

Small Town. Real Life.

CITY OF DUVALL

COE-CLEMONS CREEK CULVERT REPLACEMENT

BID DOCUMENT
MAY 2024

MAYOR

AMY OCKERLANDER

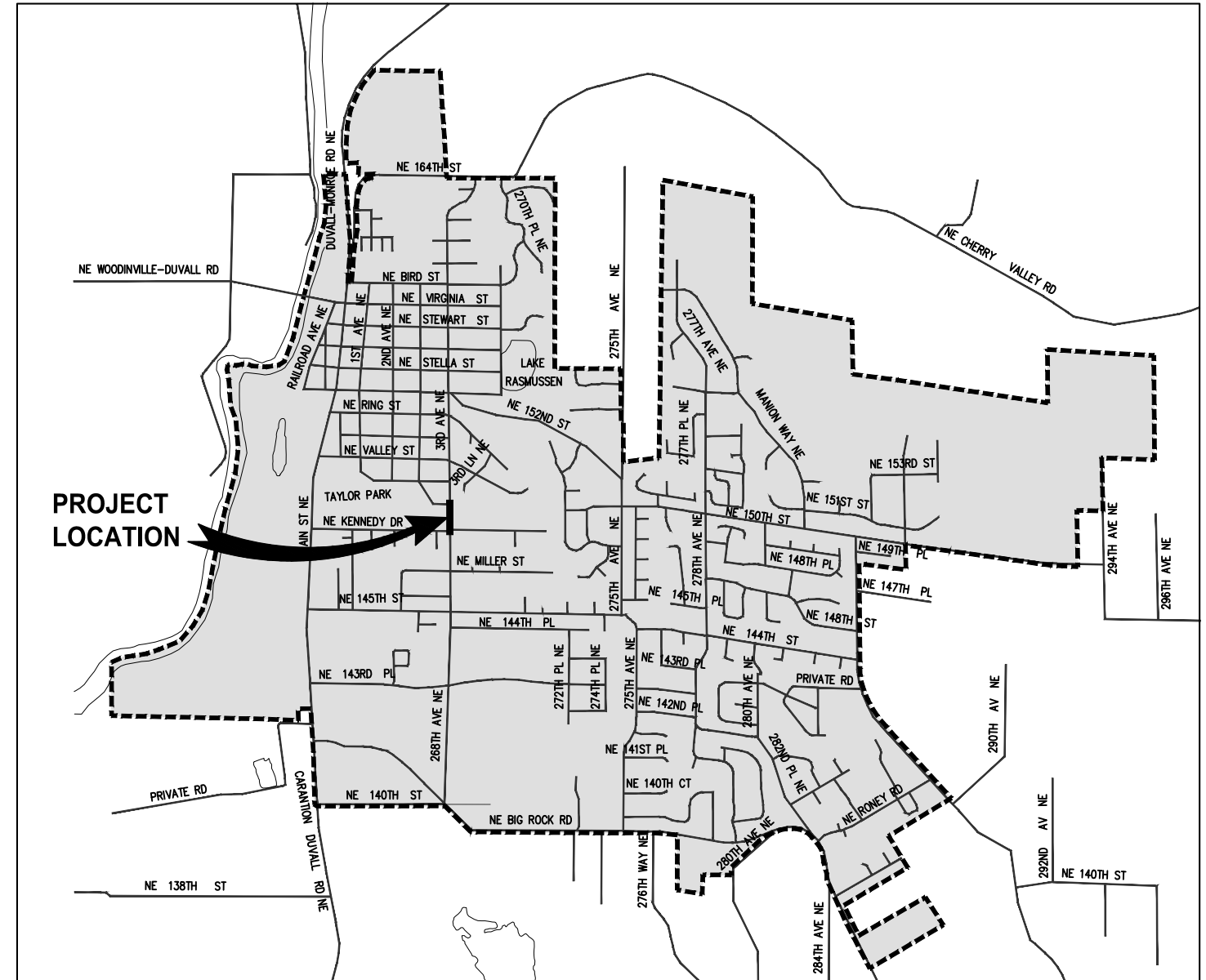
CITY COUNCIL

JOHN ISAACSON
RICK SHAFFER
AMY McHENRY
RONN MERCER

MIKE SUPPLE
JENNIFER KNAPLUND
CAROL KUFELDT

SCHEDULE OF DRAWINGS

SHEET NO.	TITLE
1	COVER SHEET
2	LEGEND & ABBREVIATIONS
3	SHEET INDEX, ALIGNMENT PLAN & SURVEY CONTROL
4	TYPICAL ROADWAY SECTIONS AND DETAILS
5	SITE PREPARATION & TESC PLAN
6-7	TREE RETENTION PLAN
8	ROADWAY AND WATER PLAN & PROFILE
9	STORMWATER PLAN & PROFILE
10	STRUCTURAL NOTES
11	CULVERT PLAN
12	CULVERT PROFILE
13	CULVERT SECTION
14	WALL 01 PLAN & ELEVATION
15	WALL 02 PLAN & ELEVATION
16	CONCRETE WALL SECTION
17-18	STRUCTURAL EARTH WALL SECTIONS
19	WALL DETAILS
20	WING WALL DETAILS
21	TEMPORARY STREAM BYPASS AND EXISTING CONDITIONS
22	PROPOSED STREAM PLAN AND PROFILE
23	PROPOSED STREAM TYPICAL SECTION
24-27	STREAM AND HABITAT FEATURE DETAILS
28	CURB RETURN AND CURB RAMP PLAN
29	ILLUMINATION PLAN
30	ILLUMINATION DETAILS
31	URBAN DESIGN PLAN
32-34	URBAN DESIGN DETAILS
35	LANDSCAPE PLAN
36-37	LANDSCAPE DETAILS
38	IRRIGATION PLAN
39-40	IRRIGATION DETAILS
41	CHANNELIZATION & SIGNING PLAN
42	ROAD CLOSURE DETOUR PLAN



PROJECT LOCATION

CALL 2 DAYS
BEFORE YOU DIG
811

APPROVED FOR CONSTRUCTION:

STEVEN LENISZEWSKI, P.E.
PUBLIC WORKS DIRECTOR
CITY OF DUVAL
5/1/2024
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EXISTING LEGEND

MIC	⊙ MONUMENT IN CASE	Ⓣ	TELEPHONE MANHOLE	— P —	PAINTED POWER
MON	⊗ SURFACE MONUMENT	Ⓣ	TELEPHONE RISER	— T —	PAINTED TELEPHONE
RC	○ REBAR & CAP	Ⓣ	TELEPHONE VAULT LID	— FO —	PAINTED FIBER OPTIC
⊗	SPOT SHOT (DESCRIBED)	Ⓣ	TELEPHONE POLE	— TV —	PAINTED TV
□	CATCH BASIN	Ⓣ	TV VAULT LID	— W —	PAINTED WATER
Ⓣ	STORM DRAIN MANHOLE	Ⓣ	FIBER OPTIC MANHOLE	— G —	PAINTED GAS
Ⓣ	YARD DRAIN	Ⓣ	GAS VALVE	— SD —	STORM
Ⓣ	DOWNSPOUT	Ⓣ	GAS METER	— S —	SEWER
SD	STORM DRAIN CLEAN-OUT	Ⓣ	WATER VALVE	— x — x — x —	FENCE
○	SEWER MANHOLE	Ⓣ	WATER METER	~~~~~	HEDGE (HEIGHT NOTED)
SS	SEWER CLEAN-OUT	Ⓣ	WATER QUALITY BOX	//////	BUILDING
Ⓣ	POWER POLE	Ⓣ	WATER MANHOLE	————	PAINTED STRIPE
Ⓣ	POWER POLE WITH UG CONNECT	Ⓣ	FIRE HYDRANT	RAISED-BUTTON SOLID STRIPE
Ⓣ	POWER VAULT LID	Ⓣ	FIRE DEPARTMENT CONNECT	RAISED-BUTTON SKIP STRIPE
Ⓣ	POWER TRANSFORMER	Ⓣ	UTILITY VAULT LID (GENERIC/UNKNOWN)	————	EDGE OF PAVEMENT
Ⓣ	POWER METER	Ⓣ	UTILITY ACCESS (GENERIC/UNKNOWN)	— · — · — · — · —	FLOWLINE
Ⓣ	POWER OUTLET	Ⓣ	BORE SITE (WITH FIELD DESCRIPTION)	— · — · — · — · —	CONTOUR
→	GUY ANCHOR	Ⓣ	BOULDER	— · — · — · — · —	EXISTING RIGHT-OF-WAY LINE
Ⓣ	TRAFFIC SIGNAL WITH LUMINAIRE	Ⓣ	SIGN	— · — · — · — · —	PROPERTY LINE
Ⓣ	PEDESTRIAN SIGNAL	Ⓣ	MAILBOX	Ⓣ	CONCRETE
Ⓣ	JUNCTION BOX TYPE 1, 2, 3	Ⓣ	SHRUB	Ⓣ	GRAVEL
Ⓣ	TRAFFIC CONTROL CABINET	Ⓣ	GRASS	Ⓣ	BRICK
Ⓣ	TRAFFIC SERVICE CABINET	DT12(3)	DECIDUOUS TREE, DIAM. IN INCHES (# OF TRUNKS)	Ⓣ	METAL GRATE
Ⓣ	TRAFFIC ATTENUATOR LOOP	CT12(3)	CONIFEROUS TREE, DIAM. IN INCHES (# OF TRUNKS)		
Ⓣ	STREET LIGHT (LUMINAIRE)				
Ⓣ	LOT LIGHT				
Ⓣ	YARD LIGHT				

ABBREVIATIONS

AC	ASPHALT CONCRETE	MIN	MINIMUM
ACP	ASPHALT CONCRETE PAVEMENT	MH	MANHOLE
ADA	AMERICANS WITH DISABILITIES ACT	MIC	MONUMENT IN CASE
AP	ANGLE POINT	MJ	MECHANICAL JOINT
APPROX	APPROXIMATE	MON	MONUMENT
BLDG	BUILDING	MWS	MODULAR WETLAND SYSTEM
CB	CATCH BASIN	N	NORTH OR NORTHING
CCP	CEMENT CONCRETE PAVEMENT	NAVD	NORTH AMERICAN VERTICAL DATUM
CDF	CONTROLLED DENSITY FILL	NO	NUMBER
CHLK	CHAINLINK	NTS	NOT TO SCALE
Ⓣ	CENTERLINE	OC	ON CENTER
CL	CLASS	OD	OUTSIDE DIAMETER
CO	CLEANOUT	PAR	PEDESTRIAN ACCESS ROUTE
COD	CITY OF DUVALL	PC	POINT OF CURVE
COL	COLUMN CONC CONCRETE	PCC	POINT OF COMPOUND CURVATURE
CSBC	CRUSHED SURFACING BASE COURSE	PCCP	PERVIOUS CEMENT CONCRETE PAVEMENT
CSTC	CRUSHED SURFACING TOP COURSE	PI	POINT OF INTERSECTION
DI	DUCTILE IRON	POB	POINT OF BEGINNING
DIA	DIAMETER	POE	POINT OF ENDING
DMC	DUVALL MUNICIPAL CODE	PRC	POINT OF REVERSE CURVATURE
DW	DRIVEWAY	PT	POINT OF TANGENT
E	EAST OR EASTING	PVC	POLYVINYL CHLORIDE OR
EA	EACH		POINT OF VERTICAL CURVATURE
ELEV	ELEVATION	PVT	POINT OF VERTICAL TANGENT
EOP	EDGE OF PAVEMENT	PVI	POINT OF VERTICAL INTERSECTION
EQ	EQUAL	R	RADIUS
EW	EACH WAY	ROW	RIGHT OF WAY
EXIST	EXISTING	RT	RIGHT
FF	FINISHED FLOOR	S	SLOPE OR SOUTH
FL	FLOW LINE	SD	STORM DRAIN
FO	FIBER OPTIC	SDMH	STORM DRAIN MANHOLE
FOC	FACE OF CURB	SE	SOUTHEAST
HMA	HOT MIX ASPHALT	SHT	SHEET
HORIZ	HORIZONTAL	SQ	SQUARE
HP	HIGH POINT	SS	SANITARY SEWER
ID	INSIDE DIAMETER	SSMH	SANITARY SEWER MANHOLE
IE	INVERT ELEVATION	ST	STREET
IN	INCH/INCHES	STA	STATION
JB	JUNCTION BOX	STD	STANDARD
L	LENGTH	STCR	STRUCTURE
LT	LEFT	SW	SOUTHWEST
LF	LINEAR FEET	TYP	TYPICAL
LP	LOW POINT	VERT	VERTICAL
MAX	MAXIMUM	W	WEST
		YD	YARD DRAIN

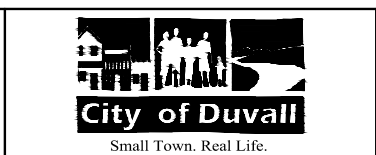
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PROJECT MANAGER	DATE	DESIGNED BY 05/2024
PROJECT ENGINEER	DATE	DRAWN BY 05/2024
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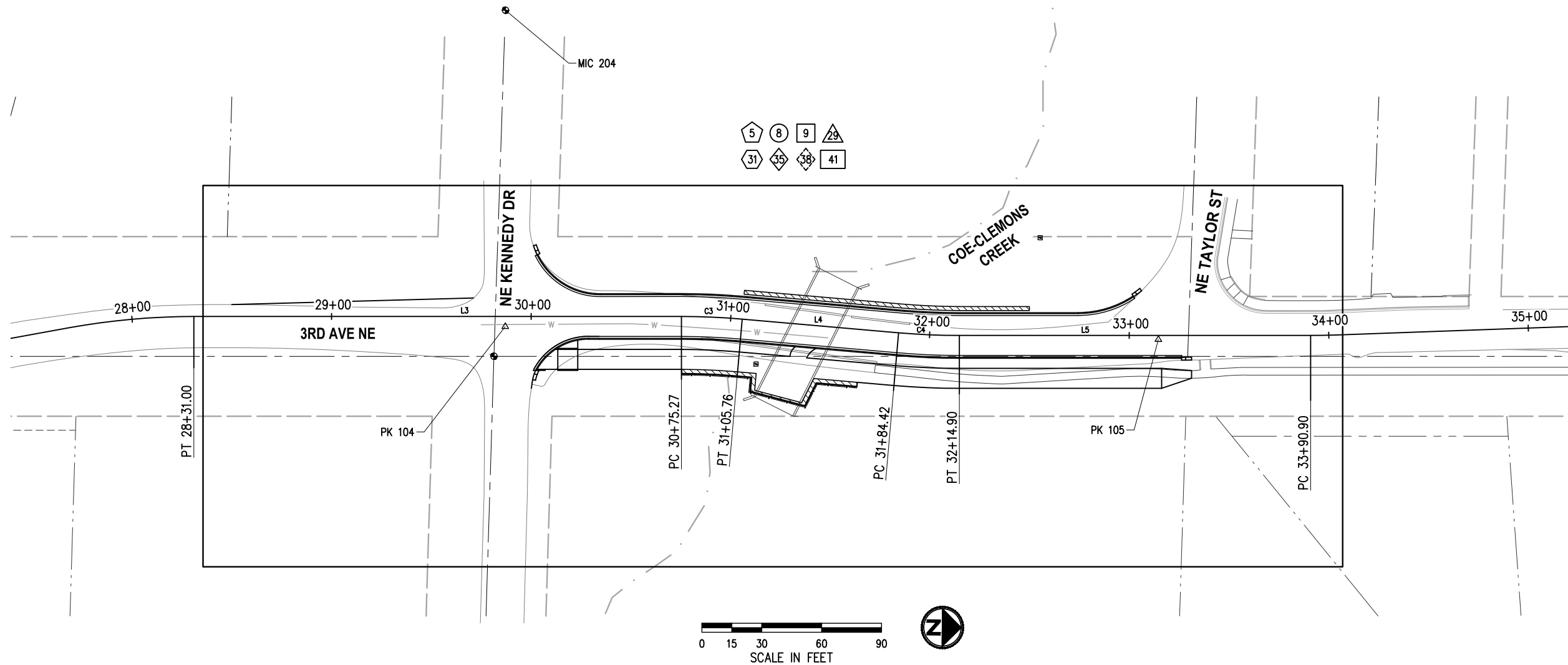


**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

LEGEND & ABBREVIATIONS	
KPG PROJECT No. 21078	SHT <u>2</u> OF <u>42</u>

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SHEET INDEX	
##	SITE PREPARATION & TESC PLANS
##	ROADWAY PLAN & PROFILES
##	STORMWATER PLAN & PROFILES
##	ILLUMINATION PLANS
##	URBAN DESIGN PLANS
##	LANDSCAPE PLANS
##	IRRIGATION PLANS
##	CHANNELIZATION & SIGNING PLANS



3RD AVE NE - ALIGNMENT DATA								
NUMBER	START STA	NORTHING	EASTING	LENGTH	BRNG/DELTA	RADIUS	PI STA	TAN
L3	28+31.00	270163.89	1358198.23	244.28'	N 0°36'35" W			
C3	30+75.27	270408.15	1358195.63	30.49'	4°59'26"	350.00'	30+90.53	15.25'
L4	31+05.76	270438.61	1358196.63	78.66'	N 4°22'51" E			
C4	31+84.42	270517.04	1358202.64	30.49'	4°59'26"	350.00'	31+99.67	15.25'
L5	32+14.90	270547.50	1358203.64	175.99'	N 0°36'35" W			

CONTROL POINT LIST				
PT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
104	PK	270319.94	1358201.65	235.14'
105	PK	270647.23	1358204.64	227.55'
204	MIC	270318.37	1358043.19	238.08'

HORIZONTAL AND VERTICAL DATUM

HORIZONTAL DATUM: NAD 83/11

VERTICAL DATUM: NAVD 88

HORIZONTAL AND VERTICAL DATUMS ESTABLISHED BY [RTK GPS OBSERVATION UTILIZING WSRN (WASHINGTON STATE REFERENCE NETWORK) WITH CHECKS TO WSDOT CONTROL POINT "FUNK", ID1244]

NOTES

- THE PURPOSE OF THIS TOPOGRAPHIC SURVEY IS FOR CIVIL ENGINEERING DESIGN. THIS IS NOT A BOUNDARY SURVEY. SOURCES OF BOUNDARY INFORMATION AS SHOWN INCLUDE FIELD-TIED MONUMENTATION, PLATS, COUNTY RECORDS OF SURVEY, AND AUDITOR INDEXING INFORMATION.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITY SYSTEMS, AS SHOWN HEREON, ARE TAKEN FROM UTILITY LOCATE PAINT MARKS OR AS-BUILT PLANS AND ARE SHOWN IN AN APPROXIMATE WAY ONLY.

THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. ALL LOCATOR SERVICES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION OR SUBSURFACE EXPLORATION. CALL 1-800-424-5555.
- FIELD SURVEY: KPG, OCTOBER/NOVEMBER, 2021. LICENSEE MICHAEL R. BOWEN, P.L.S. NO. 29294/RONALD D. REICHEL, P.L.S. NO. 38015.
- CONTOUR INTERVAL = 1 FOOT, ±0.5 FOOT PER NATIONAL MAPPING STANDARDS. CONTOURS DERIVED FROM DIRECT FIELD OBSERVATIONS.
- STORM AND SEWER CONNECTIONS HAVE BEEN DRAWN FROM CENTER OF LID TO CENTER OF LID.
- THE LOCATIONS AND DIMENSIONS OF UNDERGROUND VAULTS HAVE NOT BEEN VERIFIED AND ARE APPROXIMATE.

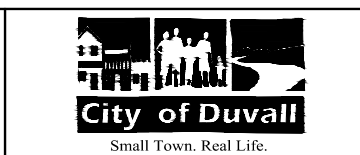
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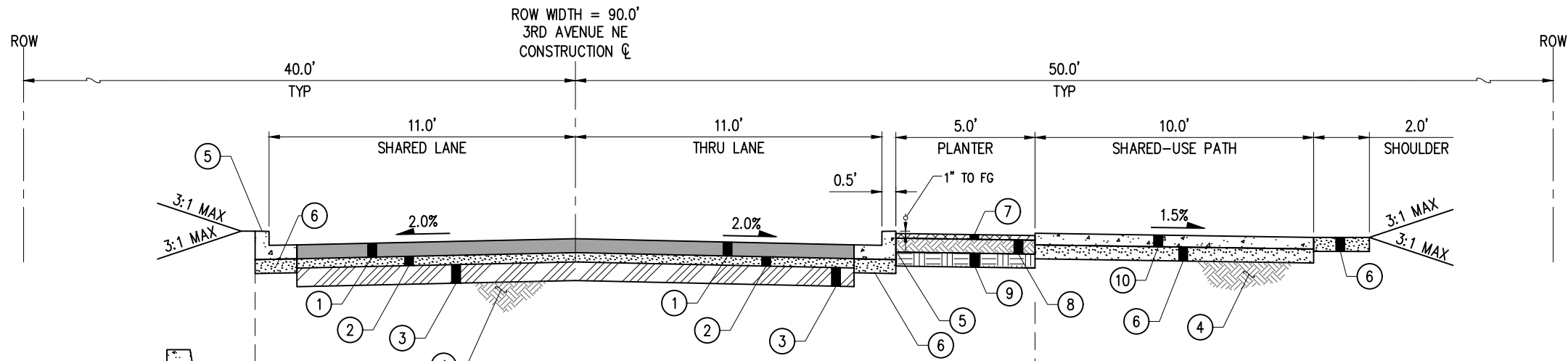
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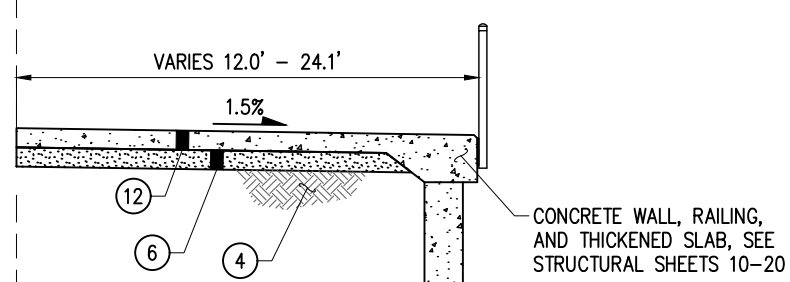
SHEET INDEX, ALIGNMENT PLAN & SURVEY CONTROL	
KPG PROJECT No. 21078	SHT <u>3</u> OF <u>42</u>

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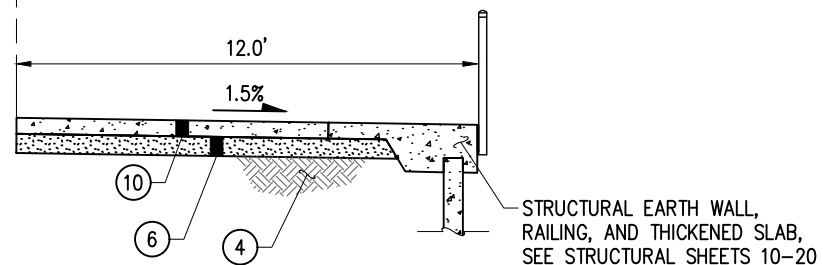
TYPICAL SECTION A

LOOKING NORTH
APPROXIMATE STA 30+00 TO STA 33+00
NTS



SECTION A2

LOOKING NORTH
APPROXIMATE STA 31+16 TO STA 31+38
NTS



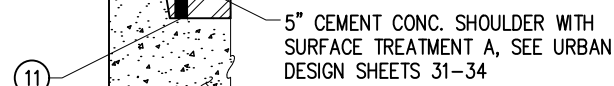
SECTION A3

LOOKING NORTH
NTS

SECTION GENERAL NOTES

- SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH SECTION 2-06 OF THE STANDARD SPECIFICATIONS.
- EMBANKMENTS SHALL BE CONSTRUCTED PER SECTION 2-03 OF THE STANDARD SPECIFICATIONS.

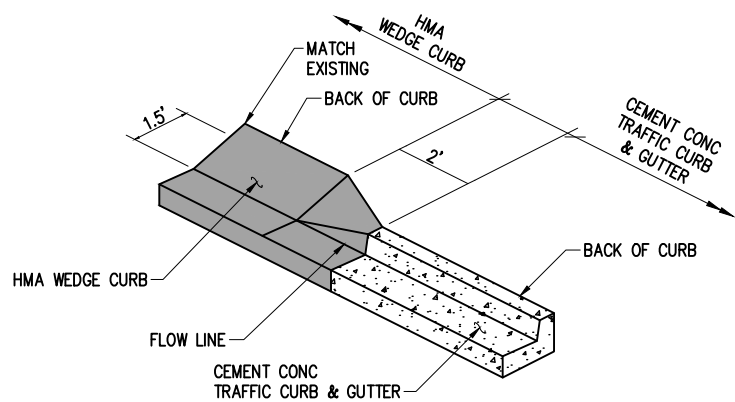
MATERIAL CODE	
#	MATERIALS DESCRIPTION
1	6" HMA CL 1/2" PG 58H-22
2	4" CRUSHED SURFACING TOP COURSE
3	8" CRUSHED SURFACING BASE COURSE
4	FIRM AND UNYIELDING/APPROVED SUBGRADE
5	18" WIDE VERTICAL CEMENT CONC. CURB & GUTTER PER DUVALL DWG NO. 3-03-002 (4000 PSI)
6	6" CRUSHED SURFACING TOP COURSE
7	2" BARK OR WOOD CHIP MULCH, WHERE APPLICABLE; SEE LANDSCAPE PLANS
8	6" THREE-WAY TOPSOIL PER DMC 14.38.130; SEE SPECIAL PROVISIONS
9	6" THREE-WAY TOPSOIL TILLED INTO TOP 12" OF NATIVE SOIL PER DMC 14.38.130; SEE SPECIAL PROVISIONS
10	5" CEMENT CONC. SIDEWALK
11	5" STAMPED CEMENT CONC. OVER 7" CRUSHED SURFACING BASE COURSE; SEE URBAN DESIGN PLANS FOR SURFACE TREATMENT.
12	6" CEMENT CONC. SIDEWALK



SECTION A1

LOOKING NORTH
NTS

PROPOSED WALL AND
MOMENT SLAB BARRIER, SEE
STRUCTURAL SHEETS 10-20



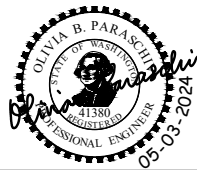
HMA WEDGE CURB TRANSITION DETAIL

NTS

1

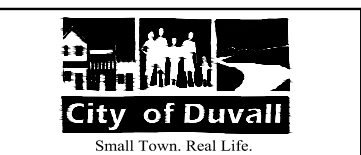
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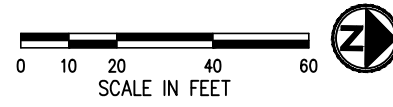
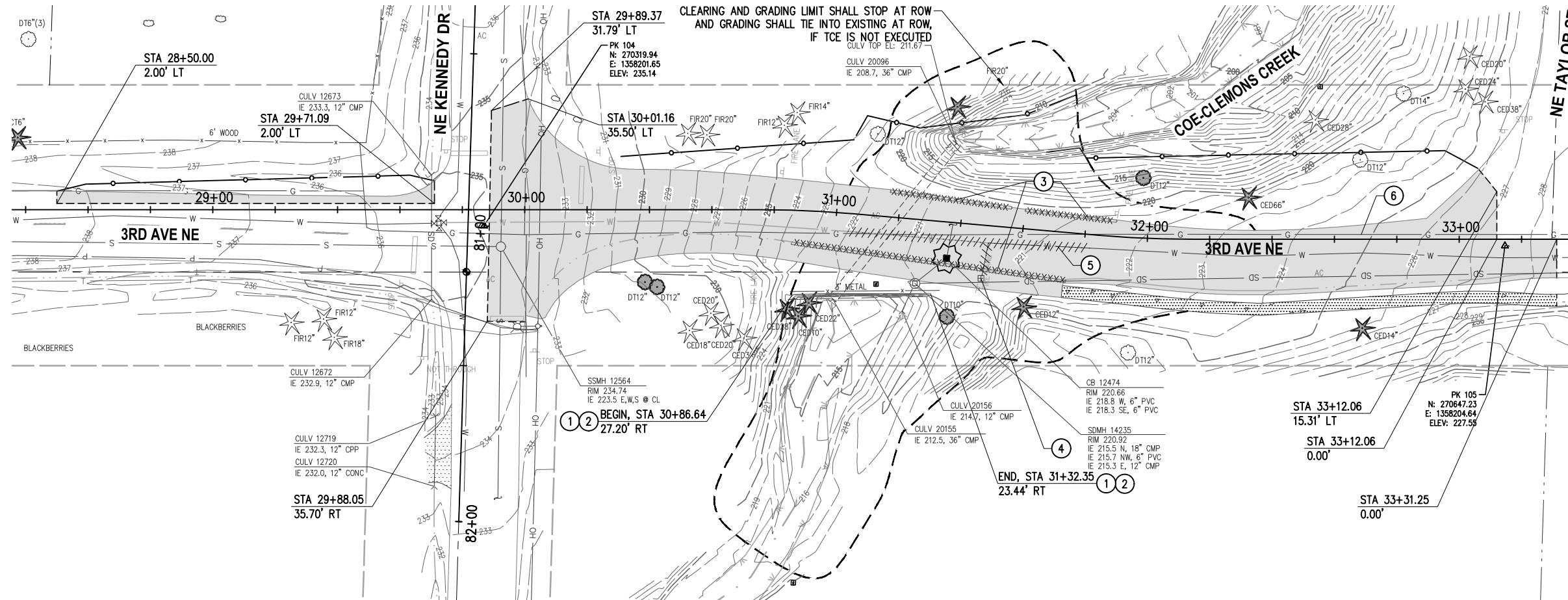
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GENERAL SITE PREPARATION & TESC NOTES

1. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES, STRUCTURES, TREES, AND VEGETATION NOT MARKED FOR REMOVAL, RELOCATION, OR ADJUSTMENT.
2. INLET PROTECTION SHALL BE PLACED IN ALL EXISTING CATCH BASINS WITHIN THE PROJECT LIMITS AND IN ALL NEW CATCH BASINS AT THE TIME OF INSTALLATION.
3. FOR STORMWATER REMOVALS, SEE SHEET 9.
4. FOR TREATMENT OF EXISTING ROADWAY SIGNS, SEE SHEET 41.

CONSTRUCTION NOTES

- 1 REMOVE RAILING.
- 2 REMOVE RETAINING WALL.
- 3 REMOVE EXTRUDED CURB.
- 4 REMOVE BLOW OFF ASSEMBLY AND SALVAGE TO CITY.
- 5 REMOVE WATER LINE.
- 6 GAS LINE TO BE RELOCATED BY OTHERS. SEE SPECIFICATIONS, APPENDIX I.

LEGEND

- REMOVE CEMENT CONC PAVEMENT
- REMOVE ASPHALT PAVEMENT
- CURB REMOVAL
- INLET PROTECTION
- REMOVE OR SNAG CONIFEROUS TREE, SEE TREE RETENTION PLANS
- REMOVE OR SNAG DECIDUOUS TREE, SEE TREE RETENTION PLANS
- FULL DEPTH SAWCUT
- CLEARING LIMITS
- SILT FENCE
- REMOVE WATER LINE

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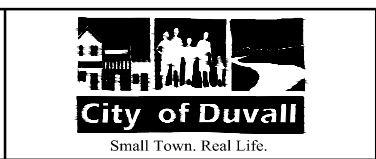
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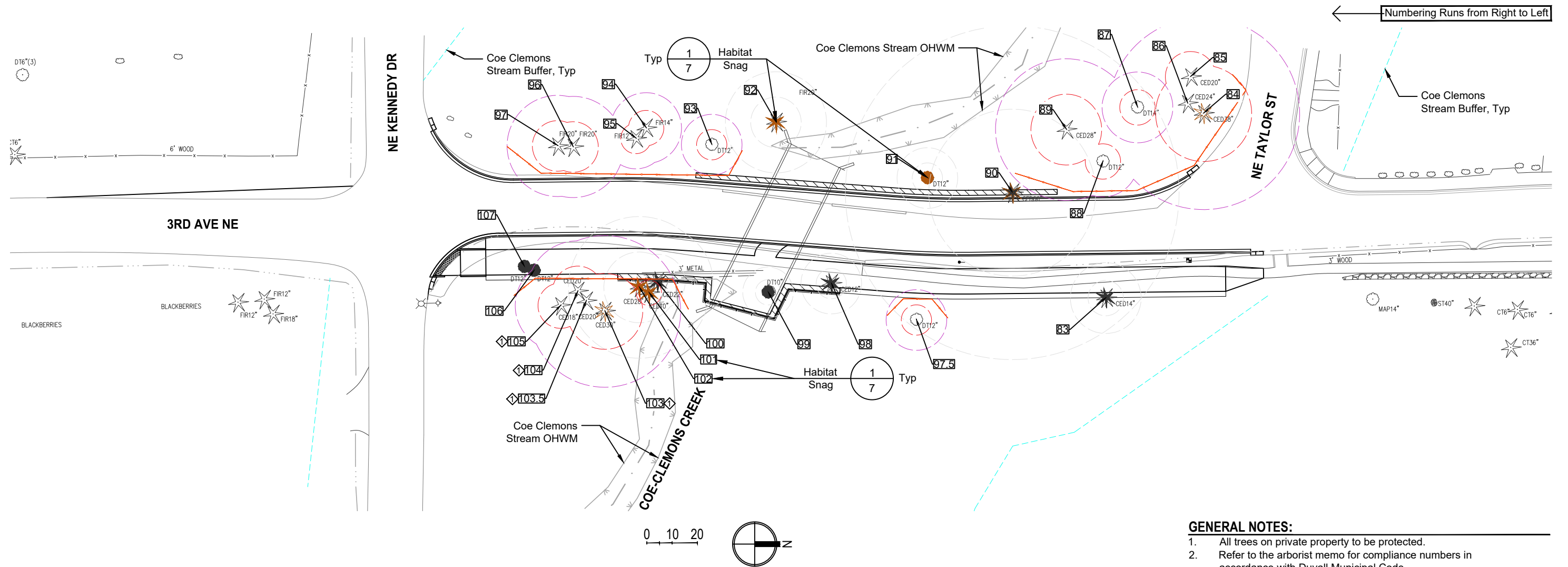
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**CITY OF DUVALL
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SITE PREPARATION & TESC PLAN	
KPG PROJECT No. 21078	SHT 5 OF 42

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Numbering Runs from Right to Left

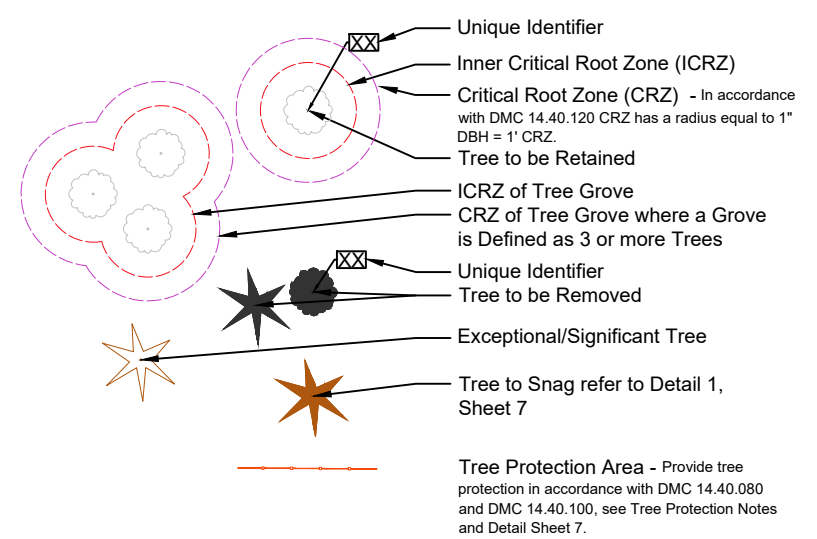
GENERAL NOTES:

- All trees on private property to be protected.
- Refer to the arborist memo for compliance numbers in accordance with Duvall Municipal Code.

