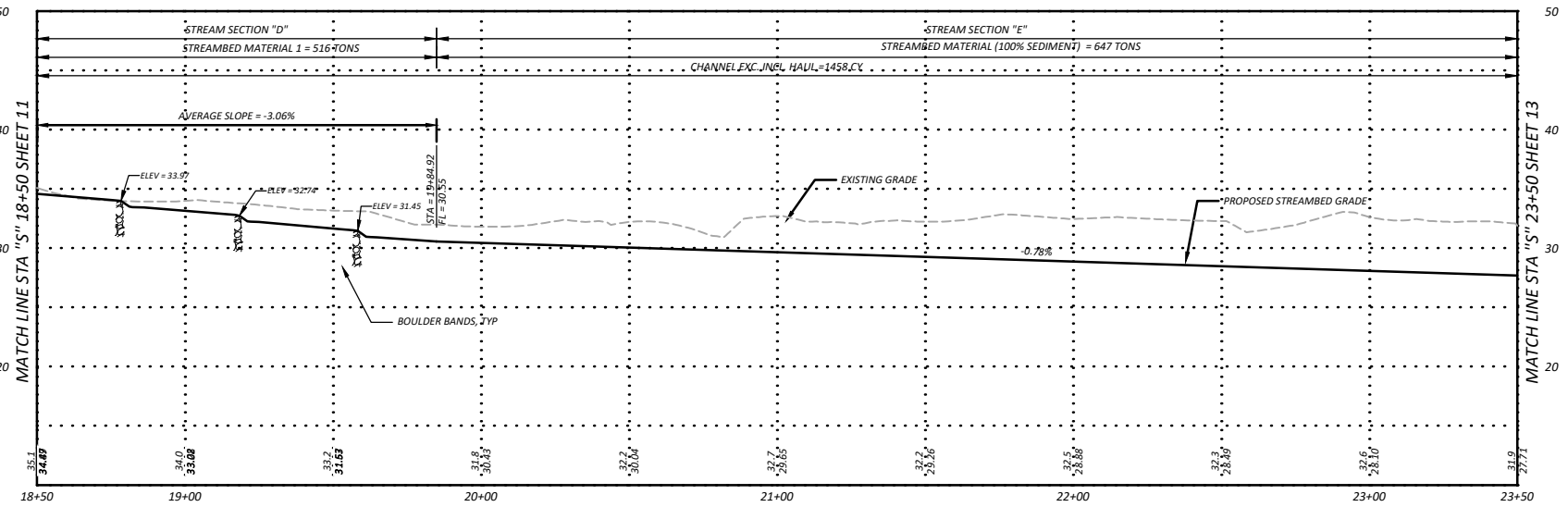
DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 11 of 29



- CONSTRUCTION NOTES:**
1. CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 2. CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 3. CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE A
 - LWD TYPE B
 - LWD TYPE C
 - LWD TYPE D
 - LWD TYPE E
 - LWD TYPE G

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

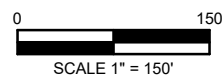
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



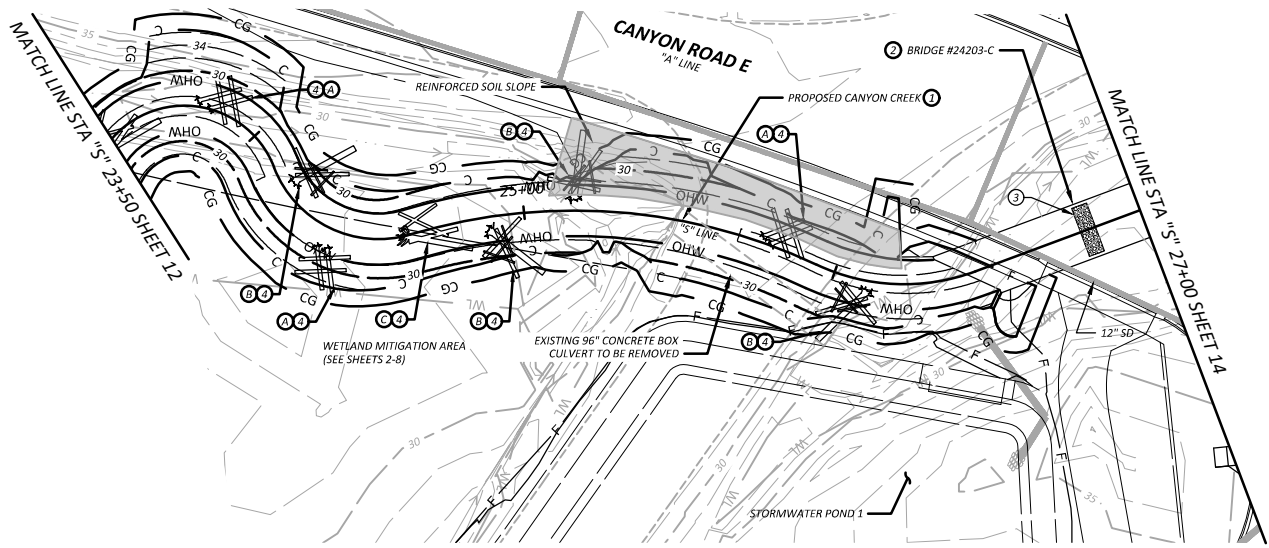
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

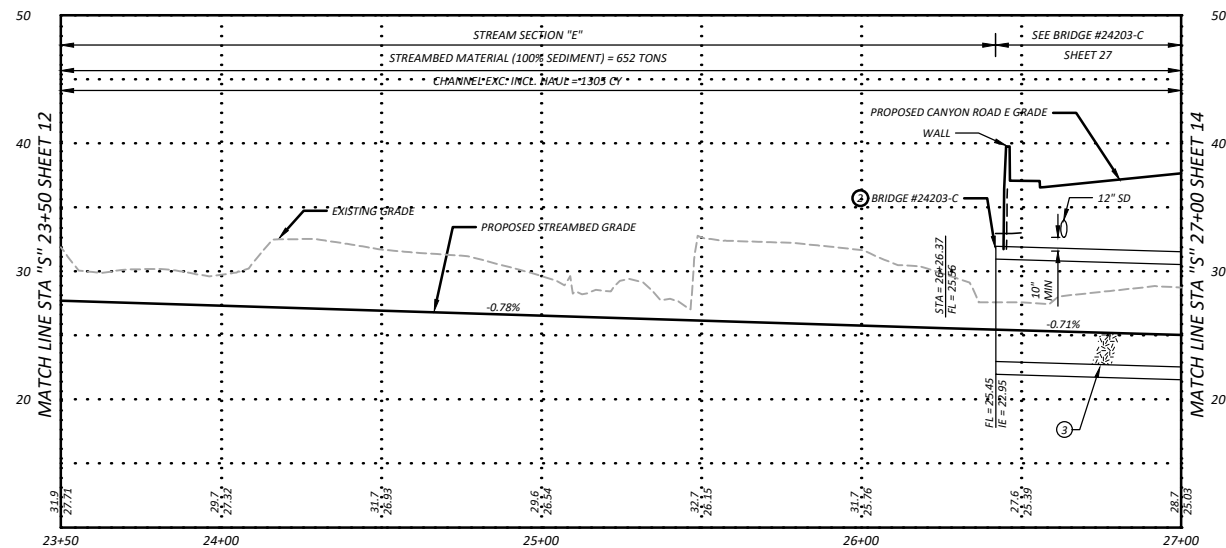
LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 12 of 29

FILE: 1588-56431-05 LAYOUT: J13 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vcs\CADD\FIGURES\ARPA FLOTTED BY: purgabub DATE: Tuesday, August 11, 2020 4:46:56 PM



- CONSTRUCTION NOTES:**
- ① CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - ② CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 - ③ CONSTRUCT COARSE BAND. SEE DETAIL SHEET 25
 - ④ CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE A
 - LWD TYPE B
 - LWD TYPE C
 - LWD TYPE D
 - LWD TYPE E
 - LWD TYPE F

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

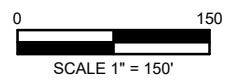
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



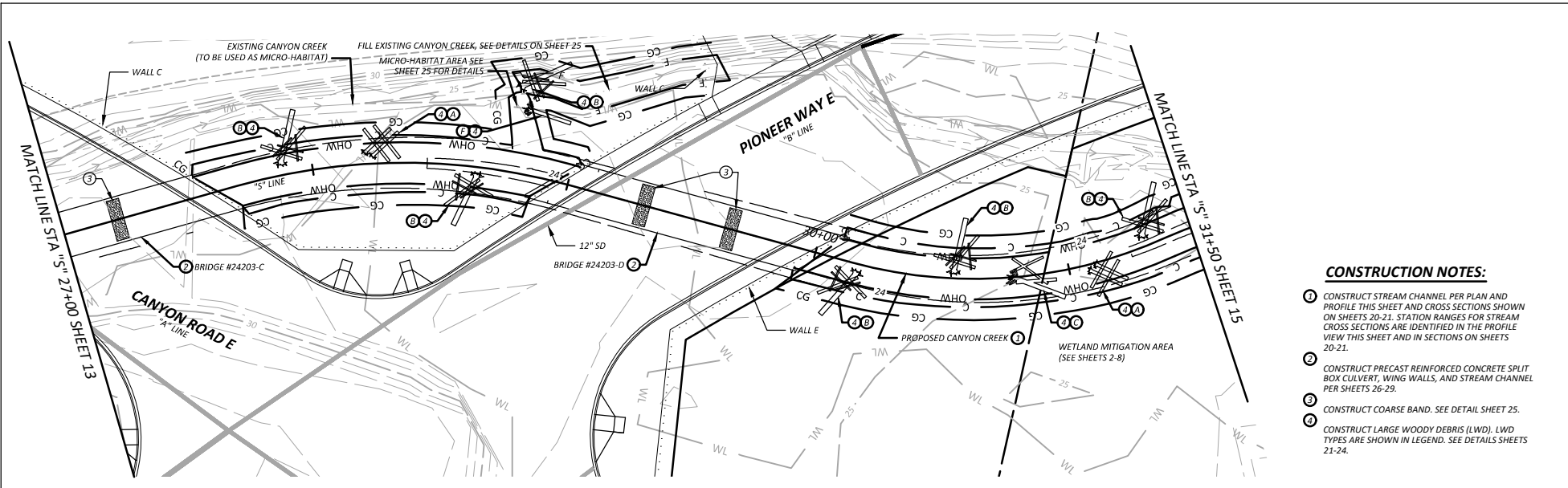
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

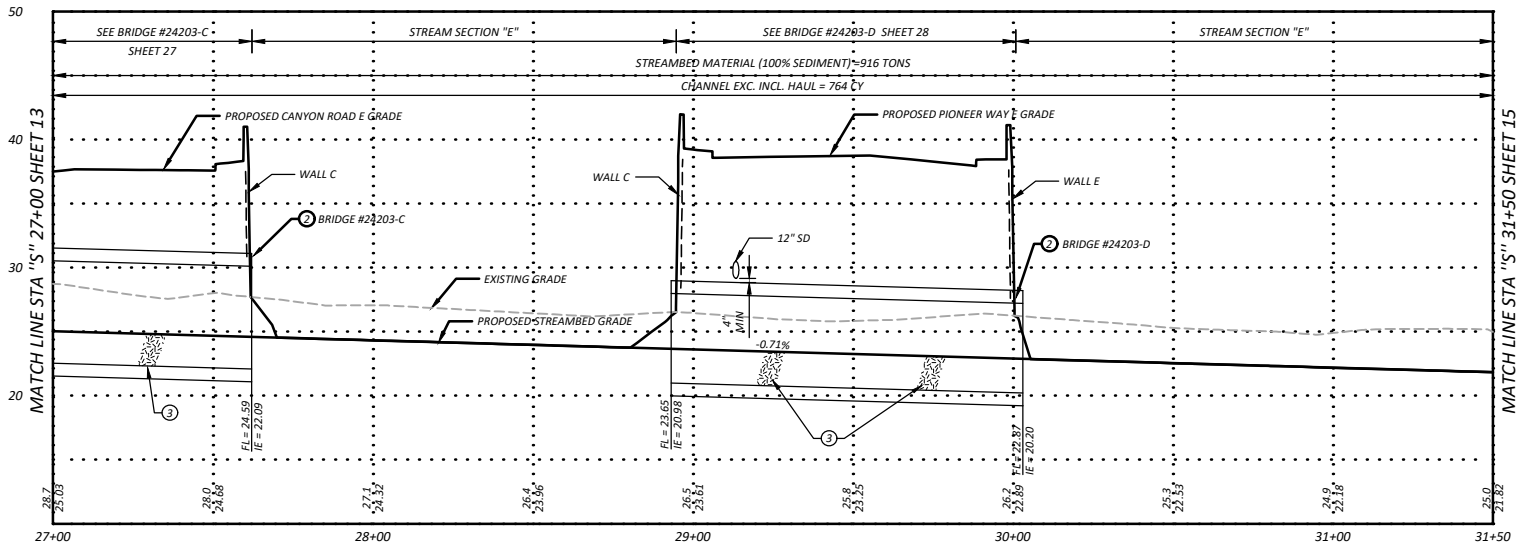
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 13 of 29