NOTES

- ◊ Provide arborist oversight during construction.

LEGEND

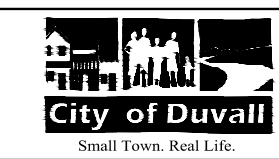


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CHECKED BY	DATE	LG & BR
PROJECT ENGINEER	DATE	CHECKED BY
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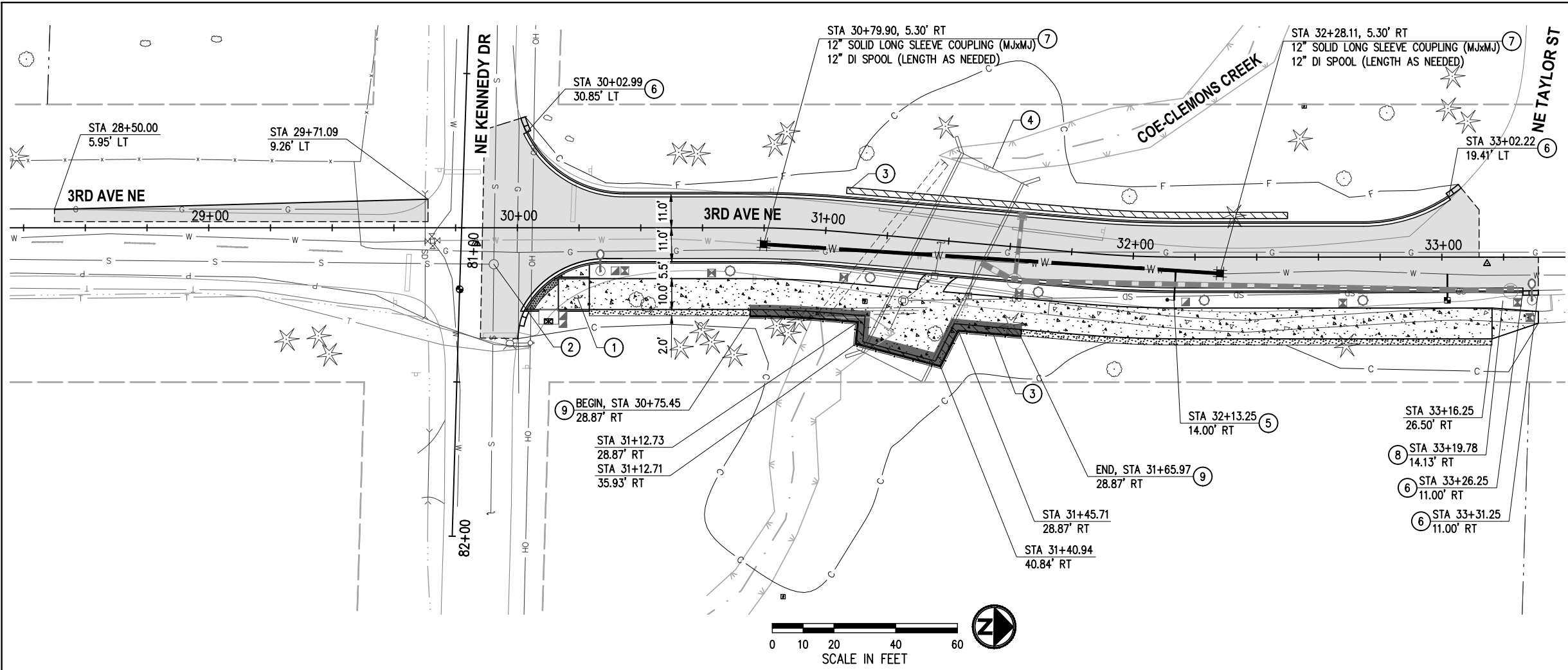


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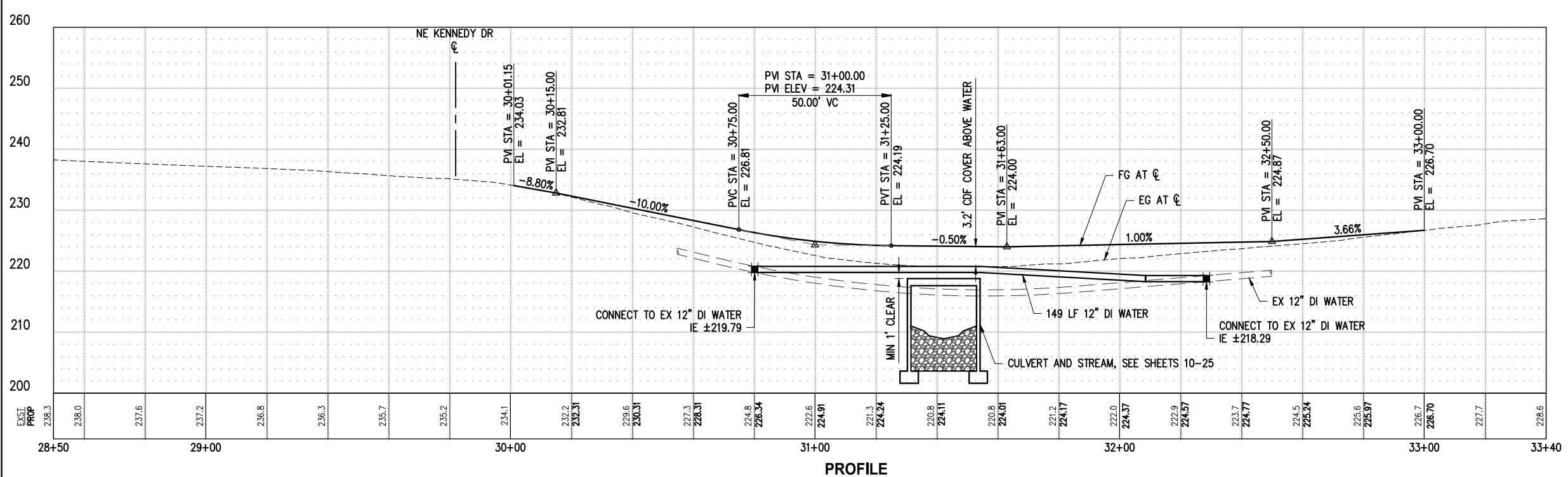
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COE-CLEMONS CREEK CULVERT
REPLACEMENT**

TREE RETENTION PLAN
KPG PROJECT No. 21078 | SHT 6 OF 42



- ### GENERAL NOTES
1. CONSTRUCT CEMENT CONC. CURB, GUTTER, AND SIDEWALK PER TYPICAL SECTIONS, SHEET 4.
 2. FOR REMOVALS, SEE SITE PREPARATION AND TESC PLANS, SHEET 5.
 3. FOR STORMWATER PLAN AND PROFILES, SEE SHEET 9.
 4. FOR CURB RETURN AND CURB RAMP PLAN, SEE SHEET 28.
 5. FOR IRRIGATION AND LANDSCAPING PLANS AND DETAILS, SEE SHEETS 35-40.
 6. FOR URBAN DESIGN PLANS AND DETAILS, SEE SHEET 31-32.
 7. FOR ILLUMINATION AND DETAILS, SEE SHEETS 29-30.
 8. FOR CHANNELIZATION AND SIGNING PLANS, SEE SHEET 41.

- ### CONSTRUCTION NOTES
1. CONSTRUCT CEMENT CONC CURB RAMP TYPE SINGLE DIRECTION A PER COD STD DETAIL 3-040-005 AND SHEET 28.
 2. ADJUST SEWER MANHOLE TO GRADE.
 3. CONSTRUCT RETAINING WALL PER SHEETS 10-19.
 4. INSTALL CULVERT AND STREAM RESTORATION PER SHEETS 10-27.
 5. FURNISH AND INSTALL NEW 2" BLOWOFF ASSEMBLY PER COD STD DETAIL 2-120-001.
 6. INSTALL HMA WEDGE CURB TRANSITION PER DETAIL 1 SHEET 4.
 7. CONNECT TO EXISTING WATER MAIN PER COD STD DETAIL 2-070-004.
 8. INSTALL NEW 1-INCH IRRIGATION SERVICE PER COD STD DETAIL 2-090-003.
 9. CONSTRUCT CEMENT CONC THICKENED SLAB SIDEWALK PER STRUCTURAL SHEET 18.

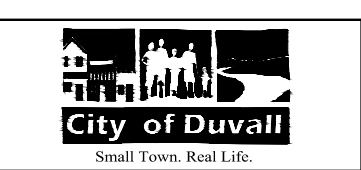


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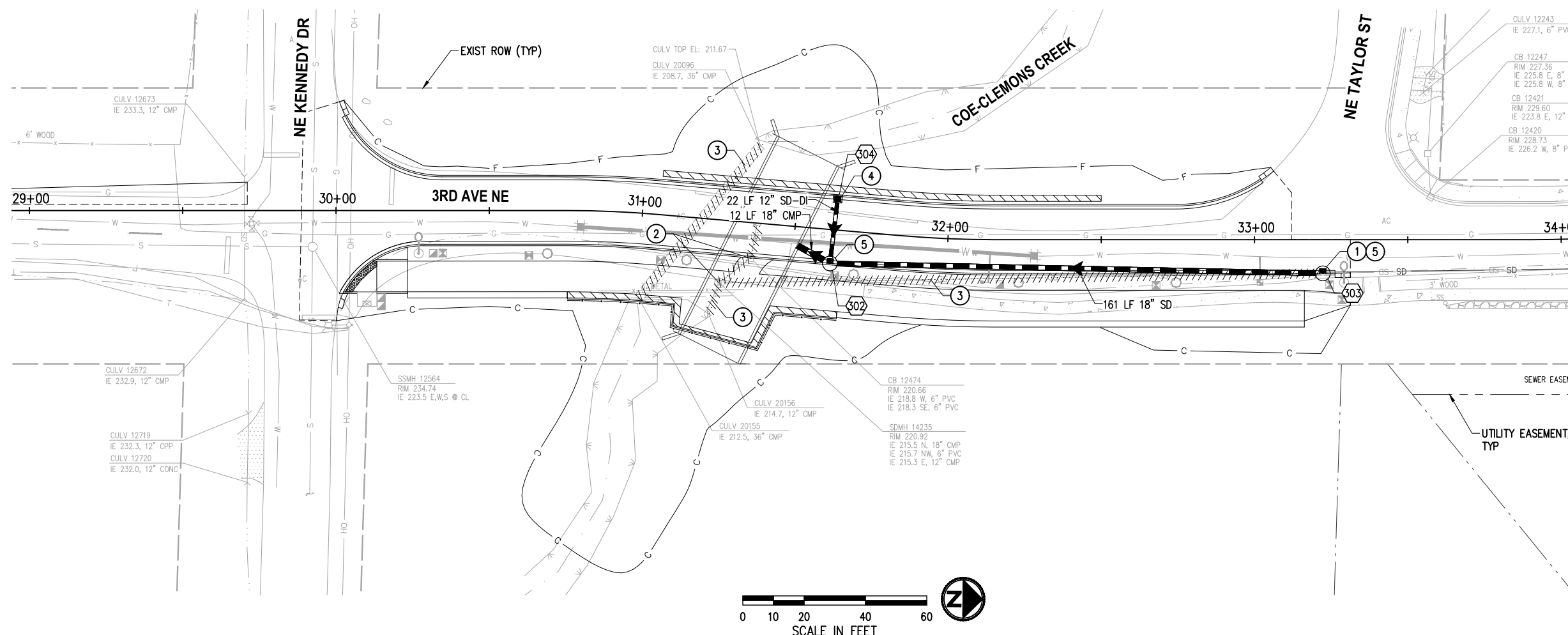
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ROADWAY AND WATER PLAN & PROFILE

KPG PROJECT No. 21078 | SHT 8 OF 42

k:\DUVALL\21078 - 3rd ave ne reconstruction\DESIGN\Drawings\Contract\coe-clemons\21078CCC_RDWY.dwg 5/3/2024 4:48 PM

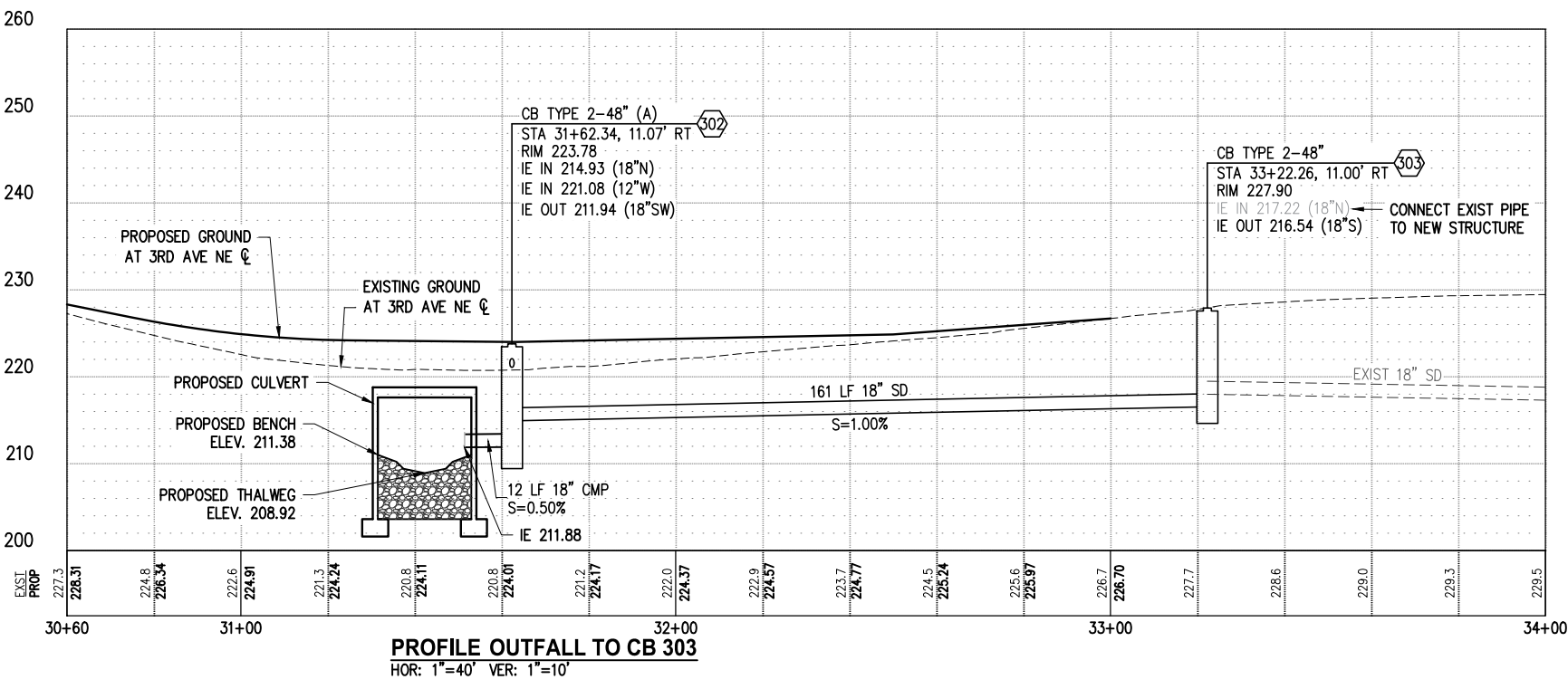
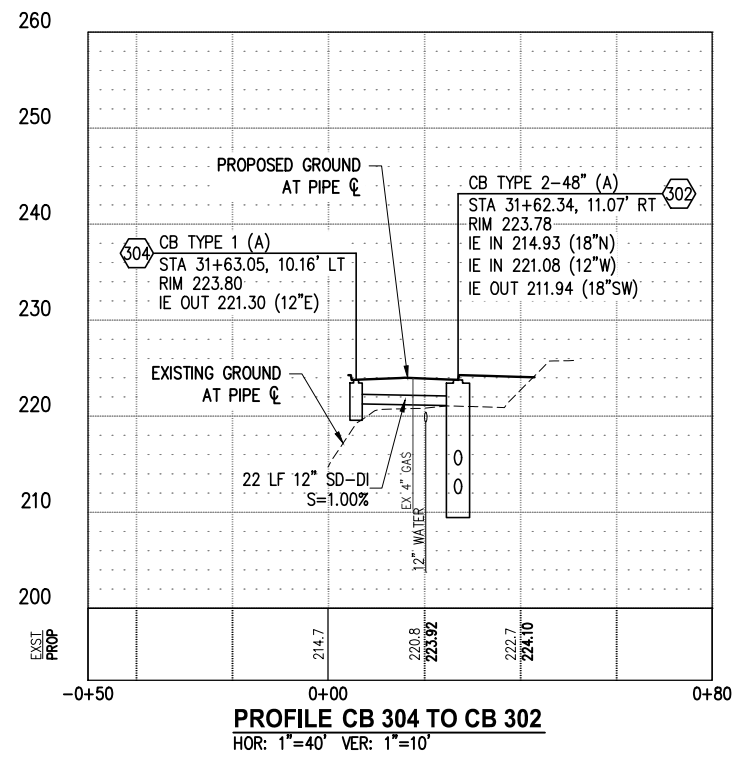
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- ### GENERAL NOTES
- THE CONTRACTOR SHALL PROTECT ALL PRIVATE AND PUBLIC UTILITIES FROM DAMAGE WHEN TRENCHING ACROSS OR BESIDE EXISTING UTILITIES.
 - CATCH BASINS SHALL CONFORM TO THE FOLLOWING STANDARD PLANS:
 - TYPE 1 PER COD STD DETAIL 3-020-003
 - TYPE 2 PER COD STD DETAIL 3-020-005
 - STATION/OFFSET CALLOUTS AND RIM ELEVATIONS PROVIDED ARE FOR THE CENTER OF THE DRAINAGE STRUCTURE.
 - TYPICAL TRENCH AND BACKFILL FOR STORM DRAIN PIPE INSTALLATION SHALL BE PER COD STD DETAIL 5-010-007.
 - STORM PIPES SHALL BE PER WSDOT STANDARD SPECS AND PVC SHALL NOT BE ALLOWED WITH COVER LESS THAN 3 FT.
 - PIPE MATERIAL SHALL BE PVC UNLESS OTHERWISE INDICATED ON PLANS OR PROFILES.
 - CONTRACTOR SHALL VERIFY EXISTING UTILITY CROSSINGS PRIOR TO CONSTRUCTION.

- ### CONSTRUCTION NOTES
- CONNECT EXISTING STORM DRAIN PIPE TO NEW STRUCTURE.
 - REMOVE EXISTING DRAINAGE STRUCTURE.
 - REMOVE EXISTING DRAINAGE PIPE.
 - INSTALL TYPE 1 CB.
 - INSTALL 48-INCH DIAM. TYPE 2 CB.

- ### PROFILE NOTES
- INSTALL STRUCTURE WITH VANED GRATE AND FRAME PER COD STD DETAIL 3-020-018 AND 3-020-014.



- ### LEGEND
- CONC INLET OR CATCH BASIN TYPE 1
 - CATCH BASIN TYPE 2
 - STORM PIPE WITH DIRECTION OF FLOW
 - REMOVE EXISTING PIPE
 - STORM DRAINAGE STRUCTURE ID NUMBER

NO.	DATE	BY	APPR.	REVISIONS

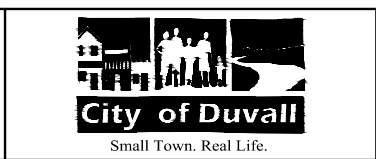
Approved By

ENGINEERING MANAGER	DATE	21078CCC_STRM.dwg	FILENAME
PROJECT MANAGER	DATE	MMM	DESIGNED BY
PROJECT ENGINEER	DATE	MMM	DRAWN BY
	DATE	BLT	CHECKED BY
	DATE	MMM	DATE



KPG PSOMAS
Seattle
3131 Elliott Avenue, Suite 400
Seattle, WA 98121 206.286.1640
Tacoma | Wenatchee | KPG.com

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CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT

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GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE LATEST VERSION OF THE STANDARDS LISTED HEREIN.
2. ELEVATIONS SHOWN ARE APPROXIMATE AND BASED ON EXISTING AND PROPOSED FINISH GRADES. ADJUSTMENTS TO ELEVATIONS MAY BE NECESSARY, DEPENDING ON FIELD CONDITIONS, TO ADHERE WITH THE DESIGN INTENT OF THESE PLANS AND SITE GRADING. CHANGES IN ELEVATIONS AND CONTRACTOR-PROPOSED REMEDIATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
3. CONTRACTOR IS RESPONSIBLE FOR SHORING. CONTRACTOR SHALL PROVIDE NECESSARY TEMPORARY SUPPORT AND BRACING FOR STRUCTURES AND STRUCTURAL COMPONENTS DURING ALL PHASES OF WORK.
4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION.

DESIGN CODES AND STANDARDS:

1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
2. WSDOT BRIDGE DESIGN MANUAL.
3. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318.
4. AISC STEEL CONSTRUCTION MANUAL, FOURTEENTH EDITION, THIRD PRINTING.

STRUCTURAL CONCRETE:

1. ALL CONCRETE SHALL BE CLASS 4000, f'c = 4,000 PSI.
2. REINFORCED CONCRETE UNIT WEIGHT IS TAKEN AS 160 PCF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
4. CONCRETE CLEAR COVER REQUIREMENTS SPECIFIED BELOW, UNLESS NOTED OTHERWISE ON THE DRAWINGS:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CAST-IN-PLACE CONCRETE EXPOSED TO EARTH OR WEATHER	
PRIMARY REINFORCEMENT	2"
STIRRUPS, TIES, OR SPIRALS	1-1/2"
5. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 3/4" CHAMFERS UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
2. ALL REINFORCING BAR BENDS AND STANDARD HOOKS SHALL CONFORM TO THE LATEST ACI STANDARDS

GEOTECHNICAL:

SOIL PRESSURE PER GEOTECHNICAL ENGINEERING REPORT 3RD AVENUE NE RECONSTRUCTION PROJECT 143RD PLACE NE TO NE STEPHENS STREET, DUVALL, WASHINGTON, DATED JANUARY 10, 2023.

RETAINING WALLS:

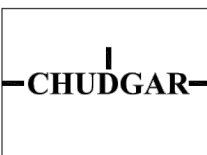
1. LATERAL ACTIVE EARTH PRESSURE (UNIFORMLY DISTRIBUTED): 32H PSF WHERE H=EXPOSED WALL HEIGHT(FT)
2. LATERAL ACTIVE EARTH PRESSURE INCLUDING SEISMIC: 49H PSF WHERE H=EXPOSED WALL HEIGHT(FT)

BURIED STRUCTURE NOTES

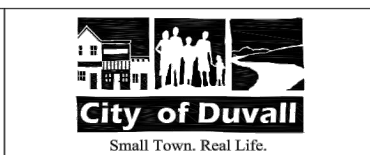
1. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO AND BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, THE SPECIAL PROVISIONS, AND THESE PLANS.
2. THE CONTRACTOR DESIGNED BURIED STRUCTURE (BY OTHERS) AND ASSOCIATED SUBSTRUCTURE, FOOTINGS, WING WALLS, AND HEADWALLS, SHALL BE PRECAST REINFORCED CONCRETE AND DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
3. THE PRECAST REINFORCED CONCRETE CULVERT (BY OTHERS) AND ASSOCIATED SUBSTRUCTURE, FOOTINGS, WING WALLS, AND HEADWALLS, SHALL BE LOCATED AS SPECIFIED IN THE CONTRACT DOCUMENTS INCLUDING BUT NOT LIMITED TO THE ALIGNMENT, LENGTHS, PROFILE AND ELEVATION.
4. THE SEISMIC DESIGN OF THE CONTRACTOR DESIGNED BURIED STRUCTURE (BY OTHERS) SHALL BE DESIGNED IN ACCORDANCE WITH PUBLICATION NO. FHWA-NHI-10-034 "TECHNICAL MANUAL FOR DESIGN AND CONSTRUCTION OF ROAD TUNNELS- CIVIL ELEMENTS".
5. REFER TO APPENDIX H IN SPECIFICATIONS FOR CONTRACTOR DESIGNED BURIED STRUCTURE SUBMITTAL (BY OTHERS).

NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duvall Culvert - 10 of 42.dwg
ENGINEERING MANAGER	DATE	FILENAME PHAYRITHY SRENG 05/03/2024
PROJECT MANAGER	DATE	DESIGNED BY HUY NGUYEN 05/03/2024
PROJECT ENGINEER	DATE	DRAWN BY SAMIR CHUDGAR 05/03/2024
	DATE	CHECKED BY



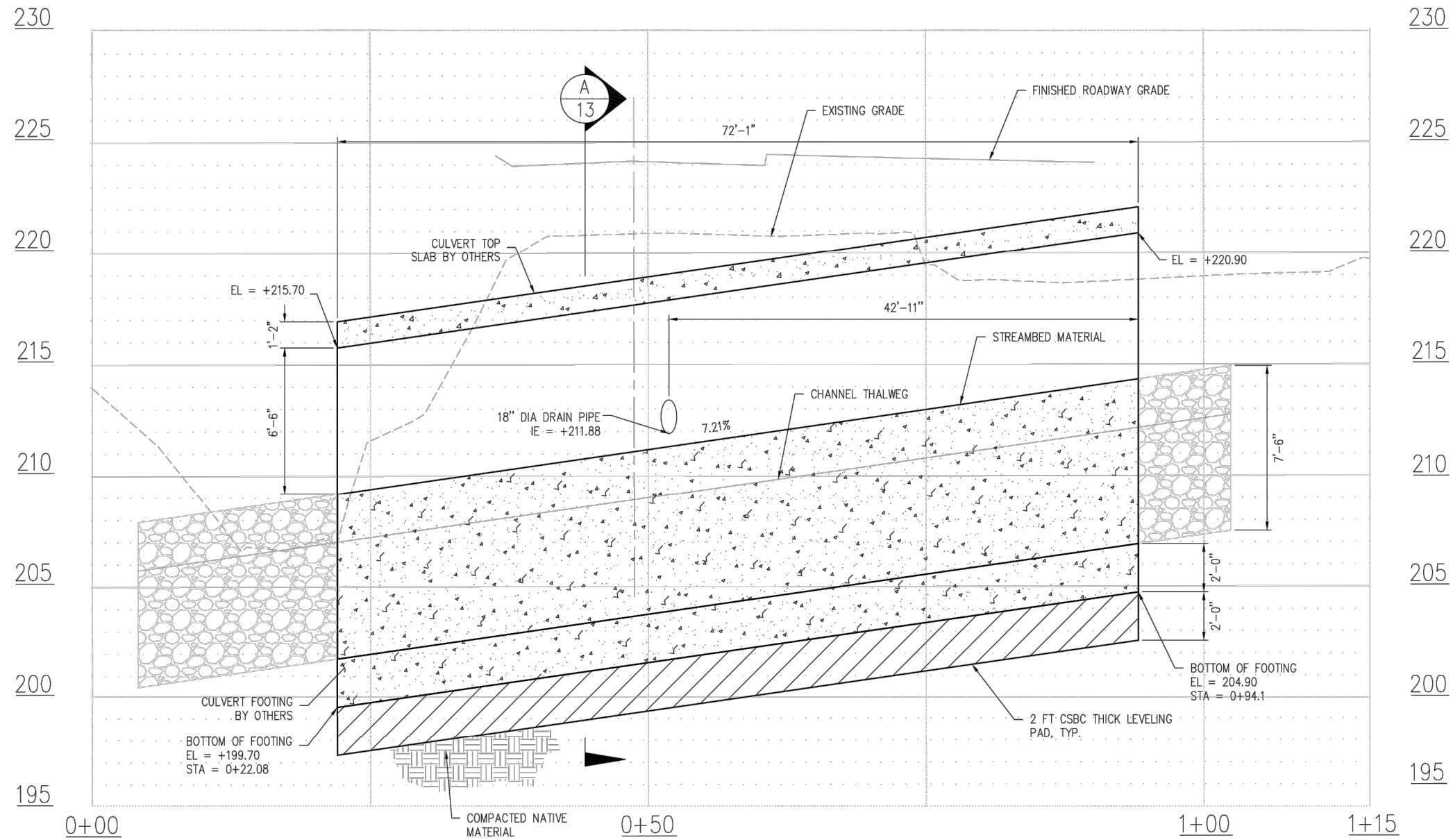
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DOCUMENT**



**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

STRUCTURAL NOTES	
KPG PROJECT No. 21078	SHT <u>10</u> OF <u>42</u>

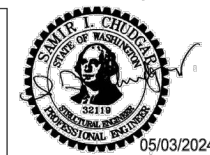
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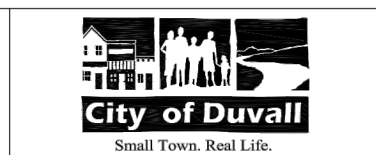
CULVERT PROFILE SECTION A
SCALE: REFER TO GRID PROFILE

NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duvall Culvert - 12 of 42.dwg	
ENGINEERING MANAGER	DATE	FILENAME	05/03/2024
PROJECT MANAGER	DATE	DESIGNED BY	05/03/2024
PROJECT ENGINEER	DATE	DRAWN BY	05/03/2024
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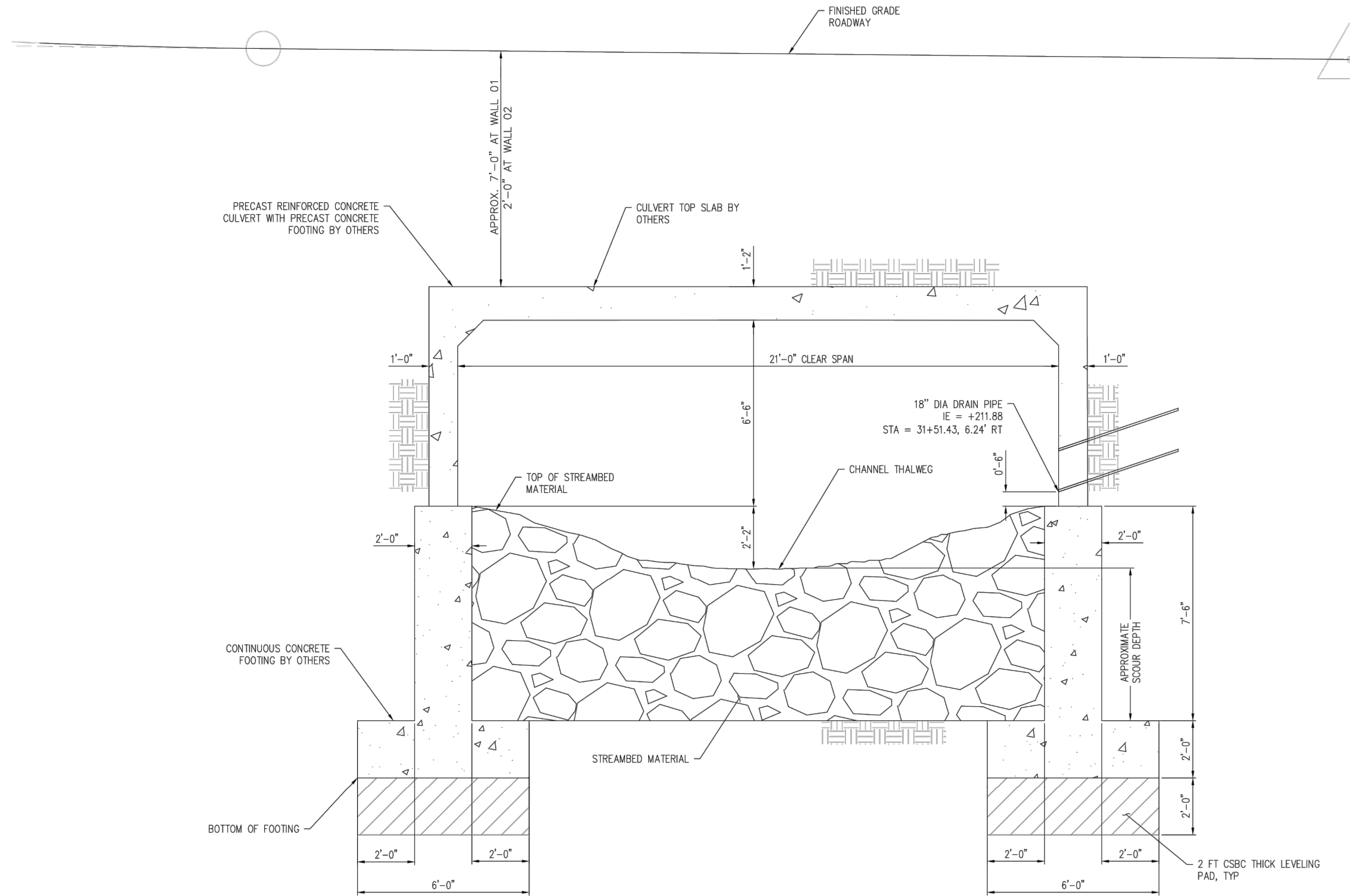


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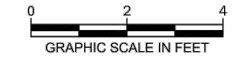


**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

CULVERT PROFILE	
KPG PROJECT No. 21078	SHT 12 OF 42



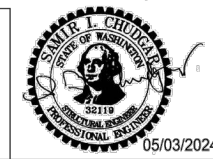
CULVERT SECTION A
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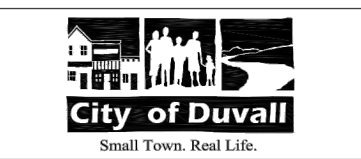
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NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duvall Culvert - 13 of 42.dwg
ENGINEERING MANAGER	DATE	FILENAME PHAYRITHY SRENG 05/03/2024
PROJECT MANAGER	DATE	DESIGNED BY HUY NGUYEN 05/03/2024
PROJECT ENGINEER	DATE	DRAWN BY SAMIR CHUDGAR 05/03/2024
	DATE	CHECKED BY