FILE: 1588-56431-05 LAYOUT: 014 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vcs\CADD\FIGURES\ARPA PLOTTED BY: purgabub DATE: Tuesday, August 11, 2020 4:47:06 PM



- CONSTRUCTION NOTES:**
- 1 CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE. VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - 2 CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 - 3 CONSTRUCT COARSE BAND. SEE DETAIL SHEET 25.
 - 4 CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE 1
 - LWD TYPE 2
 - LWD TYPE 3
 - LWD TYPE 4
 - LWD TYPE 5
 - LWD TYPE 6

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

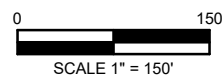
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



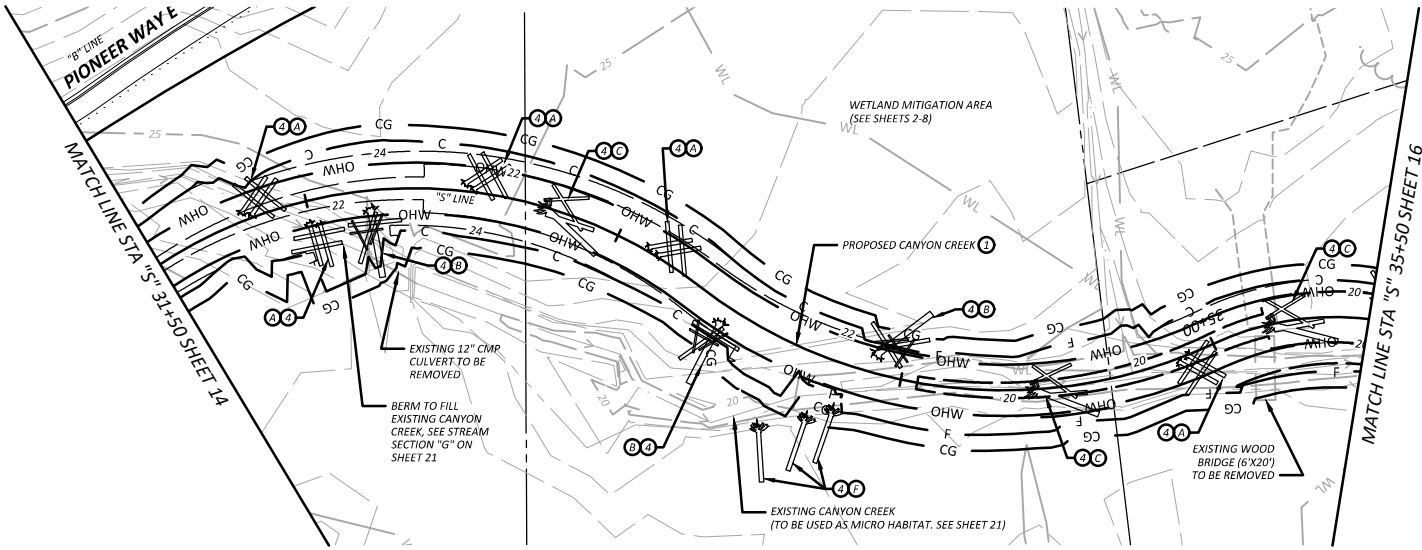
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

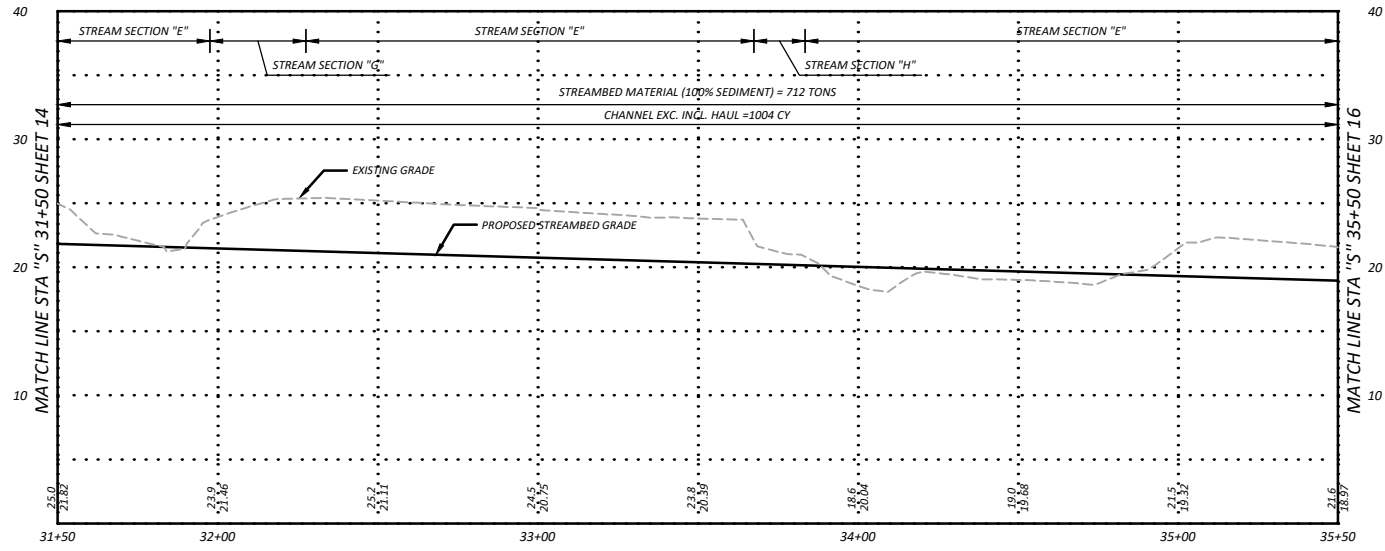
LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 14 of 29

FILE: 1588-56431-05 LAYOUT: J15 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995vcs\CADD\FIGURES\ARPA PLOTTED BY: purgubut DATE: Tuesday, August 11, 2020 4:47:16 PM



- CONSTRUCTION NOTES:**
- 1. CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - 2. CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 - 3. CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE 3
 - LWD TYPE 2
 - LWD TYPE 1
 - LWD TYPE 4
 - LWD TYPE 5
 - LWD TYPE 6

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

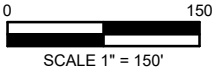
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



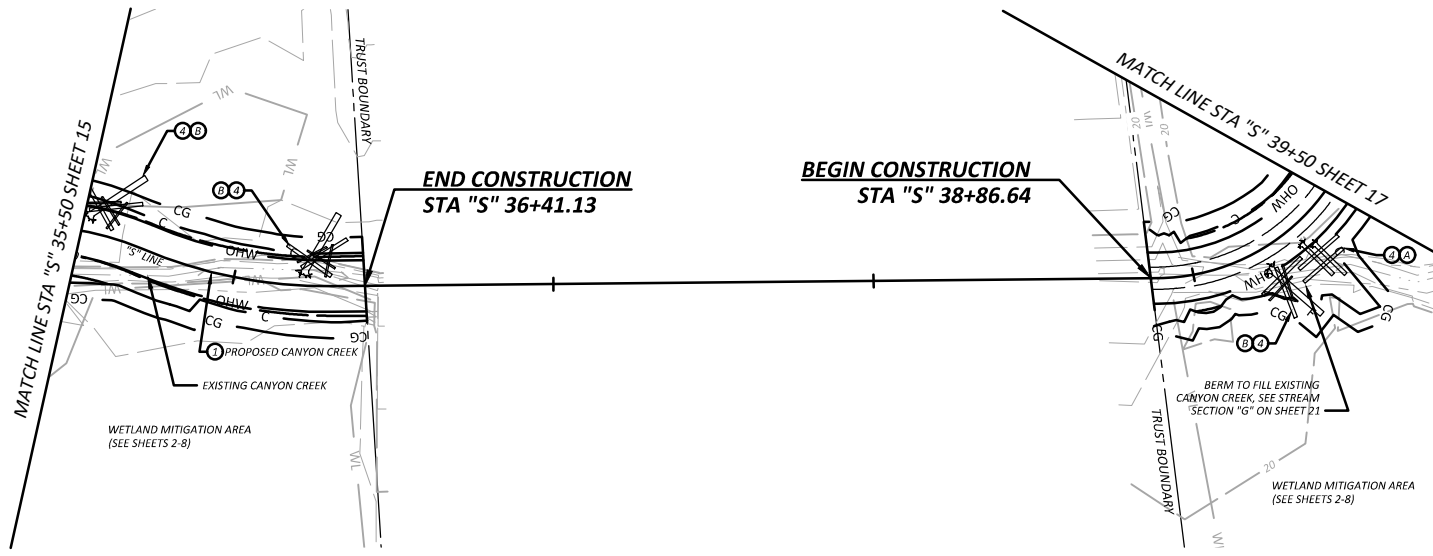
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

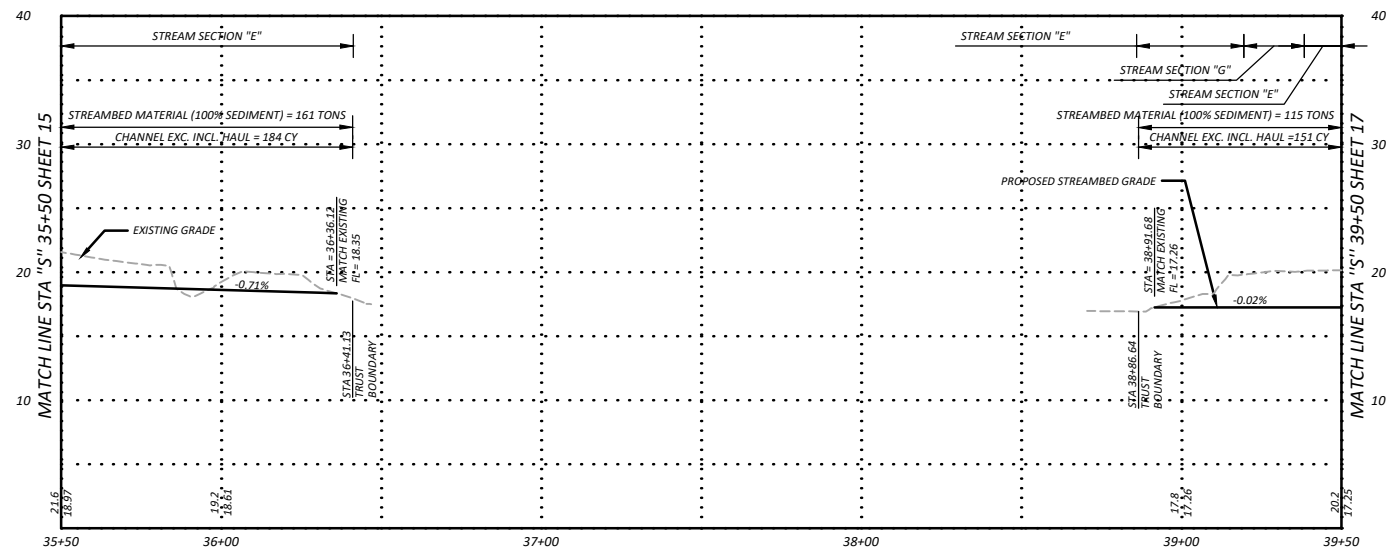
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 15 of 29

FILE: 1588-56431-05 LAYOUT: 116 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vca\CADD\FIGURES\ARPA PLOTTED BY: purgabul DATE: Tuesday, August 11, 2020 4:47:26 PM



- CONSTRUCTION NOTES:**
- ① CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - ② CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 - ③ CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE A
 - LWD TYPE B
 - LWD TYPE C
 - LWD TYPE D
 - LWD TYPE E
 - LWD TYPE F

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

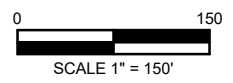
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