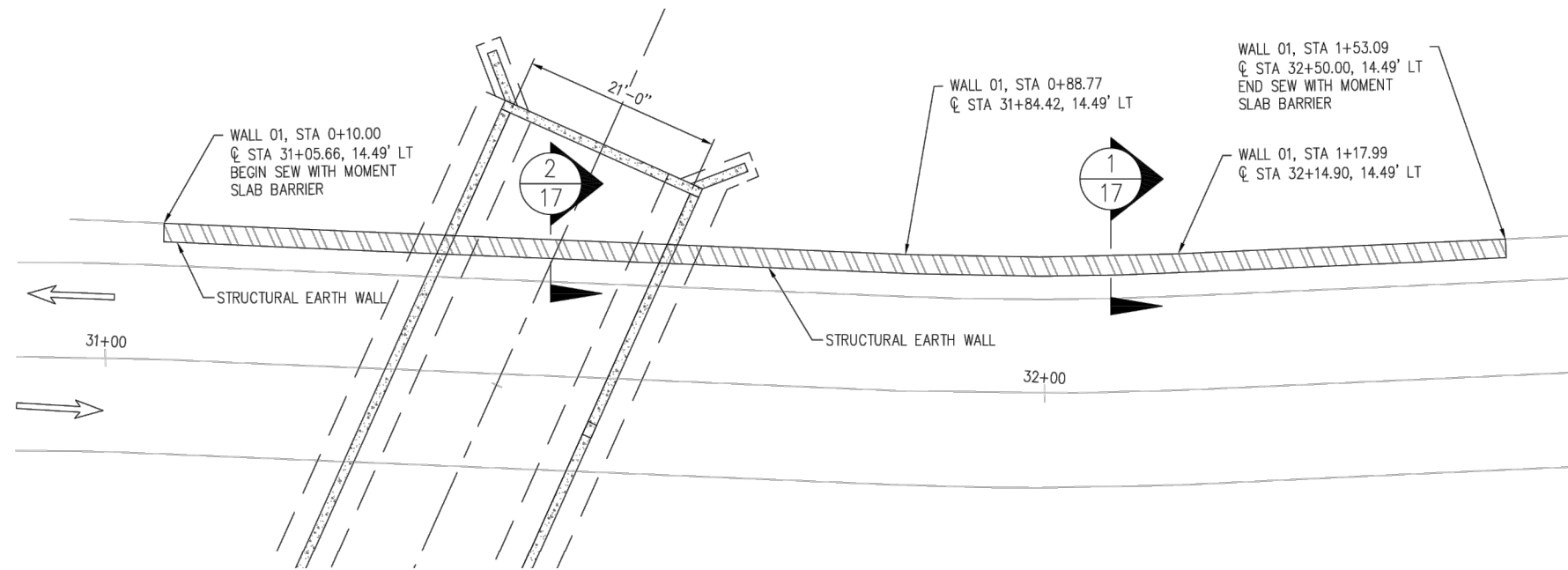


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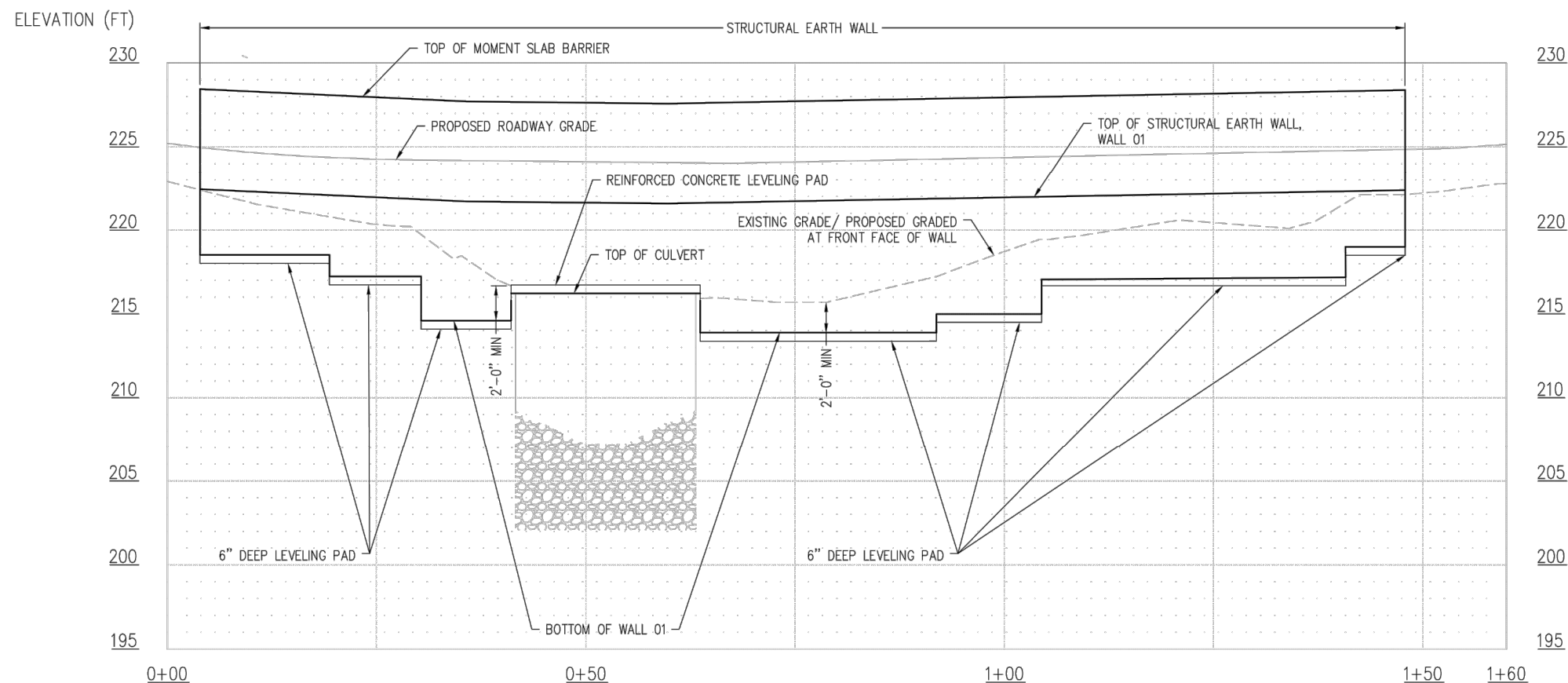


**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

CULVERT SECTION	
KPG PROJECT No. 21078	SHT <u>13</u> OF <u>42</u>

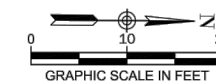


WALL PLAN



WALL DEVELOPED ELEVATION

SCALE: REFER TO PROFILE GRIDS

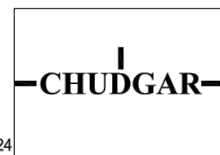


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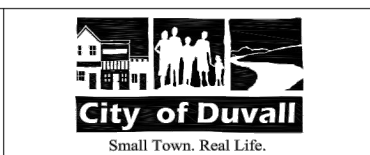
NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE	3rd Ave Duvall Culvert - 14 of 42.dwg
DESIGNED BY	DATE	FILENAME
PROJECT MANAGER	DATE	PHAYRITHY SRENG 05/03/2024
DRAWN BY	DATE	HUY NGUYEN 05/03/2024
CHECKED BY	DATE	SAMIR CHUDGAR 05/03/2024
PROJECT ENGINEER	DATE	CHECKED BY

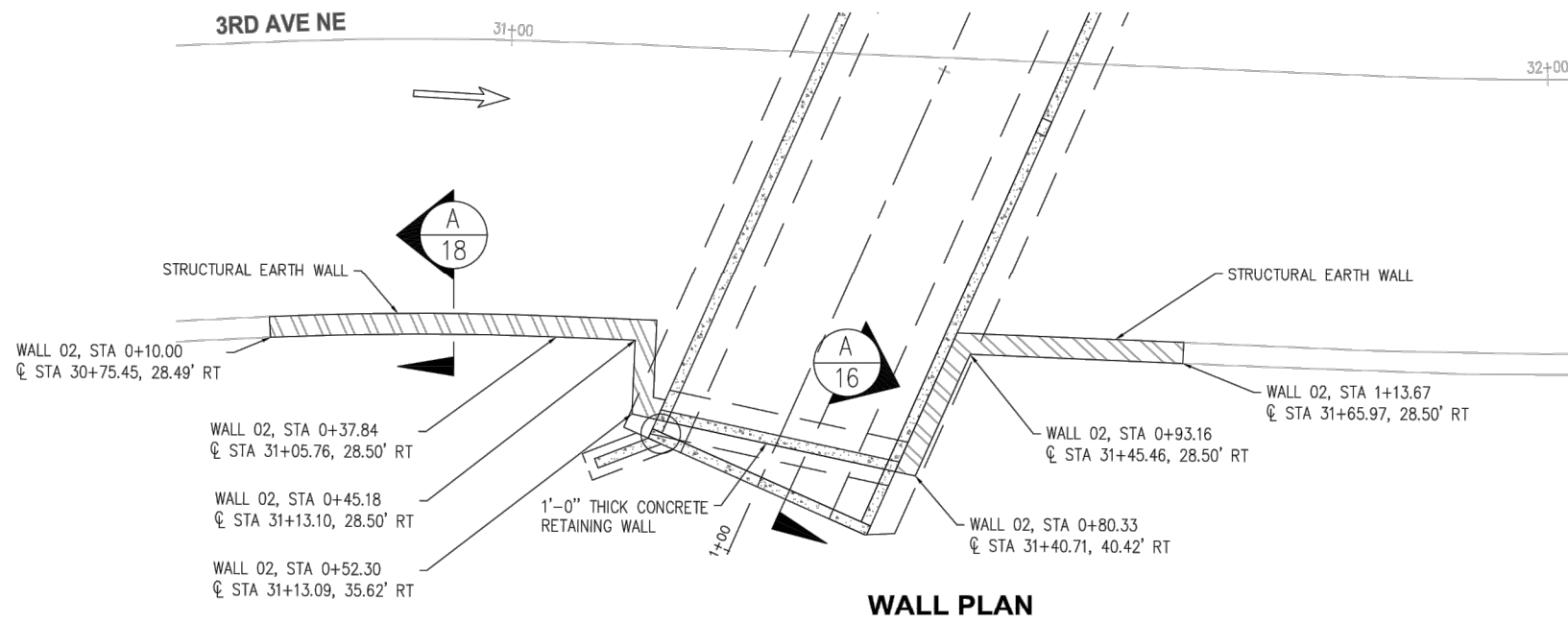


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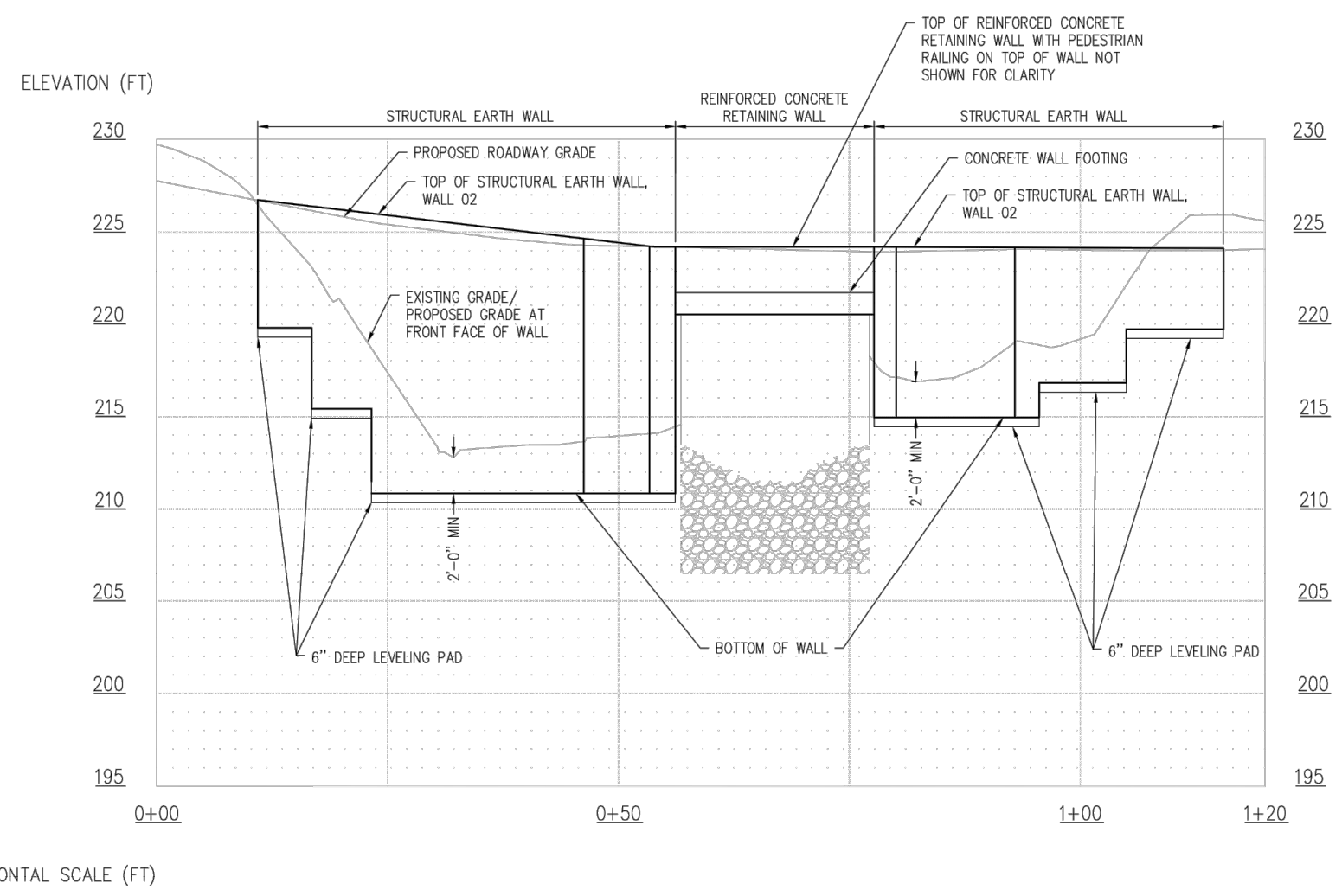


**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

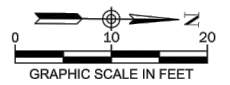
WALL 01 PLAN AND ELEVATION
KPG PROJECT No. 21078 SHT 14 OF 42



WALL PLAN



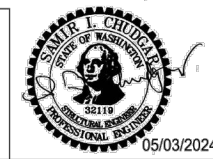
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SCALE: NTS



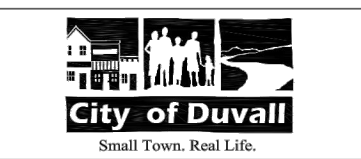
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NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duwall Culvert - 15 of 42.dwg
ENGINEERING MANAGER	DATE	PHAYRITHY SRENG 05/03/2024
PROJECT MANAGER	DATE	HUY NGUYEN 05/03/2024
PROJECT ENGINEER	DATE	SAMIR CHUDGAR 05/03/2024
	DATE	CHECKED BY 05/03/2024



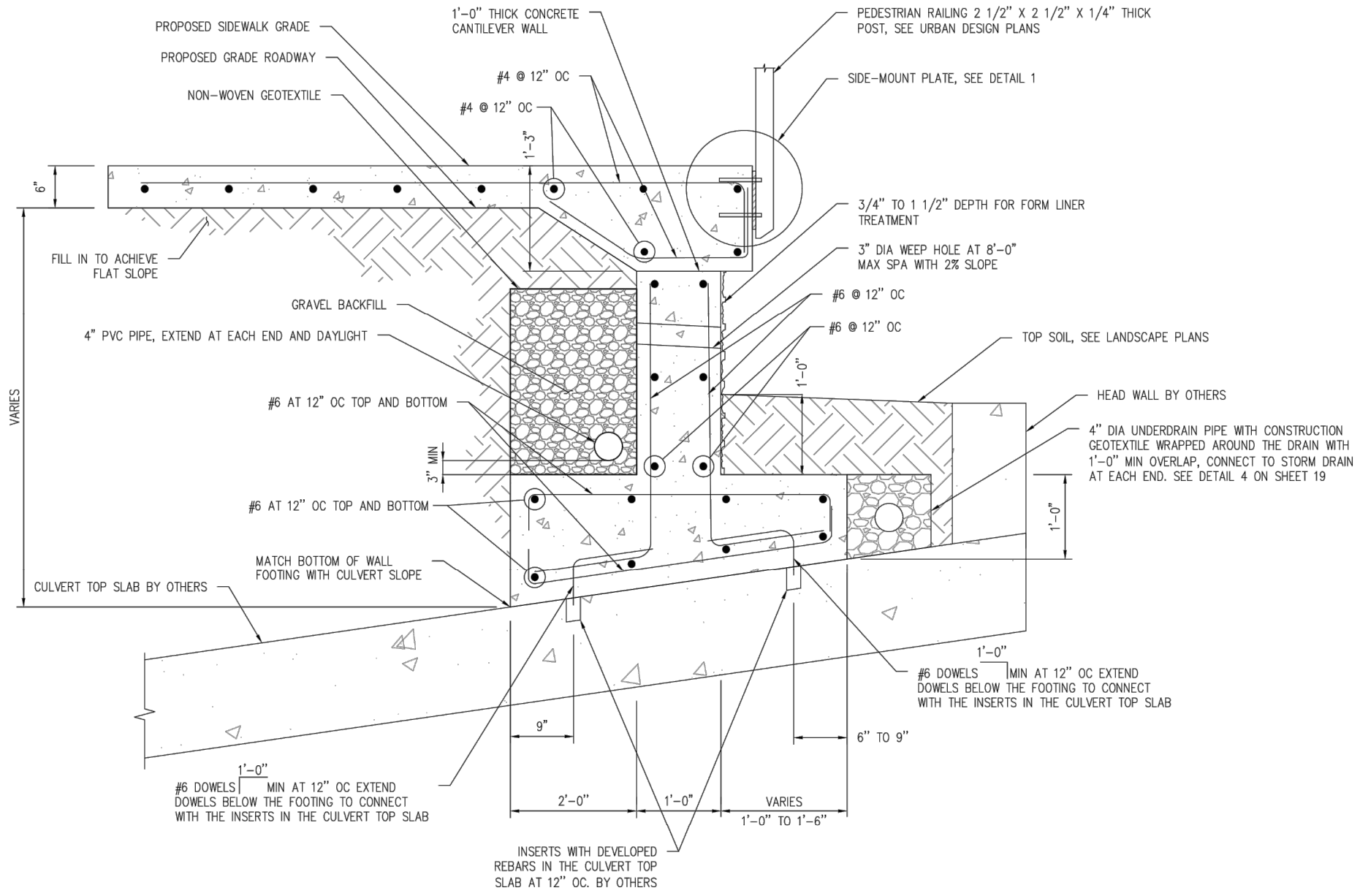
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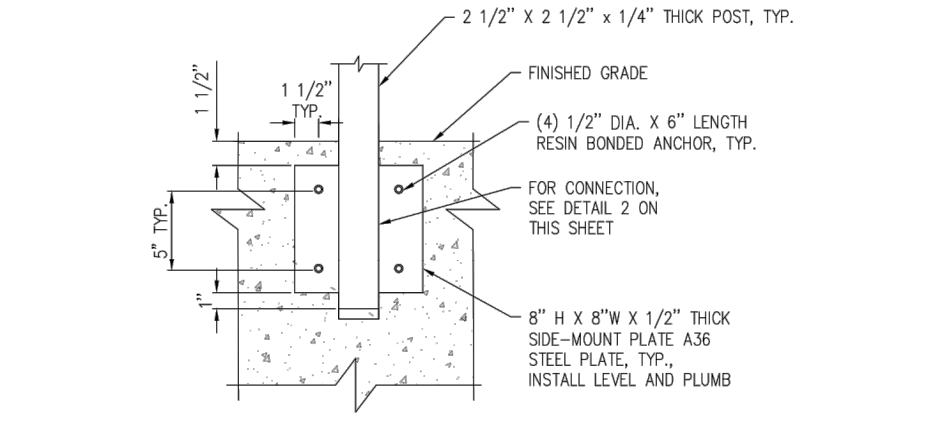
**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

WALL 02 PLAN AND ELEVATION	
KPG PROJECT No. 21078	SHT 15 OF 42

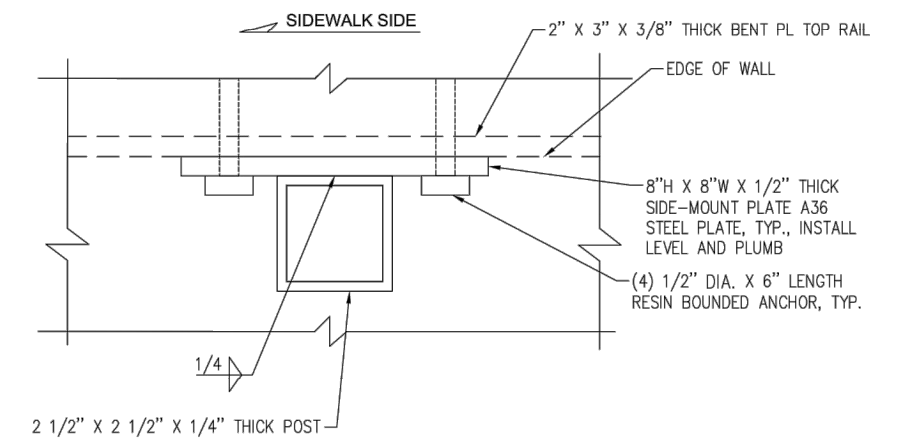
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CONCRETE WALL SECTION **A**
SCALE: 1"=10'-0"



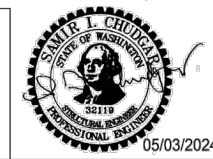
DETAIL 1 - PEDESTRIAN RAILING SIDE-MOUNT PLATE DETAIL
NTS



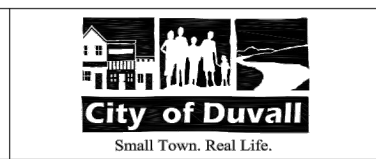
DETAIL 2 - PEDESTRIAN RAILING CONNECTION DETAIL
NTS

NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duvall Culvert - 16 of 42.dwg	
ENGINEERING MANAGER	DATE	FILENAME	05/03/2024
PROJECT MANAGER	DATE	DESIGNED BY	05/03/2024
PROJECT ENGINEER	DATE	DRAWN BY	05/03/2024
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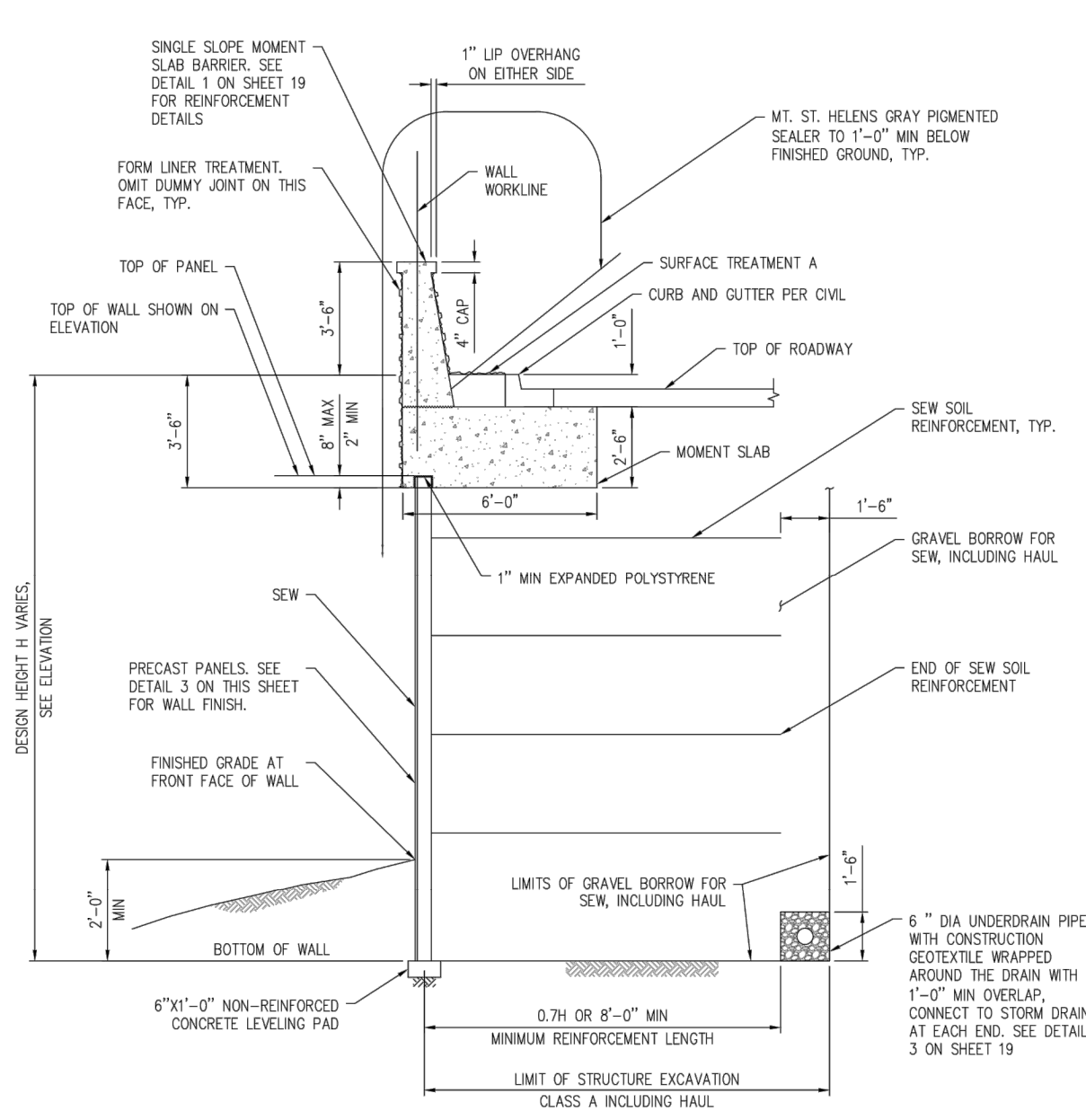
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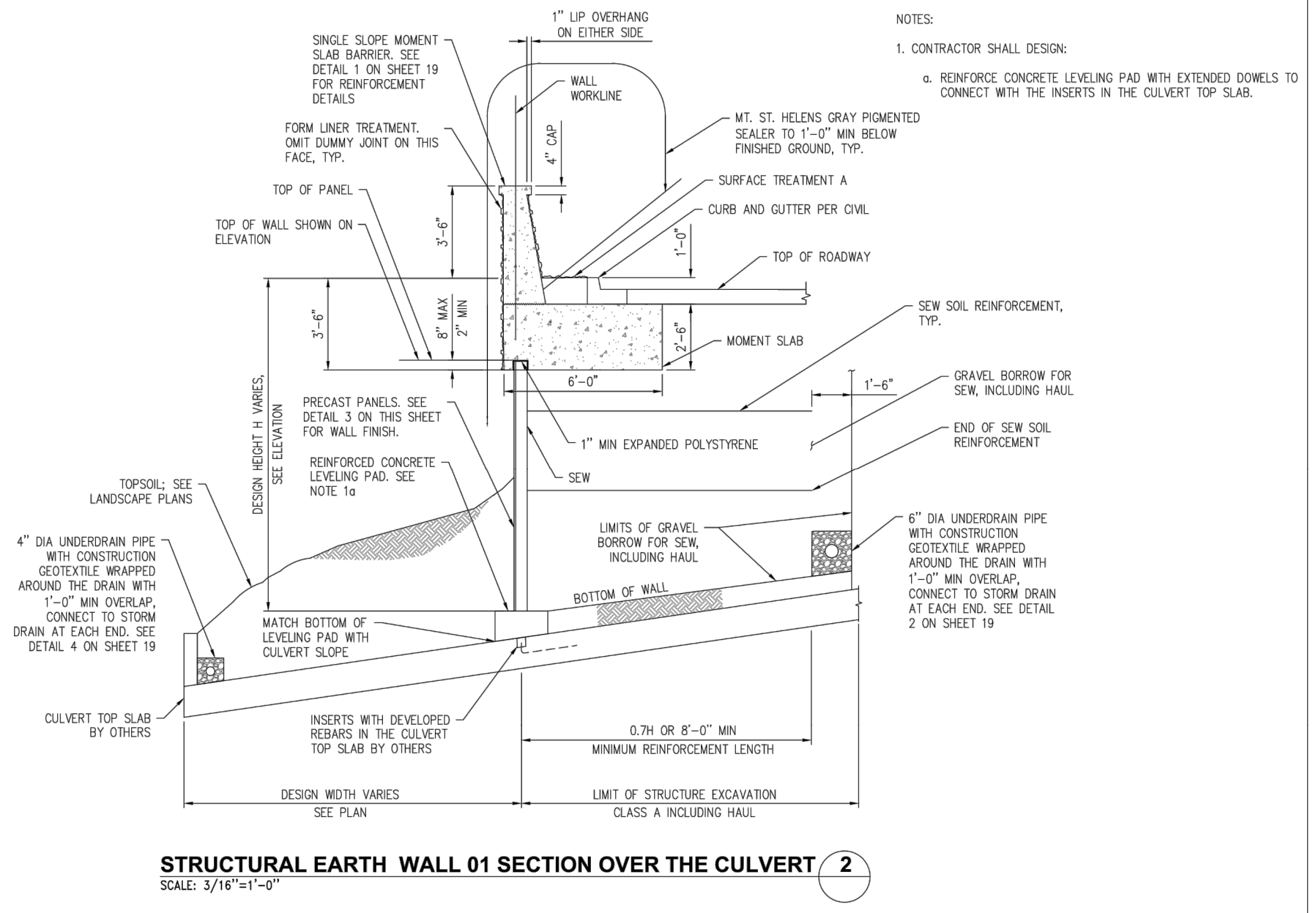
CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT

CONCRETE WALL SECTION	
KPG PROJECT No. 21078	SHT 16 OF 42

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STRUCTURAL EARTH WALL 01 SECTION 1
SCALE: 3/16"=1'-0"



STRUCTURAL EARTH WALL 01 SECTION 2
SCALE: 3/16"=1'-0"

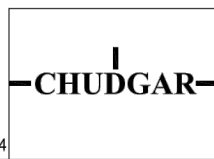
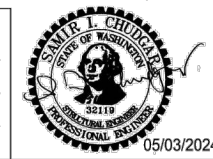


DETAIL 3 - STRUCTURAL EARTH WALL FINISH
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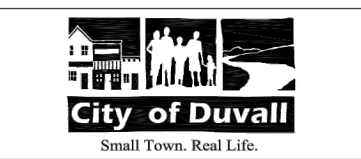
NOTES:
1. CONTRACTOR SHALL DESIGN:
a. REINFORCE CONCRETE LEVELING PAD WITH EXTENDED DOWELS TO CONNECT WITH THE INSERTS IN THE CULVERT TOP SLAB.

NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duvall Culvert - 17 of 42.dwg
ENGINEERING MANAGER	DATE	FILENAME PHAYRITHY SRENG 05/03/2024
PROJECT MANAGER	DATE	DESIGNED BY HUY NGUYEN 05/03/2024
PROJECT ENGINEER	DATE	DRAWN BY SAMIR CHUDGAR 05/03/2024
	DATE	CHECKED BY



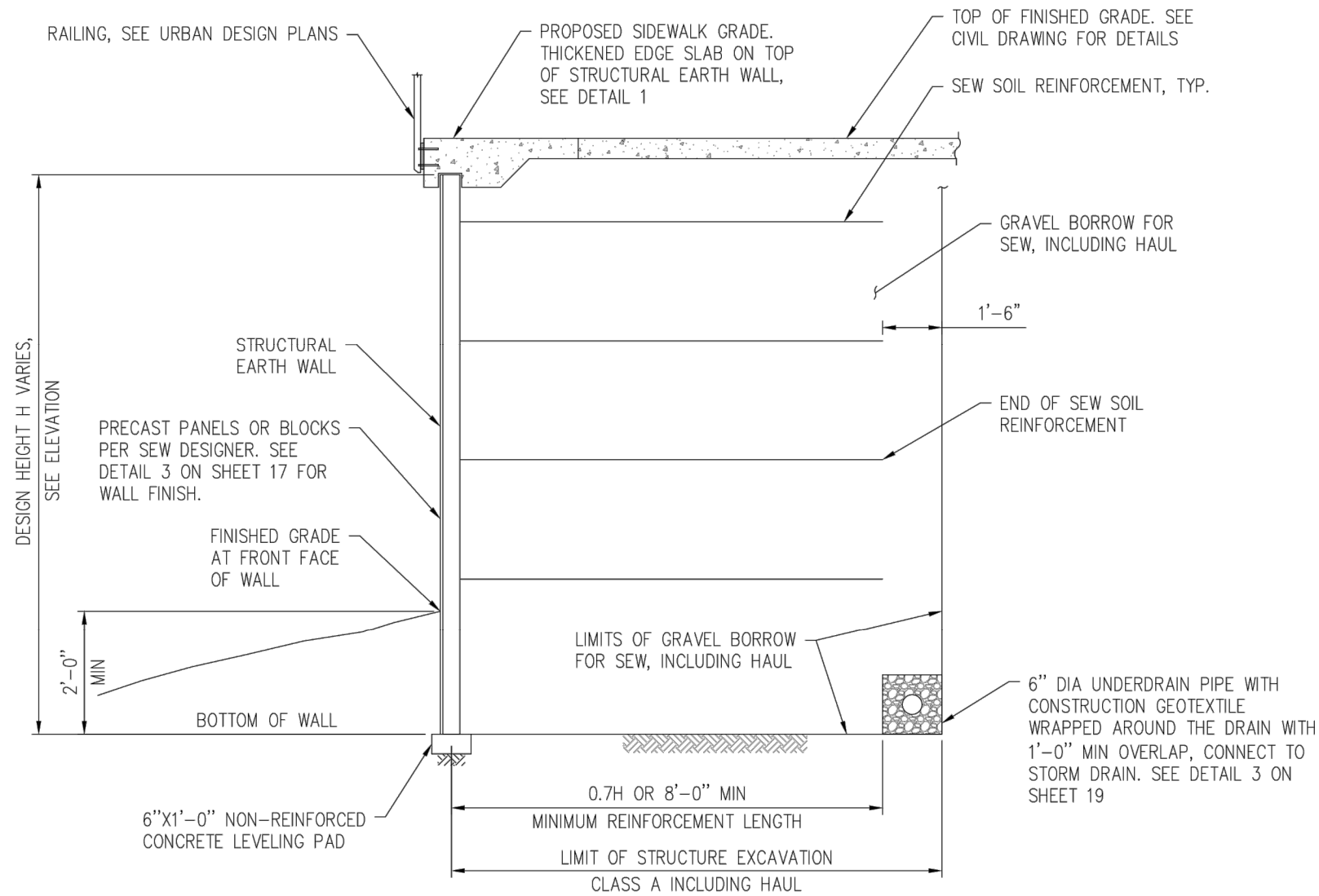
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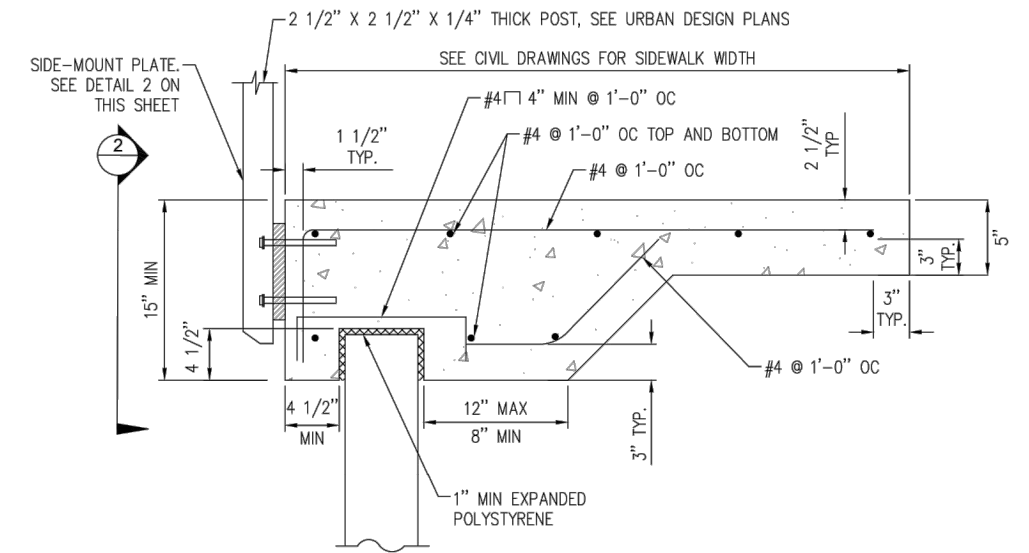
**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

STRUCTURAL EARTH WALL SECTION
1 OF 2
KPG PROJECT No. 21078 SHT 17 OF 42

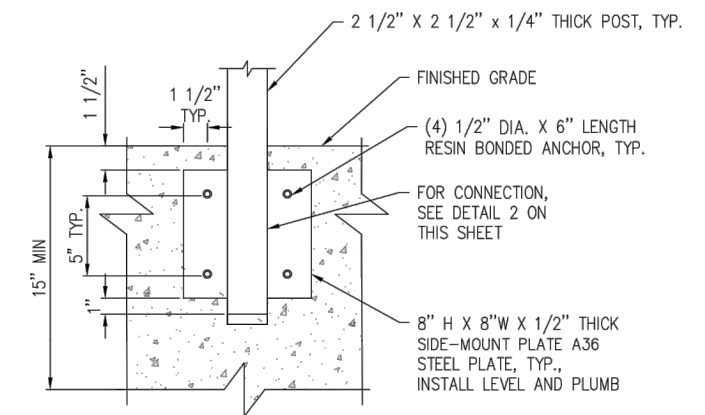
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STRUCTURAL EARTH WALL 02 SECTION **A**
SCALE: 3/16"=1'-0"