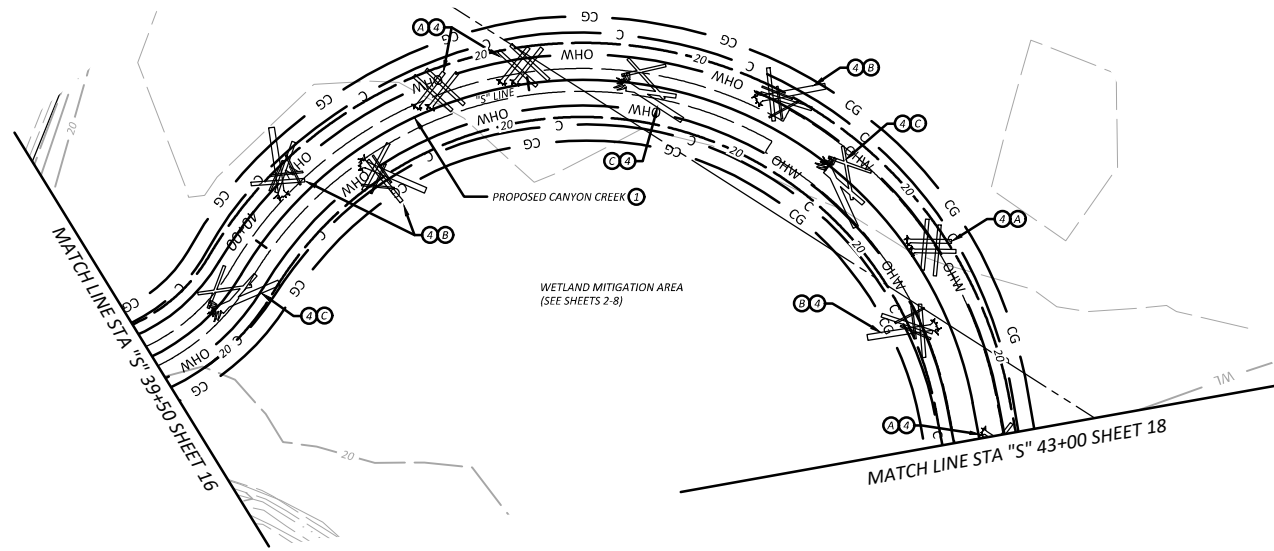
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

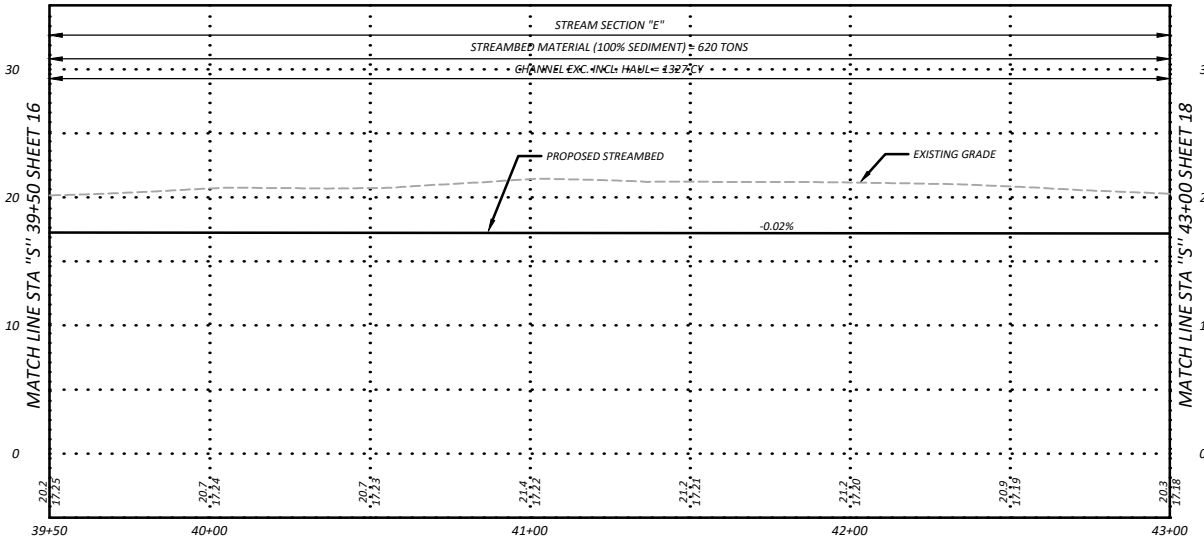
DATE: AUGUST 2020 **SHEET:** 16 of 29

FILE: 1588-5643J-05 LAYOUT: J17 PATH: U:\P50\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vcs\CAADD\FIGURES\ARPA PLOTTED BY: purgabut DATE: Tuesday, August 11, 2020 4:47:36 PM



CONSTRUCTION NOTES:

- ① CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
- ② CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
- ③ CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



LEGEND

- COARSE BAND
- BOULDER BAND
- LWD TYPE A
- LWD TYPE B
- LWD TYPE C
- LWD TYPE D
- LWD TYPE E
- LWD TYPE F

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

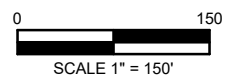
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



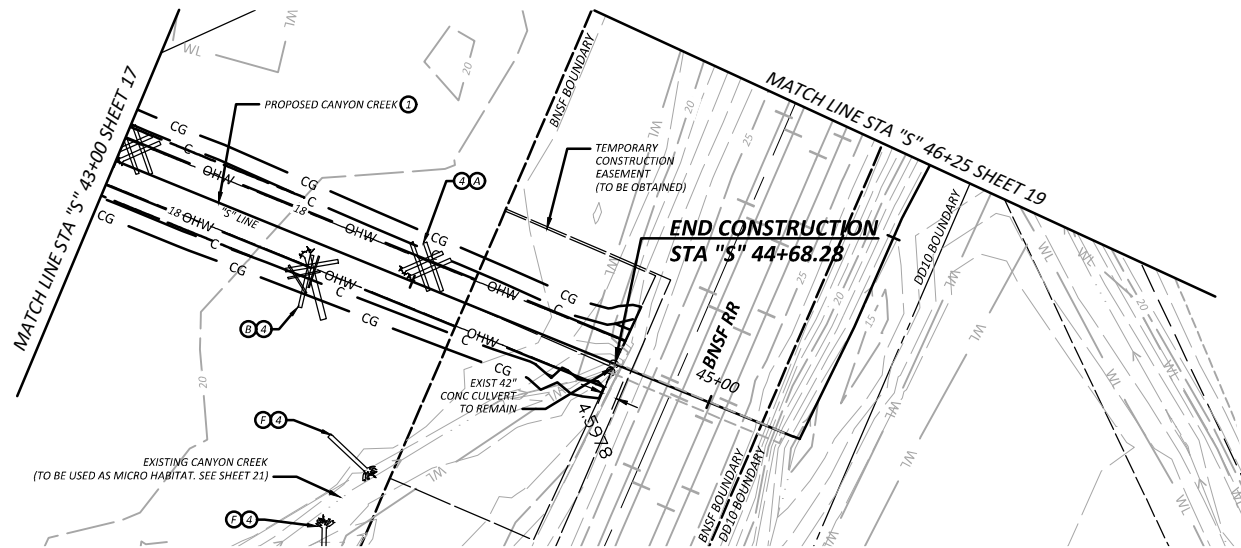
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

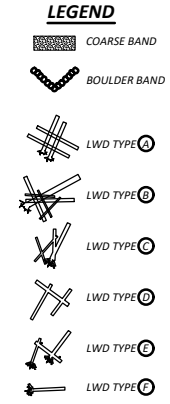
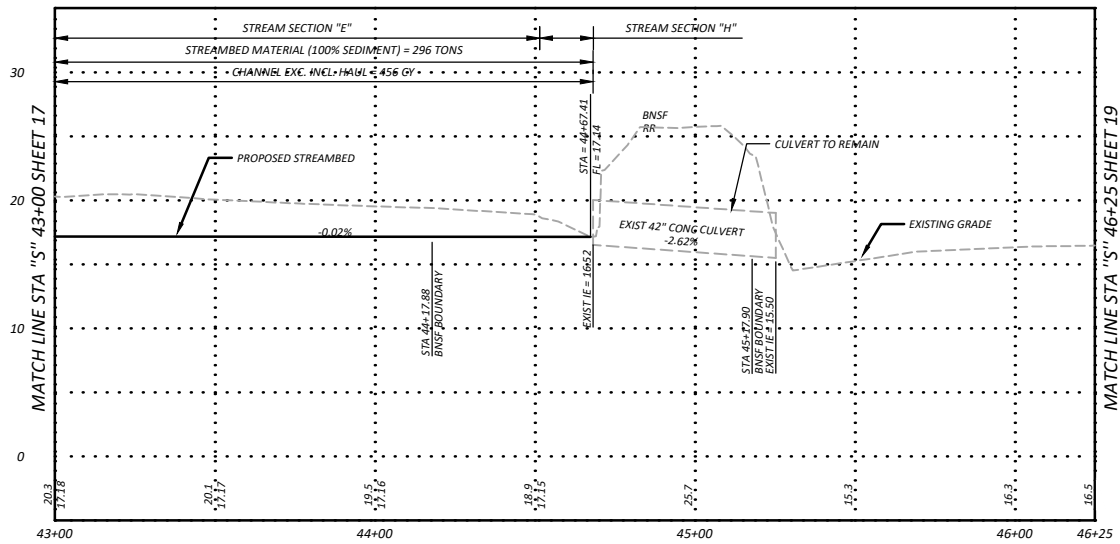
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 17 of 29

FILE: 1588-56431-05 LAYOUT: J18 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vcs\CA00\FIGURES\ARPA PLOTTED BY: purgabbu DATE: Tuesday, August 11, 2020 4:47:46 PM



- CONSTRUCTION NOTES:**
- 1 CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - 2 CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 - 3 CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

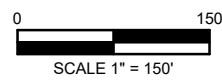
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



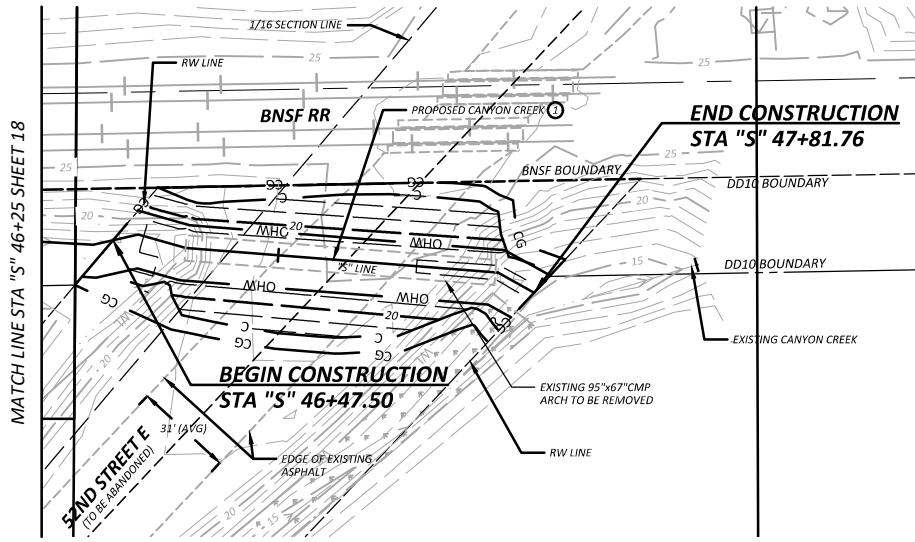
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

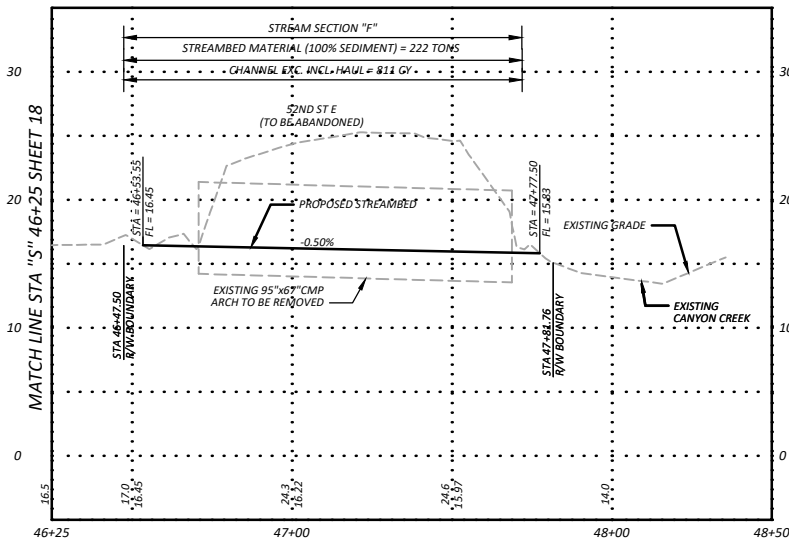
LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 18 of 29

FILE: 1588-56431-05 LAYOUT: 019 PATH: U:\P50\Projects\Clients\1588-PierceCo\214-1588-088 CanyonRd N CRP5643\995vcs\CADD\FIGURES\ARPA FLOTTED BY: purgubut DATE: Tuesday, August 11, 2020 4:47:53 PM



- CONSTRUCTION NOTES:**
- 1 CONSTRUCT STREAM CHANNEL PER PLAN AND PROFILE THIS SHEET AND CROSS SECTIONS SHOWN ON SHEETS 20-21. STATION RANGES FOR STREAM CROSS SECTIONS ARE IDENTIFIED IN THE PROFILE VIEW THIS SHEET AND IN SECTIONS ON SHEETS 20-21.
 - 2 CONSTRUCT PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, WING WALLS, AND STREAM CHANNEL PER SHEETS 26-29.
 - 3 CONSTRUCT LARGE WOODY DEBRIS (LWD). LWD TYPES ARE SHOWN IN LEGEND. SEE DETAILS SHEETS 21-24.



- LEGEND**
- COARSE BAND
 - BOULDER BAND
 - LWD TYPE A
 - LWD TYPE B
 - LWD TYPE C
 - LWD TYPE D
 - LWD TYPE E
 - LWD TYPE F

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

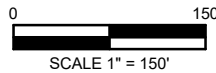
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

CREEK PLAN AND PROFILE



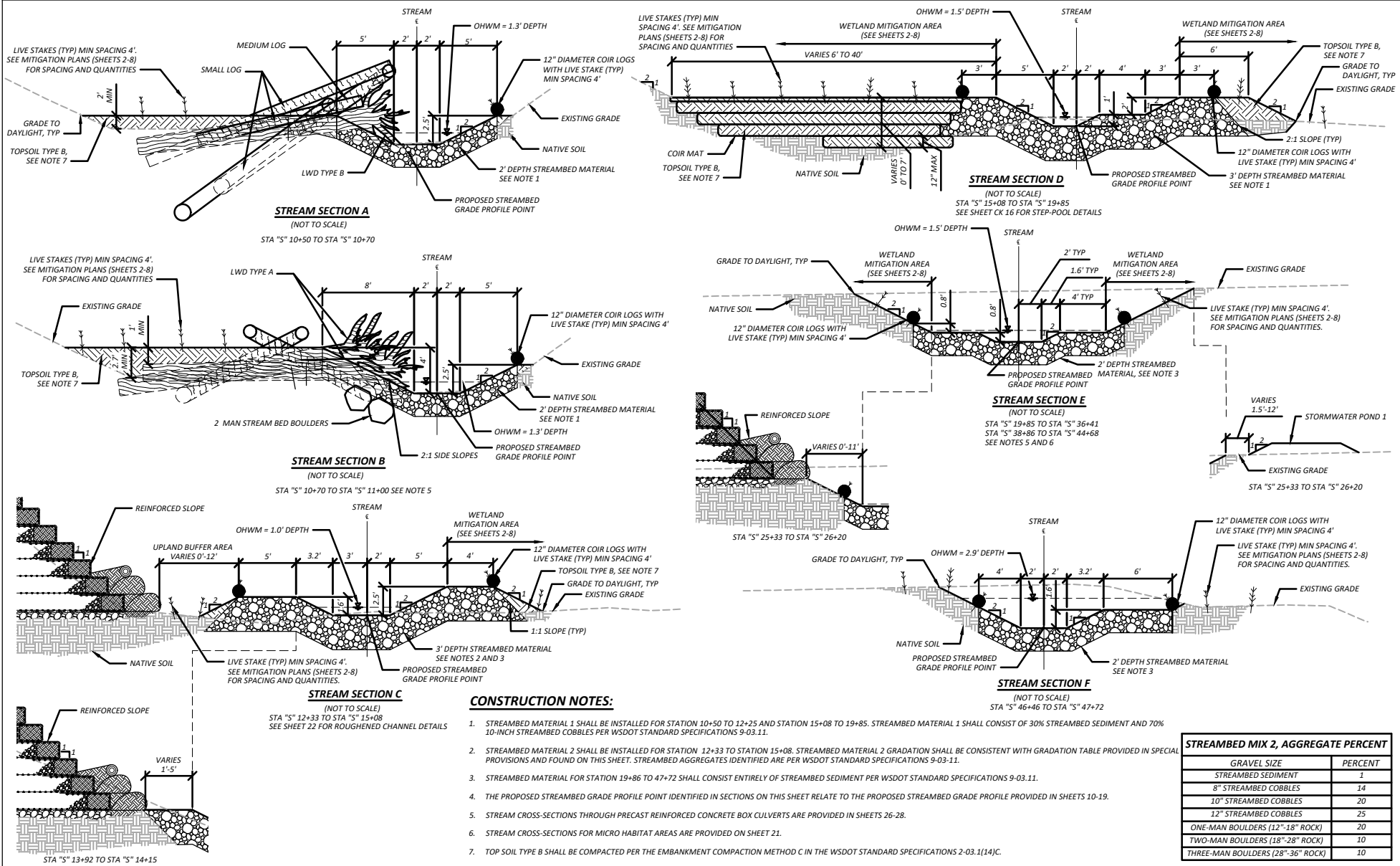
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 19 of 29

FILE: 1588-56431-06 LAYOUT: 120 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995scs\CADD\FIGURES\VARPA PLOTTED BY: purgabub DATE: Tuesday, August 11, 2020 4:49:00 PM



CONSTRUCTION NOTES:

1. STREAMBED MATERIAL 1 SHALL BE INSTALLED FOR STATION 10+50 TO 12+25 AND STATION 15+08 TO 19+85. STREAMBED MATERIAL 1 SHALL CONSIST OF 30% STREAMBED SEDIMENT AND 70% 10-INCH STREAMBED COBBLES PER WSDOT STANDARD SPECIFICATIONS 9-03.11.
2. STREAMBED MATERIAL 2 SHALL BE INSTALLED FOR STATION 12+33 TO STATION 15+08. STREAMBED MATERIAL 2 GRADATION SHALL BE CONSISTENT WITH GRADATION TABLE PROVIDED IN SPECIAL PROVISIONS AND FOUND ON THIS SHEET. STREAMBED AGGREGATES IDENTIFIED ARE PER WSDOT STANDARD SPECIFICATIONS 9-03.11.
3. STREAMBED MATERIAL FOR STATION 19+86 TO 47+72 SHALL CONSIST ENTIRELY OF STREAMBED SEDIMENT PER WSDOT STANDARD SPECIFICATIONS 9-03.11.
4. THE PROPOSED STREAMBED GRADE PROFILE POINT IDENTIFIED IN SECTIONS ON THIS SHEET RELATE TO THE PROPOSED STREAMBED GRADE PROFILE PROVIDED IN SHEETS 10-19.
5. STREAM CROSS-SECTIONS THROUGH PRECAST REINFORCED CONCRETE BOX CULVERTS ARE PROVIDED IN SHEETS 26-28.
6. STREAM CROSS-SECTIONS FOR MICRO HABITAT AREAS ARE PROVIDED ON SHEET 21.
7. TOP SOIL TYPE B SHALL BE COMPACTED PER THE EMBANKMENT COMPACTION METHOD C IN THE WSDOT STANDARD SPECIFICATIONS 2-03.1(14)C.

STREAMBED MIX 2, AGGREGATE PERCENT	
GRAVEL SIZE	PERCENT
STREAMBED SEDIMENT	30
8" STREAMBED COBBLES	14
10" STREAMBED COBBLES	20
12" STREAMBED COBBLES	25
ONE-MAN BOULDERS (12"-18" ROCK)	20
TWO-MAN BOULDERS (18"-28" ROCK)	10
THREE-MAN BOULDERS (28"-36" ROCK)	10

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

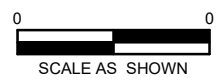
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

TYPICAL SECTIONS AND DETAILS



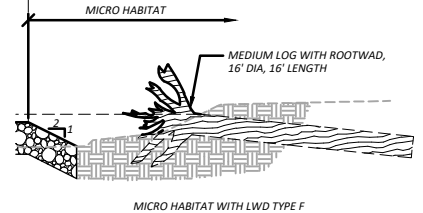
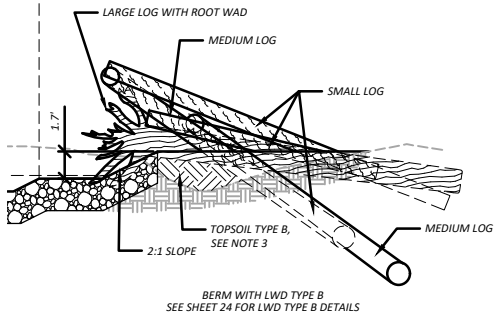
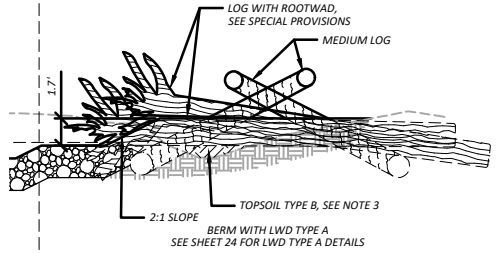
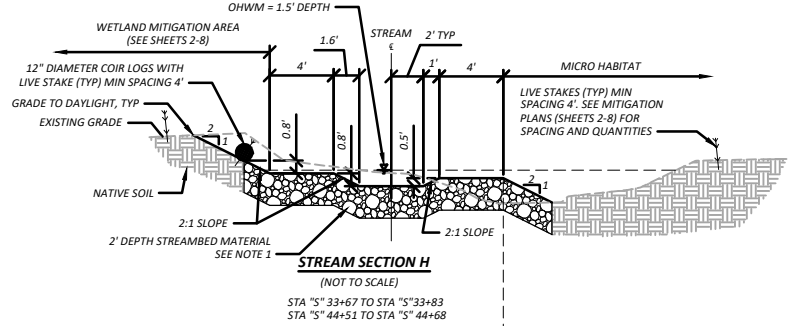
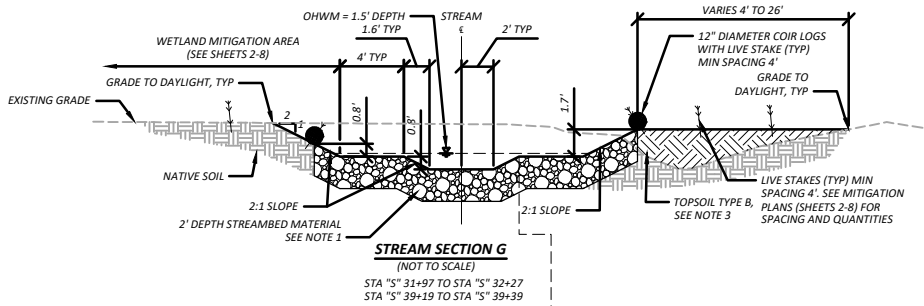
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 20 of 29

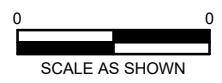
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CONSTRUCTION NOTES:

1. STREAMBED MATERIAL FOR SECTION SHALL CONSIST ENTIRELY OF STREAMBED SEDIMENT PER WSDOT STANDARD SPECIFICATIONS 9-03.11.
2. THE PROPOSED STREAMBED GRADE PROFILE POINT IDENTIFIED IN SECTIONS ON THIS SHEET RELATE TO THE PROPOSED STREAMBED GRADE PROFILE PROVIDED IN SHEETS 10-19.
3. TOP SOIL TYPE B SHALL BE COMPACTED PER THE EMBANKMENT COMPACTION METHOD C IN THE WSDOT STANDARD SPECIFICATIONS 2-03.1(14)C.