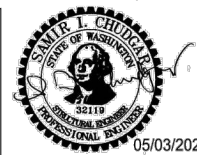
DETAIL 1 - THICKENED EDGE SLAB AT STRUCTURAL EARTH WALL
NTS



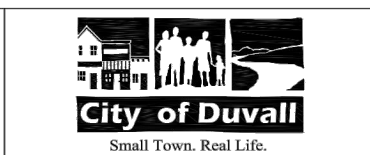
DETAIL 2 - RAILING SIDE-MOUNT PLATE DETAIL
NTS

NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duvall Culvert - 18 of 42.dwg	
ENGINEERING MANAGER	DATE	DESIGNED BY	DATE
PROJECT MANAGER	DATE	DRAWN BY	DATE
PROJECT ENGINEER	DATE	CHECKED BY	DATE



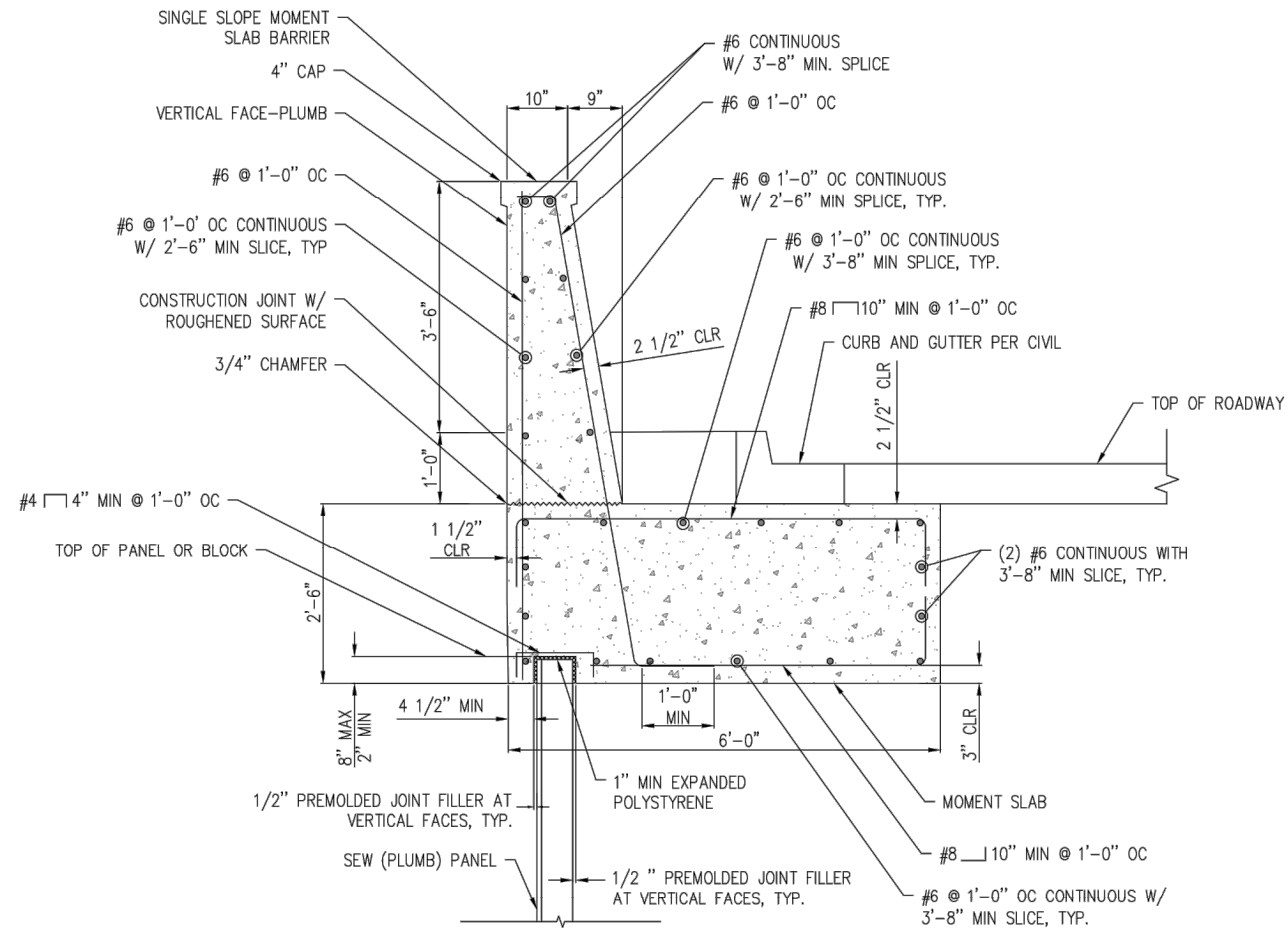
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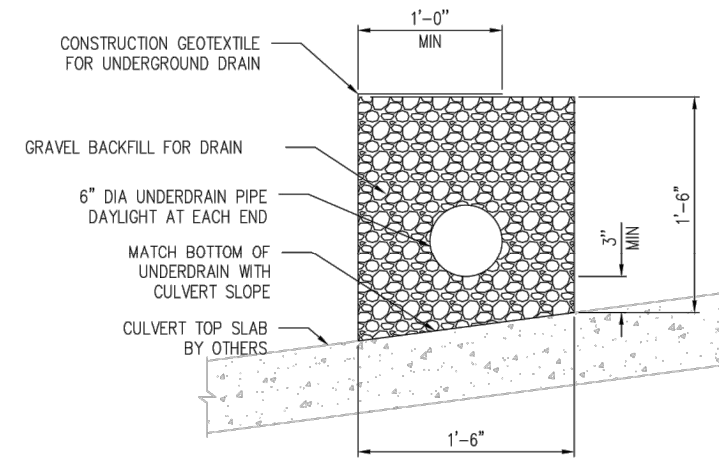
CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT

STRUCTURAL EARTH WALL SECTION
2 OF 2
KPG PROJECT No. 21078 SHT 18 OF 42

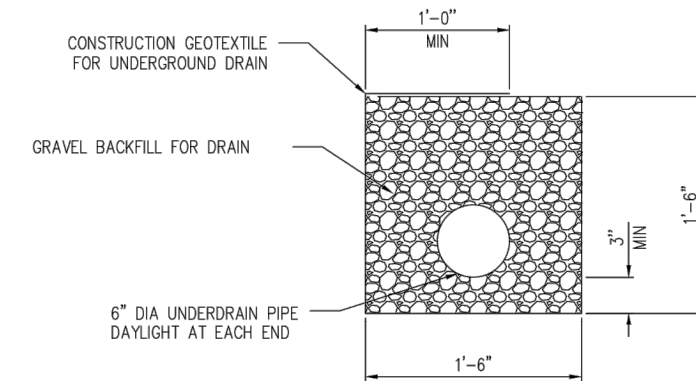
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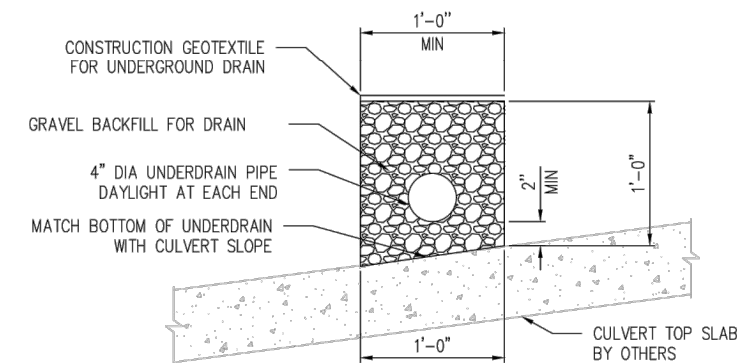
DETAIL 1 - MOMENT SLAB BARRIER AT STRUCTURAL EARTH WALL
SCALE: 3/8" = 1'-0"



DETAIL 2 - UNDERDRAIN AT STRUCTURAL EARTH WALL ABOVE CULVERT
3/4" = 1'-0"



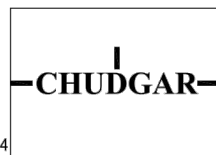
DETAIL 3 - UNDERDRAIN AT STRUCTUAL EARTH WALL
3/4" = 1'-0"



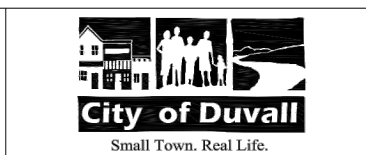
DETAIL 4 - UNDERDRAIN AT HEADWALL ABOVE CULVERT
3/4" = 1'-0"

NO.	DATE	BY	APPR.	REVISIONS

Approved By		3rd Ave Duwall Culvert - 19 of 42.dwg	
		FILENAME	
		PHAYRITHY SRENG	05/03/2024
		DESIGNED BY	
		HUY NGUYEN	05/03/2024
		PROJECT MANAGER	
		DRAWN BY	
		SAMIR CHUDGAR	05/03/2024
		PROJECT ENGINEER	
		CHECKED BY	



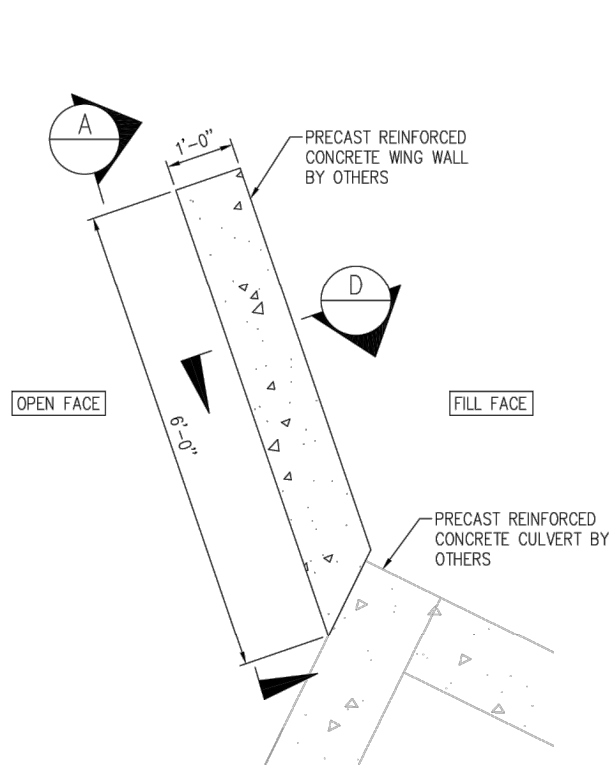
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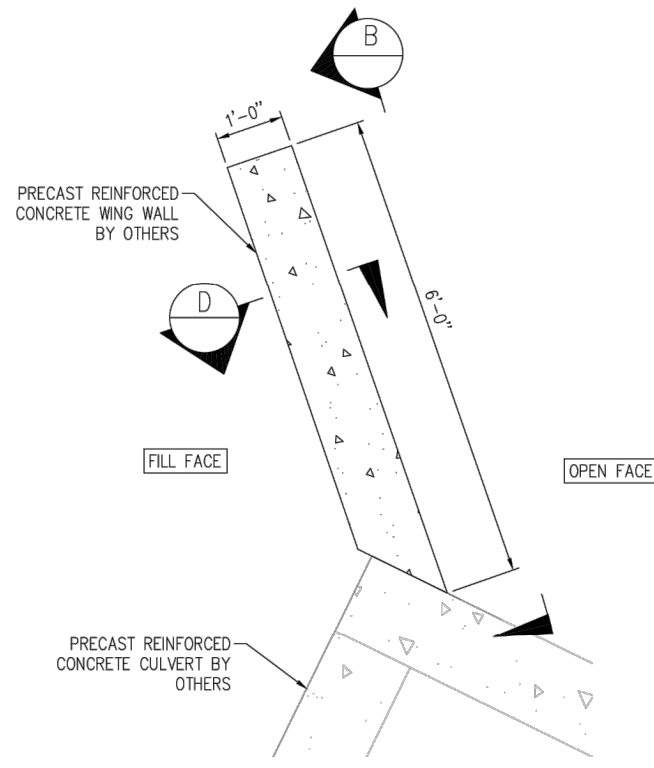
**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

WALL DETAILS
KPG PROJECT No. 21078 SHT 19 OF 42

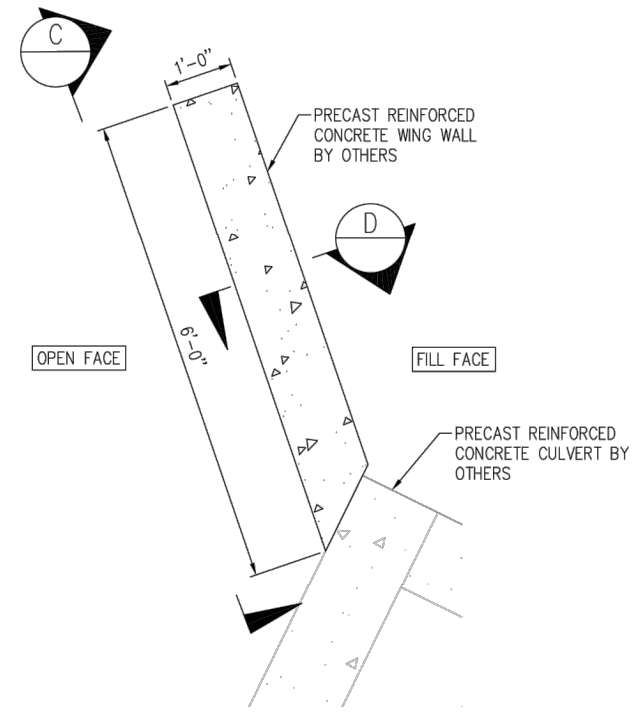
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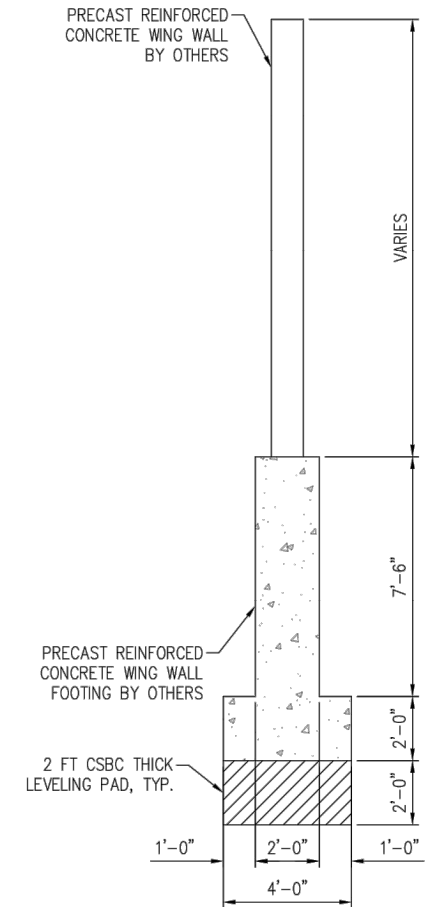
WING WALL 1 PLAN
NTS



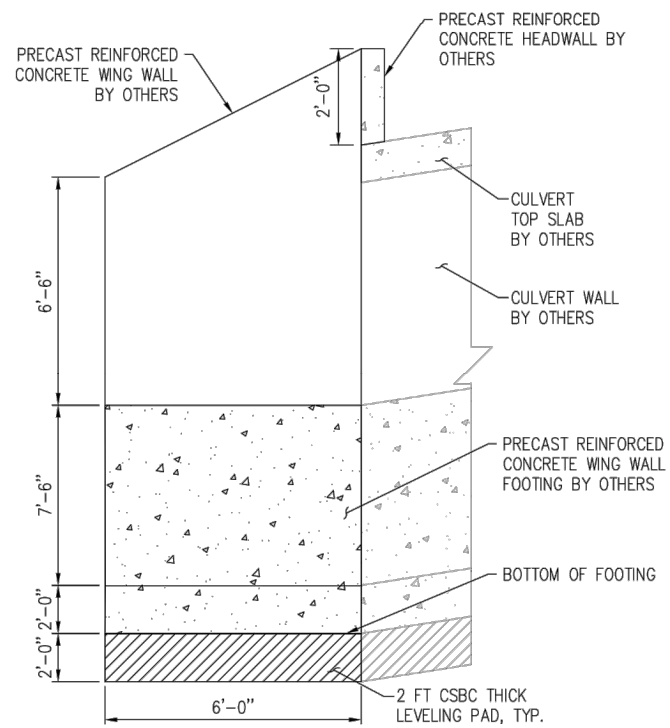
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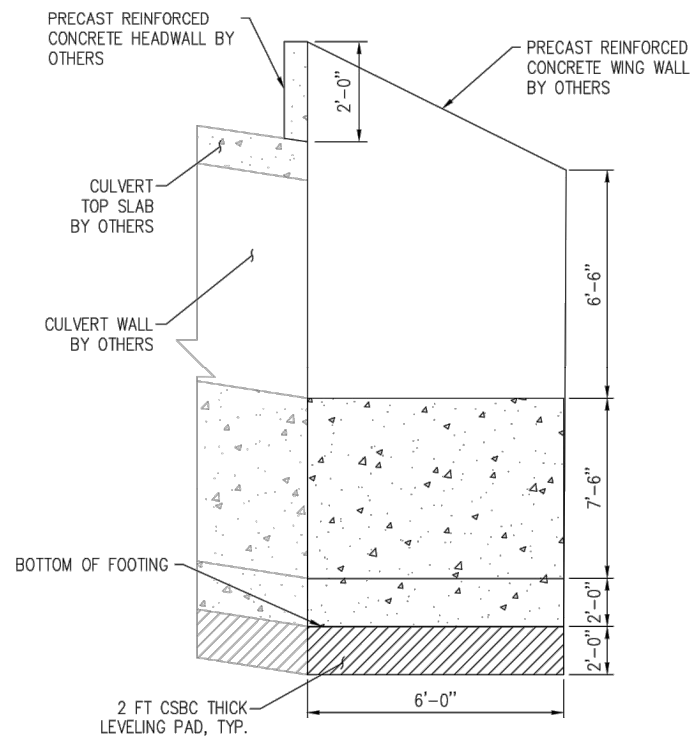
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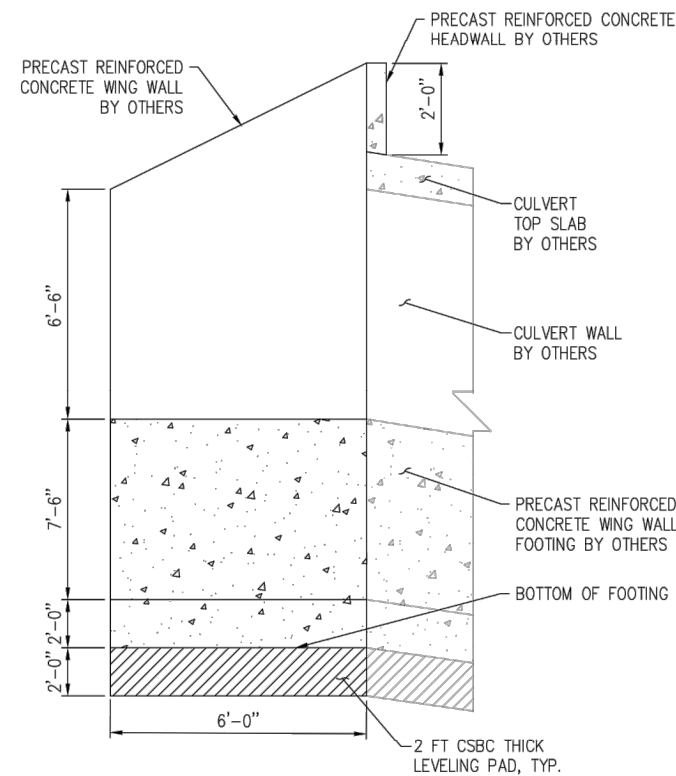
SECTION D
NTS