TYPICAL DETAILS

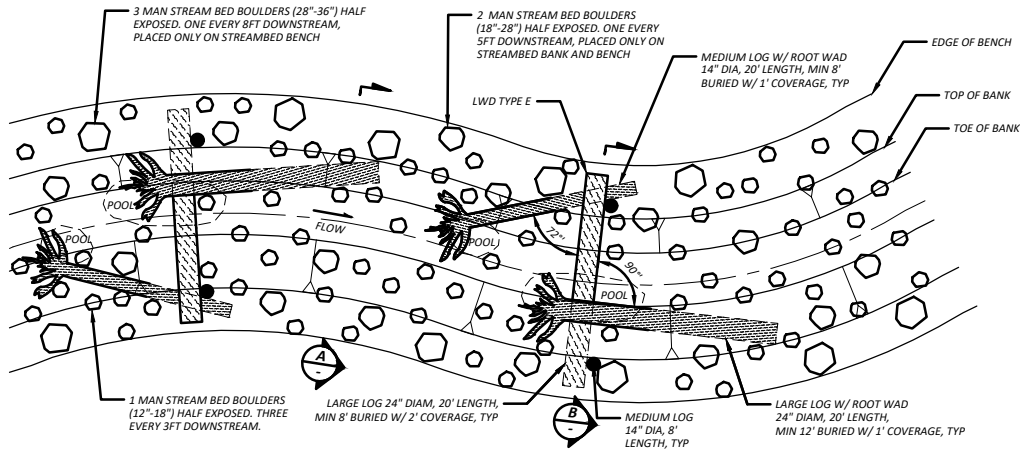


APPLICANT: PIERCE COUNTY
PLANNING AND PUBLIC
WORKS

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E
BASIN: CLEAR CREEK, PUYALLUP RIVER
ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C
REFERENCE NUMBER: NWS-2017-1054-WRD

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)
LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E
DATE: AUGUST 2020
SHEET: 21 of 29

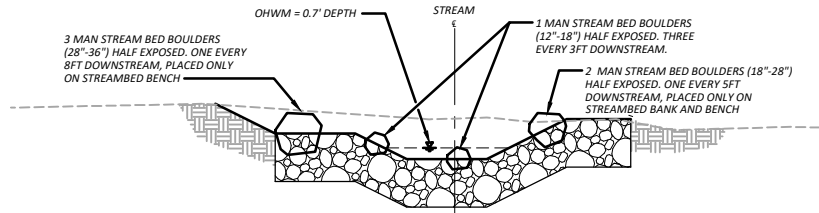
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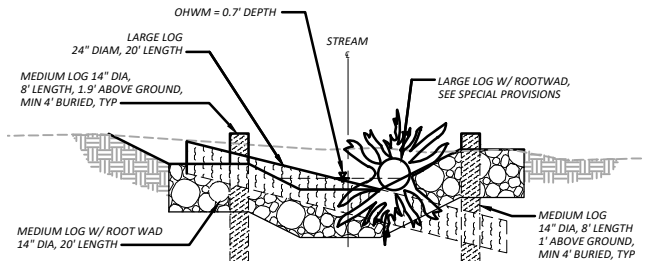
ROUGHENED CHANNEL DETAIL PLAN
(NOT TO SCALE)

GENERAL CONSTRUCTION NOTES:

1. STREAMBED MATERIALS AND LARGE WOODY DEBRIS ARE TO BE PLACED AS SHOWN IN THE PLANS. MINOR CHANGES TO THE LOG FEATURES AND STREAMBED BOULDER PLACEMENT MAY BE MADE IN THE FIELD AS APPROVED BY THE ENGINEER.
2. ALL WOOD DEBRIS, PILES AND STREAMBED BOULDERS PLACEMENTS SHALL BE STAKED BY CONTRACTOR PRIOR TO INSTALLATION OF THE FIRST TYPICAL INSTALLATION OF EACH LWD TYPE FOR REVIEW AND APPROVAL BY THE ENGINEER. LOCATIONS MAY BE ADJUSTED BY ENGINEER TO FIT SITE CONDITIONS. AFTER APPROVAL OF THE FIRST INSTALLATION, THE ROUGHENED CHANNEL LWD TYPE E AND BOULDER PLACEMENTS SHALL BE REPEATED APPROXIMATELY EVERY 30 FEET.
3. PILES MAY BE EMBEDDED BY VIBRATORY DRIVING, AUGURING, OR OTHER METHOD APPROVED BY ENGINEER THAT MAINTAINS STABLE SUBSOILS. EXCAVATING AND BACKFILLING SHALL NOT BE ALLOWED.
4. STREAMBED MIX 2 SHALL BE INSTALLED FOR THE ROUGHENED CHANNEL REACH. STREAMBED COBBLES AND SEDIMENT PARTS SHALL BE THOROUGHLY MIXED TOGETHER AND PLACED IN LIFTS NO GREATER THAN 12-INCHES THICK. STREAMBED BOULDERS MAY BE PLACED IN THE STREAMBED SO THAT NO MORE THAN ONE HALF OF A BOULDER IS EXPOSED ABOVE FINISHED GRADE.



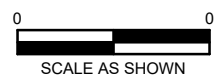
A STREAMBED BOULDER RIFFLE SECTION
(NOT TO SCALE)



B LWD TYPE E SECTION
(NOT TO SCALE)

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E
BASIN: CLEAR CREEK, PUYALLUP RIVER
ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C
REFERENCE NUMBER: NWS-2017-1054-WRD

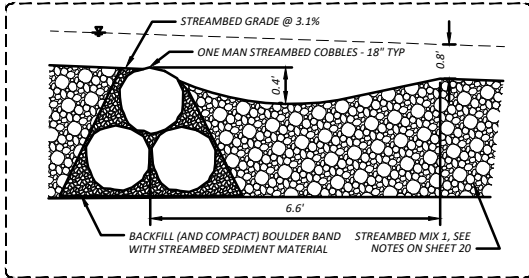
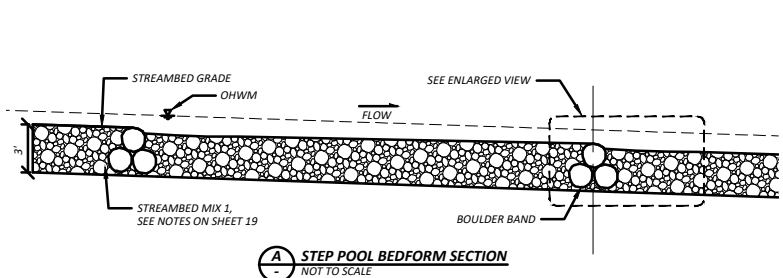
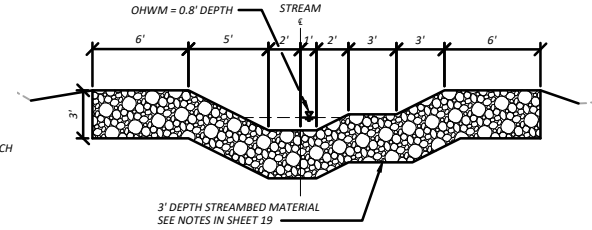
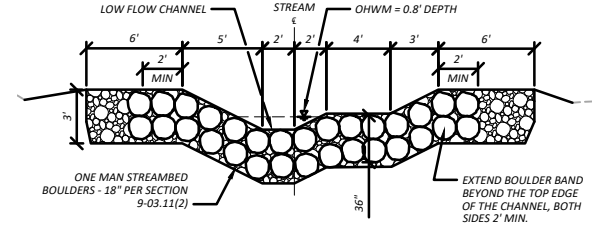
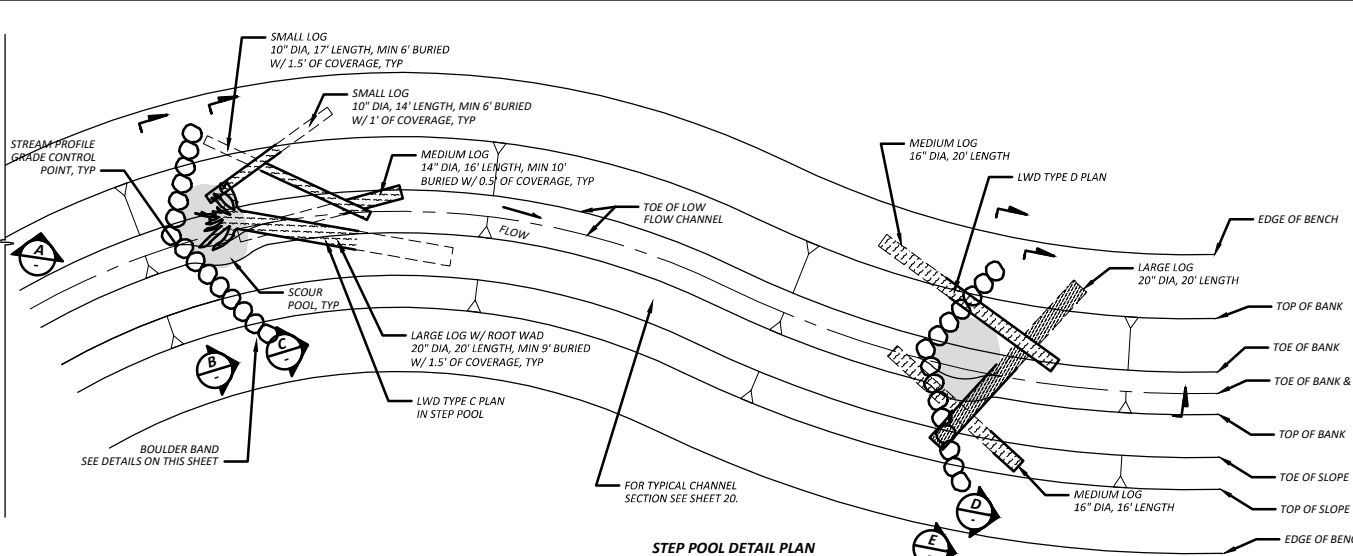
TYPICAL DETAILS



APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

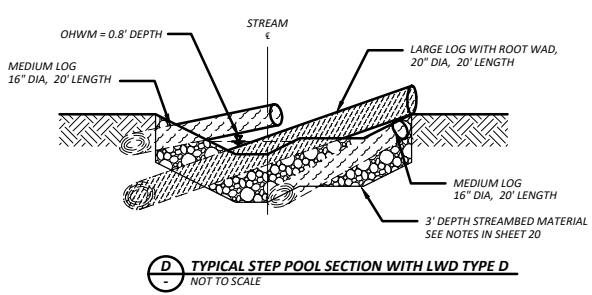
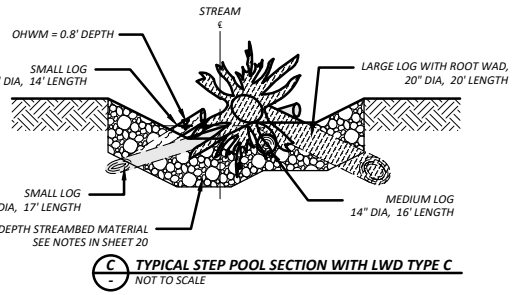
DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E
DATE: AUGUST 2020 **SHEET:** 22 of 29

FILE: 1588-56431-06 LAYOUT: 423 PROJECT: 1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995vcs\CADD\FIGURES\JARPA PLOTTED BY: purgubut DATE: Tuesday, August 11, 2020 4:49:29 PM



GENERAL CONSTRUCTION NOTES:

1. STREAMBED MATERIALS AND LARGE WOODY DEBRIS ARE TO BE PLACED AS SHOWN IN THE PLANS. MINOR CHANGES TO THE LOG FEATURES AND STREAMBED BOULDER PLACEMENT MAY BE MADE IN THE FIELD AS APPROVED BY THE ENGINEER.
2. ALL WOOD DEBRIS AND STREAMBED BOULDERS PLACEMENTS SHALL BE STAKED BY CONTRACTOR PRIOR TO INSTALLATION OF THE FIRST TYPICAL INSTALLATION OF EACH LWD TYPE FOR REVIEW AND APPROVAL BY THE ENGINEER. LOCATIONS MAY BE ADJUSTED BY ENGINEER TO FIT SITE CONDITIONS.
3. AFTER APPROVAL OF THE FIRST INSTALLATION OF THE STEP-POOL BOULDER BAND WITH LWD TYPE C AND LWD TYPE D, THEN THE SUBSEQUENT INSTALLATIONS SHALL BE REPEATED AT THE SPACING IDENTIFIED IN THE PLANS.
5. STREAMBED MIX 1 SHALL BE INSTALLED FOR THE STEP-POOL CHANNEL REACH. STREAMBED COBBLES AND SEDIMENT PARTS SHALL BE THOROUGHLY MIXED TOGETHER AND PLACED IN LIFTS NO GREATER THAN 12-INCHES THICK.



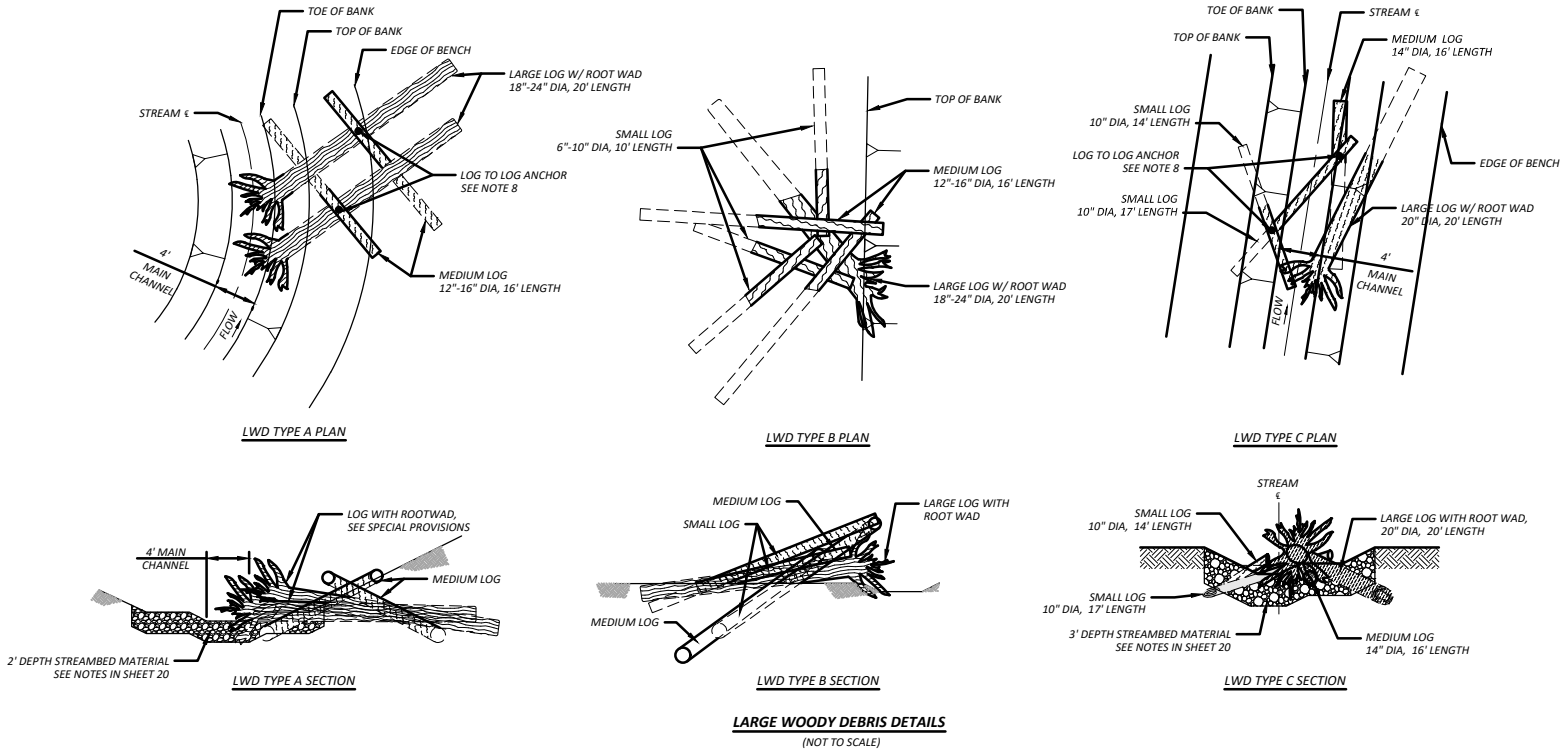
PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E
BASIN: CLEAR CREEK, PUYALLUP RIVER
ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C
REFERENCE NUMBER: NWS-2017-1054-WRD

TYPICAL DETAILS



APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)
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 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E
DATE: AUGUST 2020 **SHEET:** 23 of 29



NOTES:

1. LARGE WOOD MATERIALS: SPECIES OF WOOD FOR USE IN LARGE WOODY DEBRIS (LWD) SHALL BE DOUGLAS-FIR OR WESTERN RED CEDAR, OR SITKA SPRUCE. SIZE OF LARGE WOOD MATERIAL SHALL BE PER DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IF A SPECIFIED LOG SIZE IS NOT AVAILABLE. WOOD MATERIAL SHALL BE FREE FROM CRACKS, DECAY, OR OTHER STRUCTURAL DEFICIENCIES, AND SHALL BE DISEASE AND PARASITIC INSECT-FREE. LWD SHALL BE SECURED FROM THE FOLLOWING SOURCES:
 - SALVAGED TREES AND EXISTING LOGS REMOVED DURING CONSTRUCTION GRADING ACTIVITIES, AS APPROVED BY THE ENGINEER (LIMITED QUANTITY AVAILABLE).
 - IMPORTED LARGE WOOD FROM AN OFF-SITE SOURCE (PROCURED AND HAULED TO SITE BY CONTRACTOR).
2. THE CONTRACTOR SHALL PROVIDE A LIST OF THE LOGS THAT ARE AVAILABLE (ONSITE AND OFF-SITE) TO BE USED FOR THE PROJECT. FOR EACH LOG, THE LIST SHALL DESCRIBE THE TREE SPECIES, DIAMETER (DBH), LENGTH, AND ROOTWAD DIAMETER. THE LARGE WOOD STRUCTURE CONFIGURATIONS AND MATERIAL SCHEDULES SHOWN IN THE PLANS ARE CONSIDERED PRELIMINARY, AND ARE SUBJECT TO REVISION BY THE ENGINEER UPON RECEIPT OF THE LIST OF LOG MATERIAL. SPECIFIED DIAMETER OF LOGS SHALL BE MEASURED AT BREAST HEIGHT (DBH). LENGTHS OF LOGS SHALL INCLUDE THE ROOTWAD PORTIONS OF THE LOG, IF ROOTWAD IS PRESENT. LOG SIZE SHALL BE WITHIN THE SPECIFIED RANGE OF DIAMETERS SHOWN ON THE PLANS. ROOTWAD DIAMETER SHALL TYPICALLY BE A MINIMUM OF 3 TIMES THE DBH OF THE LOG, UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL TAKE CARE TO PROTECT THE ROOTWADS FROM DAMAGE DURING HANDLING OF LARGE WOOD MATERIAL.
3. THE LOCATION AND CONFIGURATION OF LWD AS NOTED IN DETAILS MAY VARY IN FIELD DUE TO SITE CONDITIONS, AND THE FINAL LOCATION OF THESE LWD WILL BE FLAGGED BY THE ENGINEER DURING CONSTRUCTION.
4. THE CONTRACTOR MAY SALVAGE STOCKPILED COTTONWOOD MATERIALS ON SITE. COORDINATE WITH PROPERTY OWNER. COTTONWOOD MAY ONLY BE USED IN LWD TYPE B STRUCTURES. THE AREA USED BY THE PROPERTY OWNER FOR STOCKPILING WOOD SHALL NOT BE USED BY THE CONTRACTOR FOR STAGING/STOCKPILING OTHER MATERIALS.
5. MAINTAIN 1.5' OF MAIN CHANNEL UNOBSTRUCTED ACROSS FROM ROOTWAD AND MEDIUM LOG.
6. BURY MEDIUM LOG A MINIMUM OF 5' INTO BANK TO SECURE.
7. LWD TYPE A SHALL CONSIST OF 2 MEDIUM LOGS AND 2 LARGE LOGS WITH ROOTWAD. LWD TYPE B SHALL CONSIST OF 3 SMALL LOGS, 2 MEDIUM LOGS, AND 1 LARGE LOG WITH ROOTWAD. LWD TYPE C SHALL CONSIST OF 2 SMALL LOGS, 1 MEDIUM LOG, AND 1 LARGE LOG WITH ROOTWAD. LWD TYPE D SHALL CONSIST OF 2 MEDIUM LOGS AND 1 LARGE LOG. LWD TYPE E SHALL CONSIST OF 1 MEDIUM LOG, 1 MEDIUM LOG WITH ROOTWAD, AND 1 LARGE LOG WITH ROOTWAD. LWD TYPE F SHALL CONSIST OF 1 MEDIUM LOG WITH ROOTWAD. THE TOTAL LWD IS 359 PIECES INCLUDING 105 LARGE LOGS/KEY PIECES, 139 MEDIUM LOGS, AND 115 SMALL LOGS.
8. SECURE LOGS TOGETHER USING FASTENERS, AS SHOWN IN THE LOG TO LOG ANCHOR DETAIL ON SHEET 25. SEE SPECIAL PROVISIONS.

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

TYPICAL DETAILS



APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

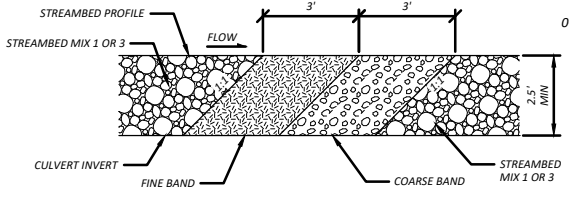
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 24 of 29

FILE: 1588-56431-06 LAYOUT: 025 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995scs\CADD\FIGURES\VARPA PLOTTED BY: purgubut DATE: Tuesday, August 11, 2020 4:49:51 PM

COARSE BAND GRADING	
COARSE BAND 1	COARSE BAND 2
90% 10" STREAMBED COBBLES	40% STREAMBED SEDIMENT
10% 12" STREAMBED COBBLES	60% 4" STREAMBED COBBLES

FINE BAND GRADING	
SIEVE SIZE	PERCENT PASSING
NO. 4	99-100
NO. 10	46-86
NO. 40	26-40
NO. 200	10/20/2020

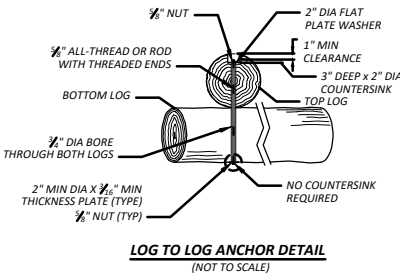


CONSTRUCTION NOTES:

- USE COARSE BAND 1 MATERIAL FOR PRECAST REINFORCED CONCRETE BOX CULVERT (PRCBC) BRIDGE #24203-B. COARSE BAND 1 MATERIAL SHALL BE A WELL GRADED MIXTURE, PER WSDOT STANDARD SPECIFICATIONS 9-03.11. SEE SPECIAL PROVISIONS. SEE COARSE BAND GRADING TABLE, THIS SHEET.
- USE COARSE BAND 2 MATERIAL FOR PRCBC BRIDGE #24203-C AND PRCBC BRIDGE #24203-D. COARSE BAND 2 MATERIAL SHALL BE A WELL GRADED MIXTURE, PER WSDOT STANDARD SPECIFICATIONS 9-03.11. SEE SPECIAL PROVISIONS. SEE COARSE BAND GRADING TABLE, THIS SHEET.
- FINE BAND MATERIAL FOR ALL COARSE BANDS SHALL MEET THE GRADATION PER FINE BAND GRADING TABLE, THIS SHEET.

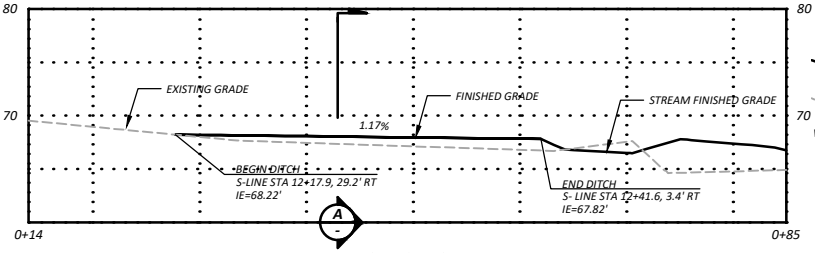
COARSE BAND 1 AND 2 DETAIL

(NOT TO SCALE)



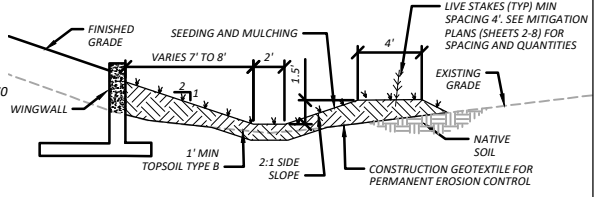
LOG TO LOG ANCHOR DETAIL

(NOT TO SCALE)



EAST DITCH PROFILE

(NOT TO SCALE)

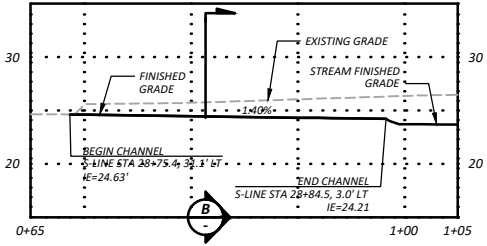


A EAST DITCH SECTION

(NOT TO SCALE)

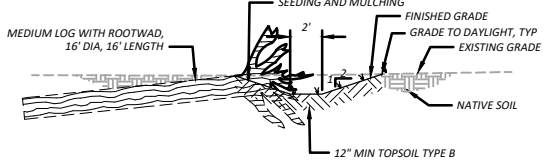
EAST DITCH DETAIL

(NOT TO SCALE)



MICRO HABITAT PROFILE

(NOT TO SCALE)

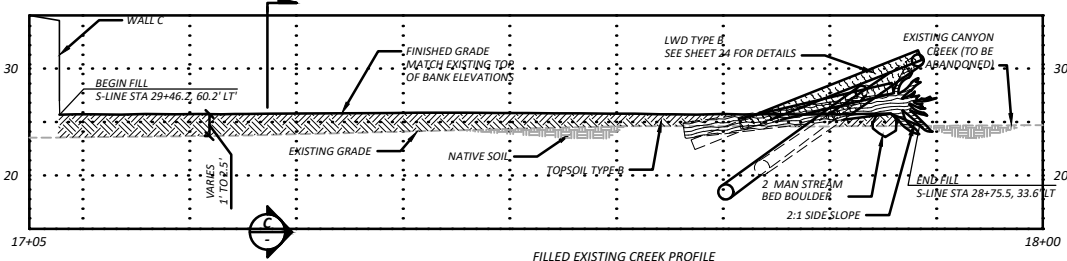


B MICRO HABITAT SECTION

(NOT TO SCALE)

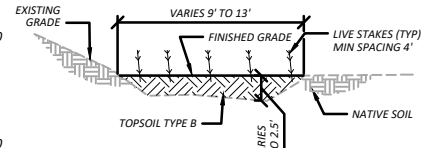
MICRO-HABITAT DETAIL

(NOT TO SCALE)



FILLED EXISTING CREEK PROFILE

(NOT TO SCALE)



C FILLED EXISTING CREEK SECTION

(NOT TO SCALE)

FILLED EXISTING CREEK DETAIL

(NOT TO SCALE)

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION
PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E
BASIN: CLEAR CREEK, PUYALLUP RIVER
ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C
REFERENCE NUMBER: NWS-2017-1054-WRD

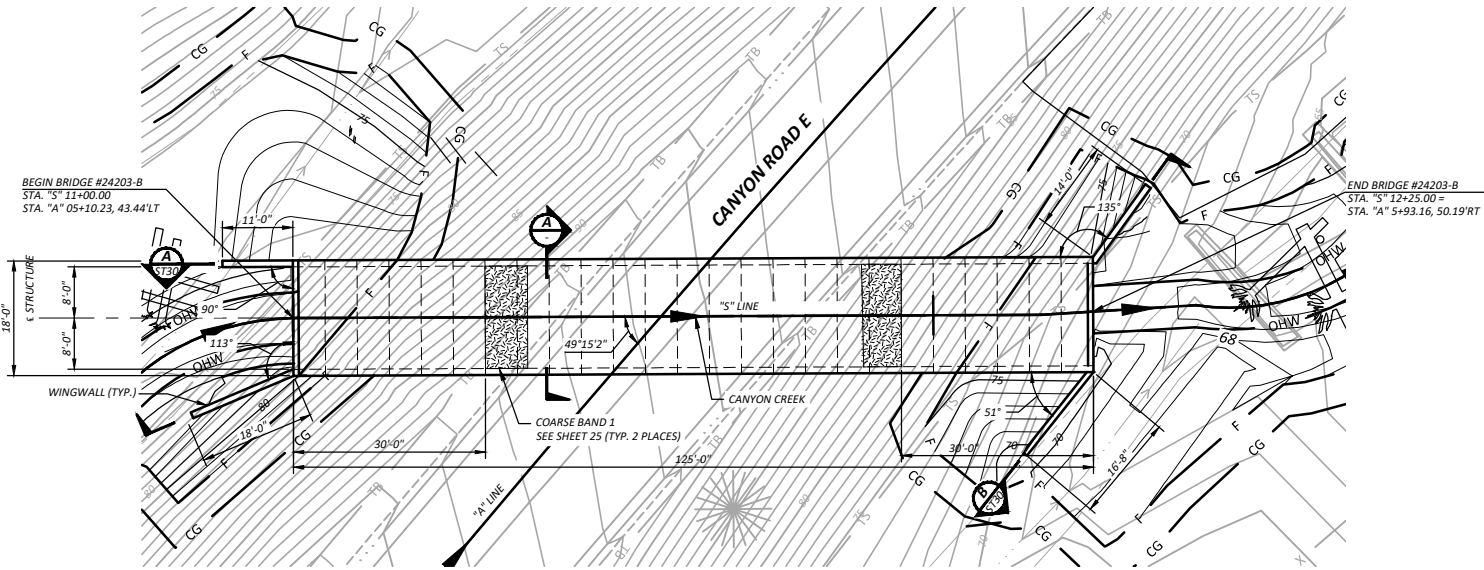
TYPICAL DETAILS



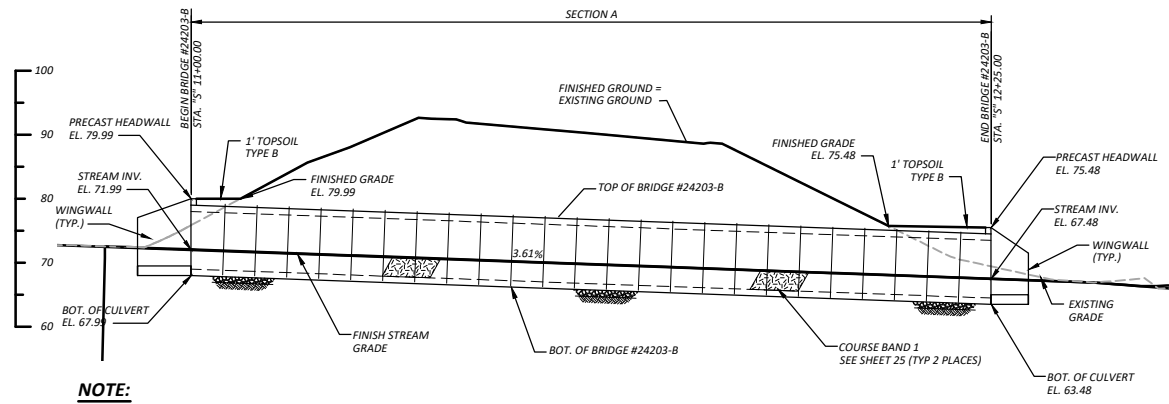
APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)
LOCATION: PIERCE COUNTY, WA
 LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
 NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E
DATE: AUGUST 2020 **SHEET:** 25 of 29

FILE: 1588-56431-07 LAYOUT: 026 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995\cadd\FIGURES\ARPA PLOTTED BY: purgebut DATE: Tuesday, August 11, 2020 4:51:35 PM

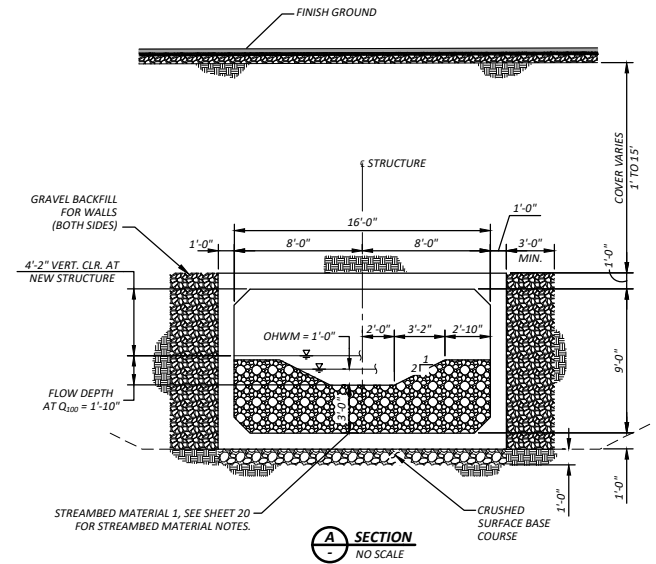


PLAN



ELEVATION
SHOWN AT STREAM CENTERLINE

NOTE:
EXCAVATE FOR FOUNDATIONS BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IF UNSUITABLE MATERIAL IS ENCOUNTERED AT THE ELEVATIONS SHOWN ON THIS PROFILE, REMOVE UNSUITABLE MATERIAL AND REPLACE IT WITH GRAVEL BORROW PER GEOTECHNICAL REPORT.



SECTION A
NO SCALE

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

BRIDGE #24203-B PLAN AND ELEVATION



SCALE AS SHOWN

APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

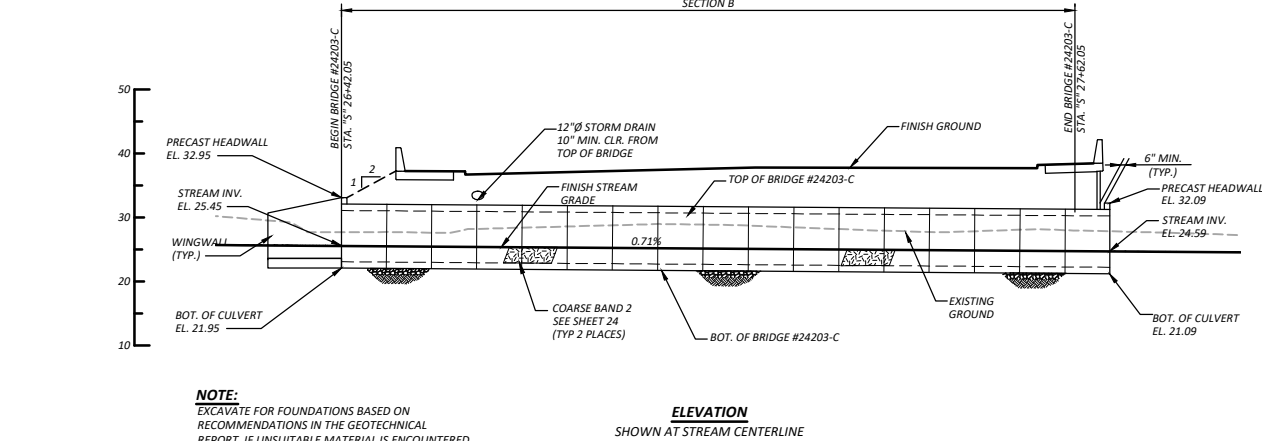
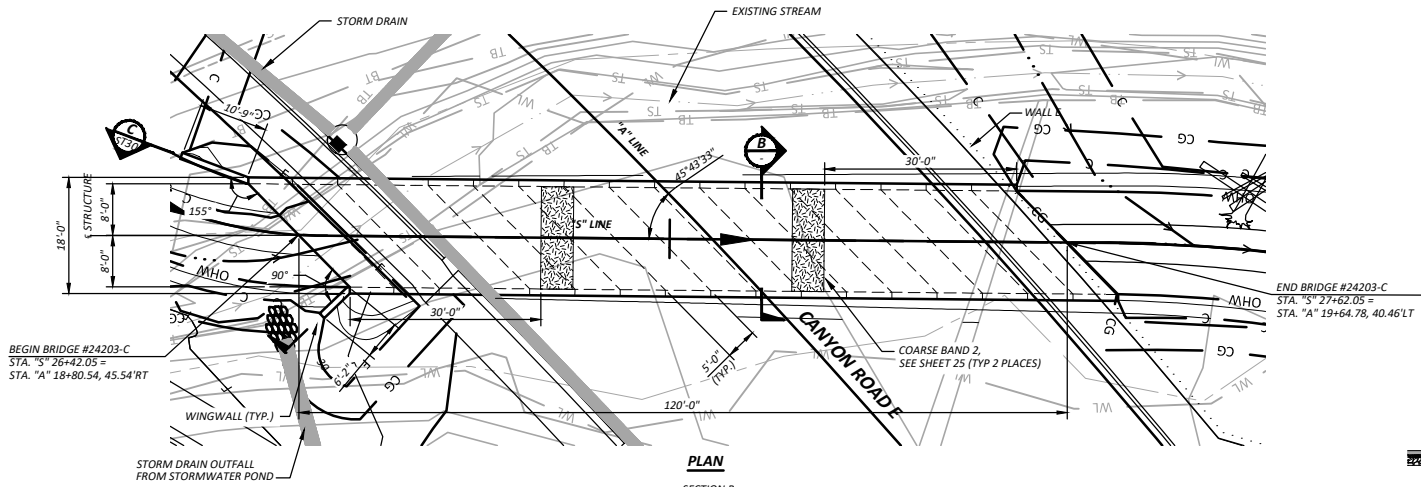
DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT: 47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT: 47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

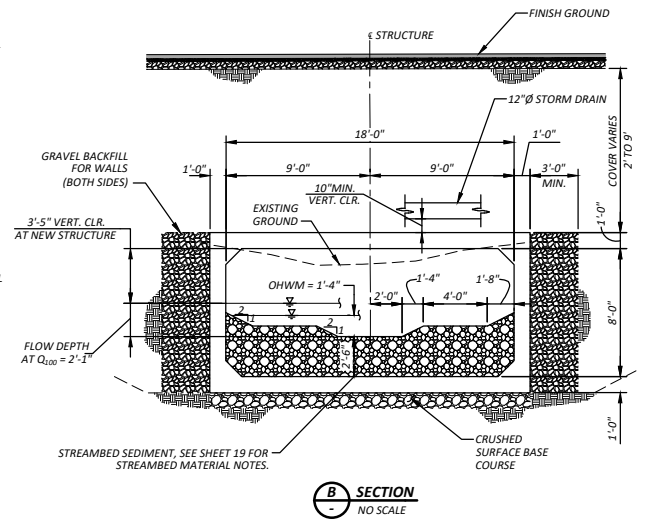
DATE: AUGUST 2020

SHEET: 26 of 29

FILE: 1588-56431-07 LAYOUT: 427 PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995scs\CADD\FIGURES\ARPA PLOTTED BY: purgobut DATE: Tuesday, August 11, 2020 4:51:58 PM



NOTE:
EXCAVATE FOR FOUNDATIONS BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IF UNSUITABLE MATERIAL IS ENCOUNTERED AT THE ELEVATIONS SHOWN ON THIS PROFILE, REMOVE UNSUITABLE MATERIAL AND REPLACE IT WITH GRAVEL BORROW PER GEOTECHNICAL REPORT.



PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS:
SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

BRIDGE #24203-C PLAN AND ELEVATION



APPLICANT: PIERCE COUNTY
PLANNING AND PUBLIC
WORKS

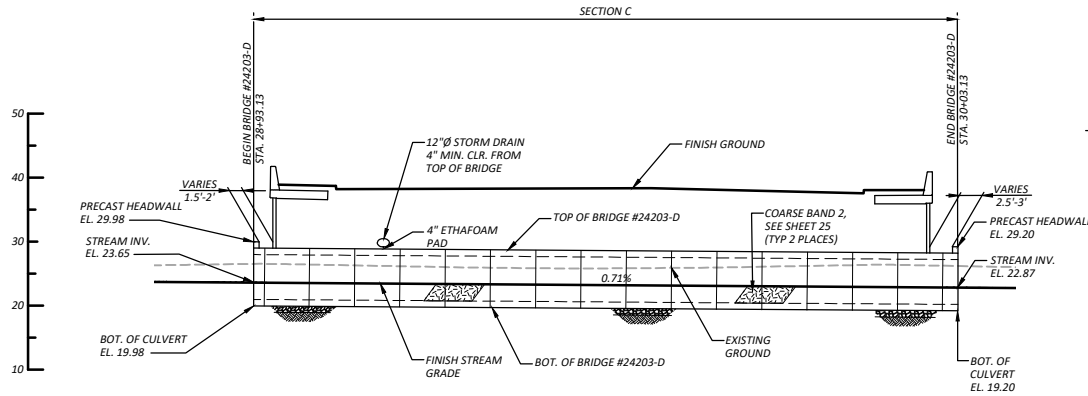
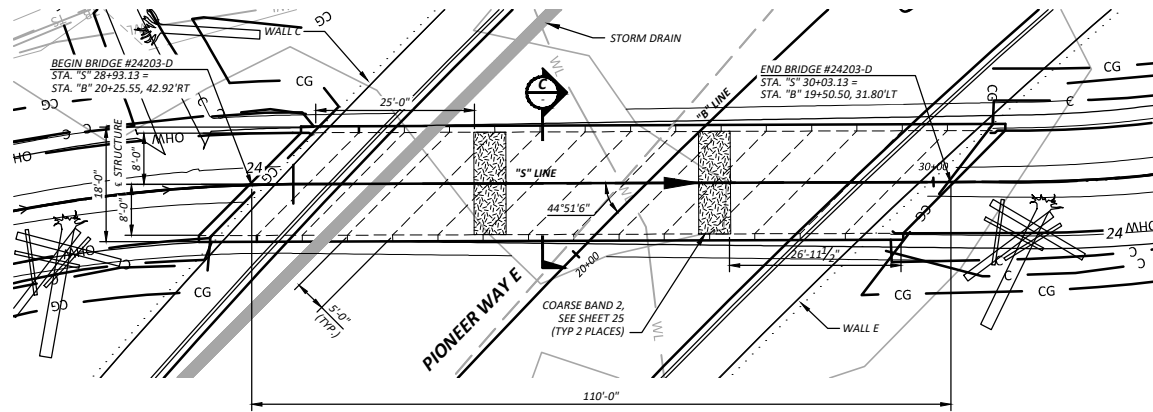
DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE.
VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT:
47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT:
47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

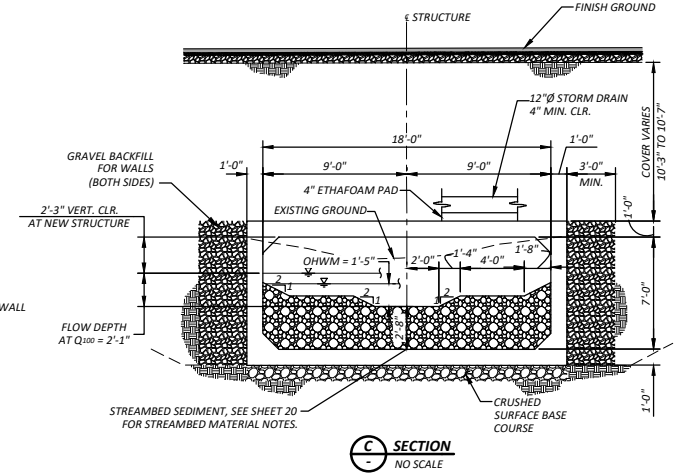
DATE: AUGUST 2020

SHEET: 27 of 29

FILE: 1588-56431-07 LAYOUT: 02B PATH: U:\PSO\Projects\Clients\1588-PierceCo\214-1588-08B CanyonRd N CRP5643\995cva\CADD\FIGURES\ARPA PLOTTED BY: purgebut DATE: Tuesday, August 11, 2020 4:52:23 PM



NOTE:
EXCAVATE FOR FOUNDATIONS BASED ON
RECOMMENDATIONS IN THE GEOTECHNICAL
REPORT. IF UNSUITABLE MATERIAL IS ENCOUNTERED
AT THE ELEVATIONS SHOWN ON THIS PROFILE,
REMOVE UNSUITABLE MATERIAL AND REPLACE IT
WITH GRAVEL BORROW PER GEOTECHNICAL REPORT.



PROJECT NAME: CANYON ROAD EAST - NORTHERLY
EXTENSION

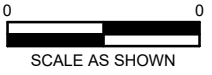
PROJECT PURPOSE: EXTEND CANYON ROAD E
FROM PIONEER WAY E TO
52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS:
SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

BRIDGE #24203-D PLAN AND ELEVATION



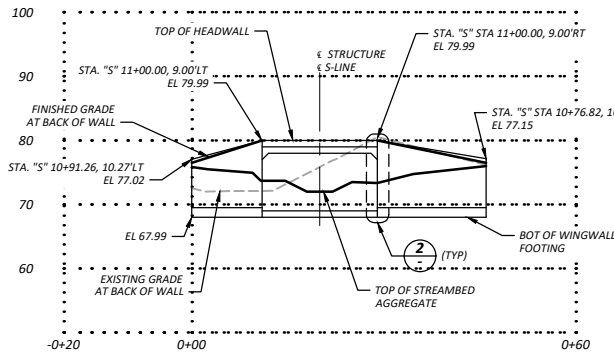
APPLICANT: PIERCE COUNTY
PLANNING AND PUBLIC
WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 &
WSPC SOUTH ZONE.
VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A
(PIERCE COUNTY RTN CORS)

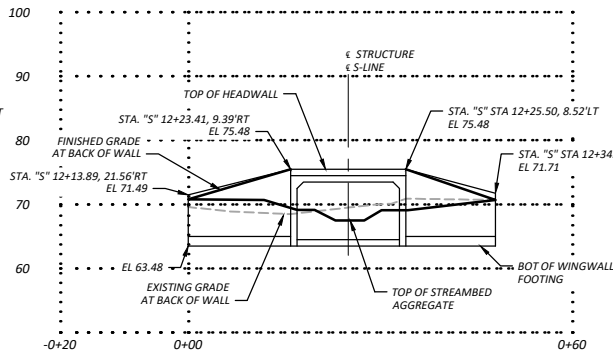
LOCATION: PIERCE COUNTY, WA
LAT/LONG: SOUTHERN TERMINUS OF PROJECT:
47.2056, -122.3584
NORTHERN TERMINUS OF PROJECT:
47.2093, -122.3532
S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 28 of 29

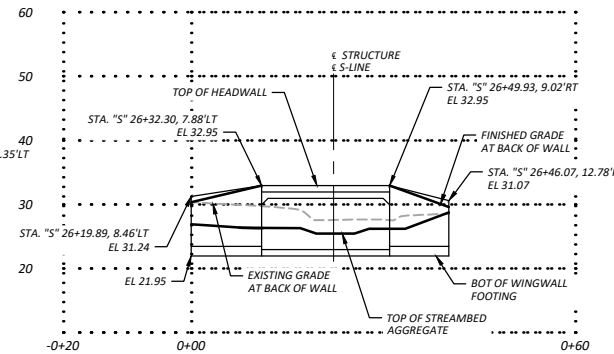
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A BR-24203-B WEST WINGWALL
 ST27 HORIZ: 1"=30'
 VERT: 1"=30'



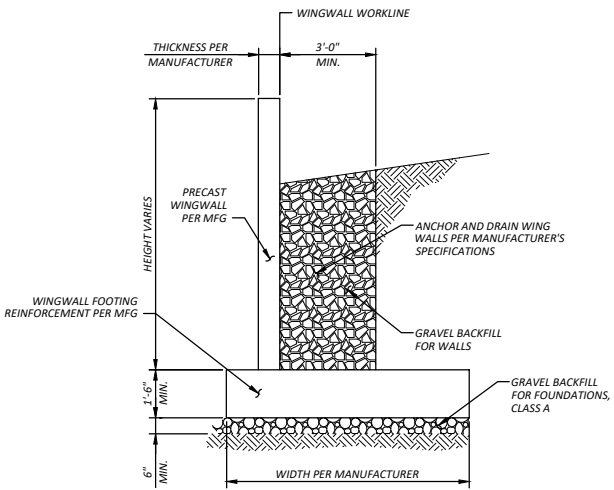
B BR-24203-B EAST WINGWALL
 ST27 HORIZ: 1"=30'
 VERT: 1"=30'



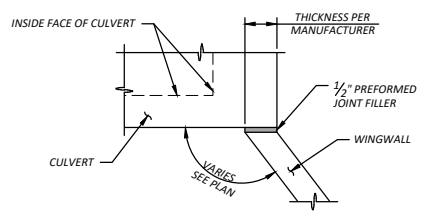
C BR-24203-C WING WALL
 ST28 HORIZ: 1"=30'
 VERT: 1"=30'

STRUCTURAL NOTES:

1. PRECAST UNITS AND FOOTING SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
2. CONCRETE FOR PRECAST UNITS AND FOOTINGS SHALL BE CLASS 4000 MIN.
3. DESIGN LOADING SHALL BE HL-93 AND DESIGN METHOD SHALL BE IN ACCORDANCE WITH THE WSDOT GEOTECHNICAL DESIGN MANUAL AND AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (LATEST EDITIONS).
4. SEE PROJECT GEOTECHNICAL REPORT FOR ALLOWABLE BEARING PRESSURES.



A TYPICAL SECTION
 NO SCALE



3 DETAIL
 NO SCALE

PROJECT NAME: CANYON ROAD EAST - NORTHERLY EXTENSION

PROJECT PURPOSE: EXTEND CANYON ROAD E FROM PIONEER WAY E TO 52ND ST E

BASIN: CLEAR CREEK, PUYALLUP RIVER

ADJACENT PROPERTY OWNERS: SEE JARPA ATTACHMENT C

REFERENCE NUMBER: NWS-2017-1054-WRD

BRIDGE #24203 WINGWALL DETAILS



APPLICANT: PIERCE COUNTY PLANNING AND PUBLIC WORKS

DATUM: HORIZONTAL: NAD 83 (2011)2010 & WSPC SOUTH ZONE. VERTICAL: NAVD 88 (NAD83 2011) GEOID 12A (PIERCE COUNTY RTN CORS)

LOCATION: PIERCE COUNTY, WA
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 S. 19, T. 20N, R04E; S. 24, T. 20N, R03E

DATE: AUGUST 2020 **SHEET:** 29 of 29