WING WALL 1 VIEW A
NTS



WING WALL 2 VIEW B
NTS



WING WALL 3 VIEW C
NTS

NO.	DATE	BY	APPR.	REVISIONS

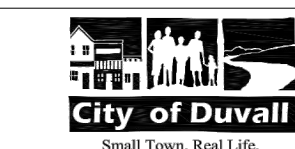
Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

3rd Ave Duwall Culvert - 20 of 42.dwg
 FILENAME
 PHAYRITHY SRENG 05/03/2024
 DESIGNED BY DATE
 HUY NGUYEN 05/03/2024
 DRAWN BY DATE
 SAMIR CHUDGAR 05/03/2024
 CHECKED BY DATE



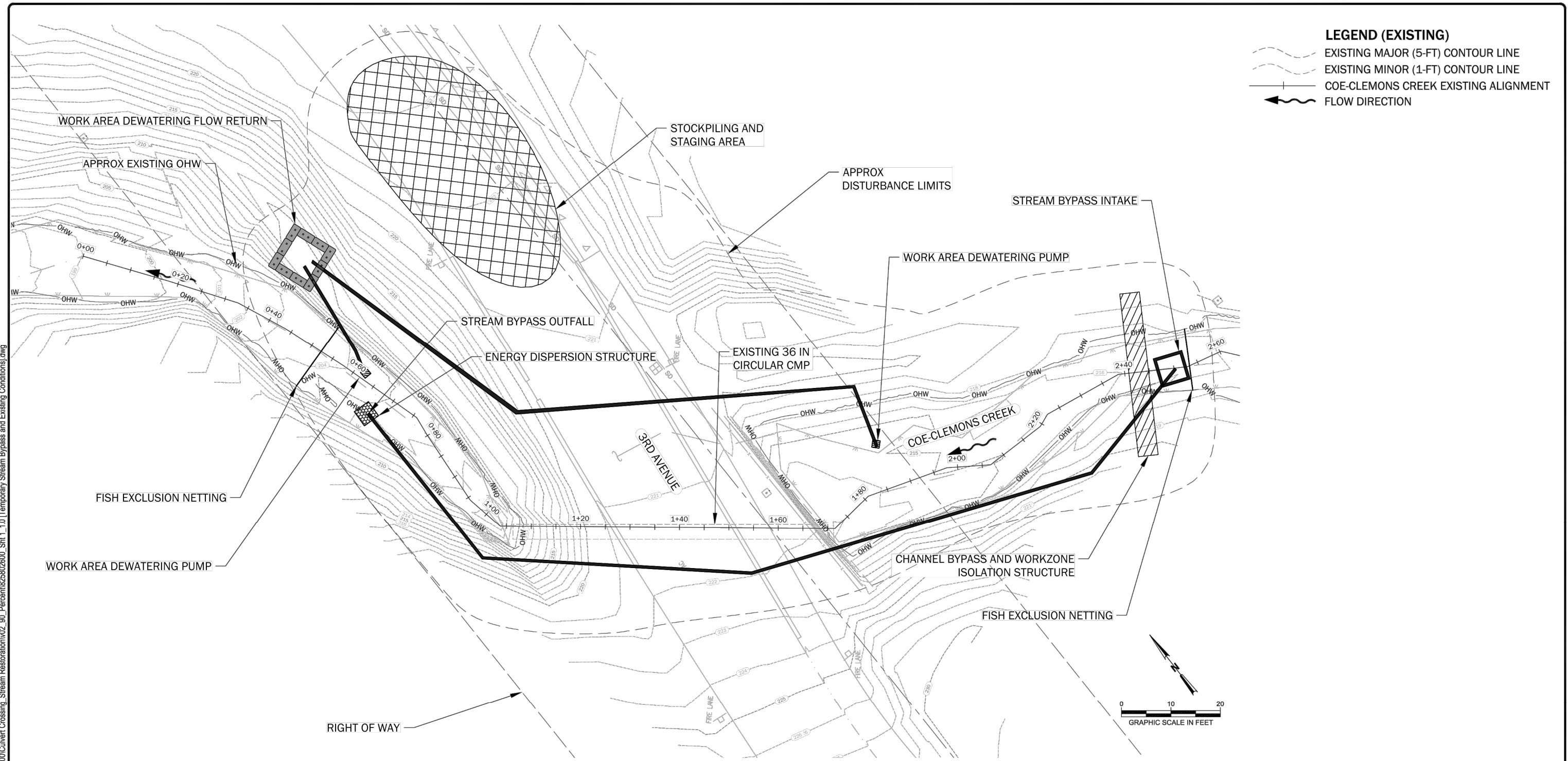
BID DOCUMENT



**CITY OF DUVALL
 COE-CLEMONS CREEK CULVERT
 REPLACEMENT**

WING WALL PLANS AND DETAILS
 KPG PROJECT No. 21078 SHT 20 OF 42

Plotted: 05/03/2024 13:36 | apederson | gengineers.com | Project: 818256026 | CAD: 001 | Culvert Crossing, Stream Restoration v02_90_Percent | 825602600_Sht_1_10 [Temporary Stream Bypass and Existing Conditions].dwg



TEMPORARY STREAM BYPASS AND EXISTING CONDITIONS

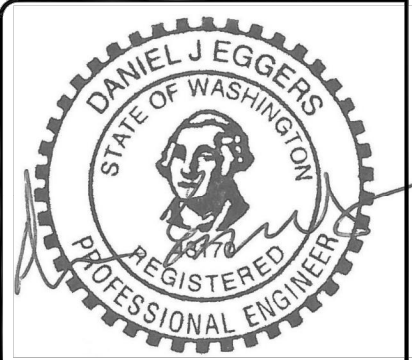
SCALE: 1" = 10'

EROSION AND SEDIMENT CONTROL NOTES

1. THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE EROSION AND SEDIMENT CONTROL (ESC) STRUCTURES IS THE RESPONSIBILITY OF THE LEAD (ESC) CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETE AND APPROVED.
2. CONTRACTOR SHALL PREPARE A 1200-C PERMIT IF DISTURBANCE IS GREATER THAN 1 ACRE..
3. ANY EQUIPMENT REFUELING AND PLACEMENT OF STATIONARY MOTORIZED EQUIPMENT SHALL BE LOCATED AT LEAST 150FT AWAY FROM THE ACTIVE CHANNEL MARGIN, UNLESS OTHERWISE APPROVED IN THE ENVIRONMENTAL PERMITS.
4. ESC FACILITIES SHOWN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS TO ENSURE THAT WATER MEETS WASHINGTON WATER QUALITY STANDARDS.
5. THE ESC FACILITIES SHALL BE INSPECTED BY THE CONTRACTOR DAILY AND MAINTAINED AS NECESSARY TO ENSURE THEIR PROPER PERFORMANCE THROUGHOUT THE DURATION OF CONSTRUCTION. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.

TEMPORARY WATER MANAGEMENT NOTES:

1. ALL IN-WATER WORK SHALL OCCUR WITHIN THE IN-WATER WORK WINDOW, BETWEEN AUGUST 1 AND AUGUST 31, OR AS SPECIFIED IN THE ENVIRONMENTAL PERMITS.
2. BYPASS PIPE LOCATIONS ARE APPROXIMATE AND MAY BE FIELD FIT. BYPASS CULVERT MAY BE USED IN PLACE OF BYPASS PIPE DEPENDENT ON FLOW CONDITIONS.
3. THE CONTRACTOR SHALL DESIGN THE TEMPORARY STREAM DIVERSION TO CONVEY THE MINIMUM FLOW RATE SPECIFIED IN THE SPECIAL PROVISIONS 8-31.3(1)A.
4. WORK AREA DEWATERING PUMP LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD SITED BY THE CONTRACTOR.



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: AGP
 DRAWN BY: AGP
 APPROVED BY: DJE
 REVISION NO.:
 DATE: 05/03/24

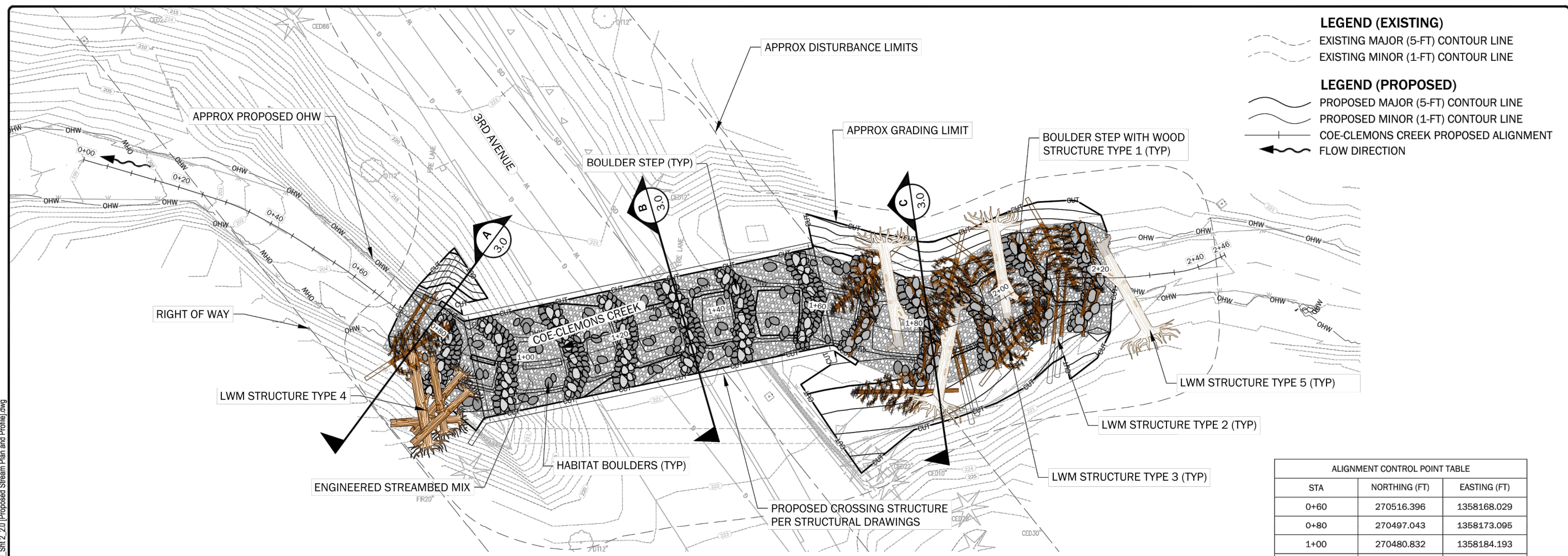


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 KPG PSOMAS, INC.

CITY OF DUVALL
 COE-CLEMONS CREEK CULVERT REPLACEMENT
TEMPORARY STREAM BYPASS AND EXISTING CONDITIONS

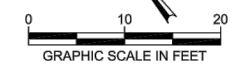
DRAWING NUMBER:
1.0
 SHEET: 21 OF 42

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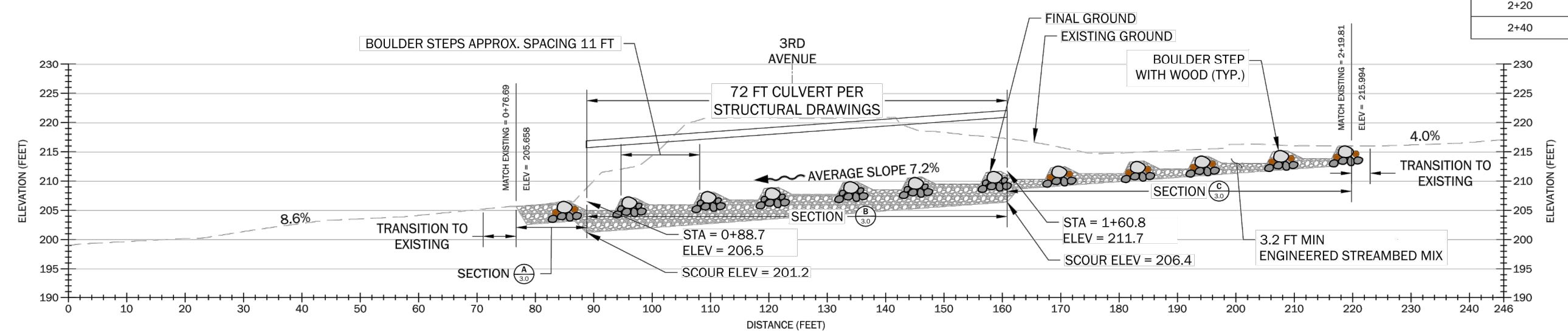


- LEGEND (EXISTING)**
- - - EXISTING MAJOR (5-FT) CONTOUR LINE
 - - - EXISTING MINOR (1-FT) CONTOUR LINE
- LEGEND (PROPOSED)**
- PROPOSED MAJOR (5-FT) CONTOUR LINE
 - PROPOSED MINOR (1-FT) CONTOUR LINE
 - COE-CLEMONS CREEK PROPOSED ALIGNMENT
 - ← FLOW DIRECTION

PROPOSED STREAM PLAN
SCALE: 1" = 10'



ALIGNMENT CONTROL POINT TABLE		
STA	NORTHING (FT)	EASTING (FT)
0+60	270516.396	1358168.029
0+80	270497.043	1358173.095
1+00	270480.832	1358184.193
1+20	270472.429	1358202.269
1+40	270464.604	1358220.665
1+60	270452.993	1358236.858
1+80	270438.142	1358250.194
2+00	270432.316	1358268.968
2+20	270423.627	1358286.508
2+40	270413.152	1358303.461



PROPOSED STREAM PROFILE
SCALE: 1" = 10'



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: AGP
 DRAWN BY: AGP
 APPROVED BY: DJE
 REVISION NO.: —
 DATE: 05/03/24

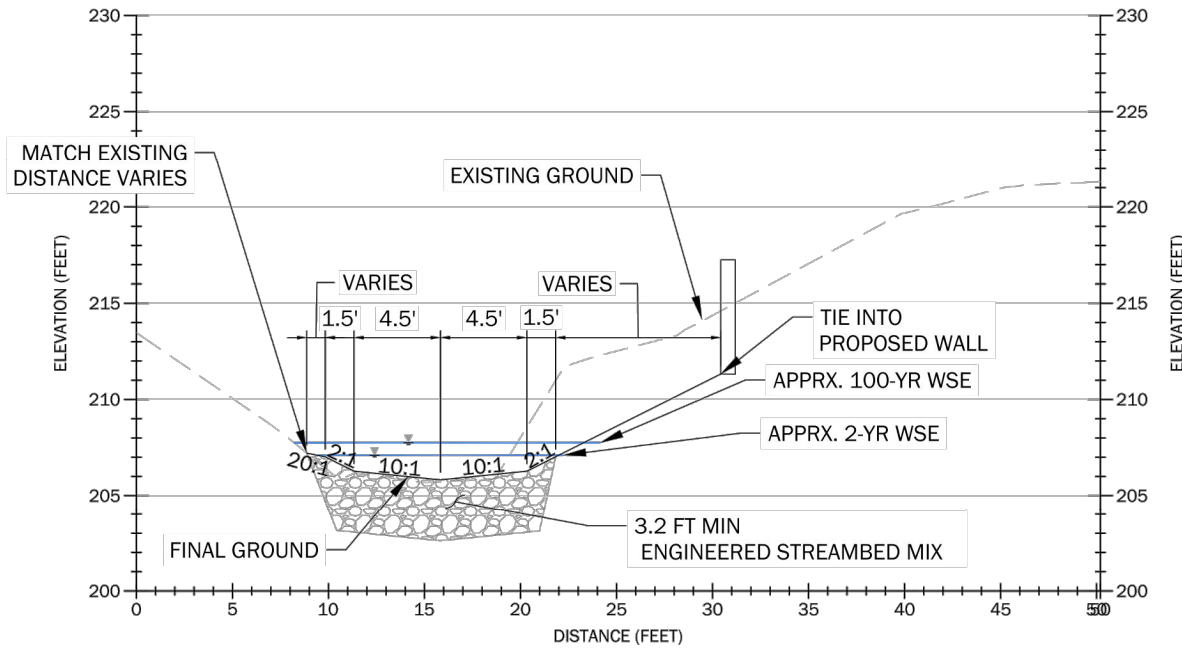


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 KPG PSOMAS, INC.

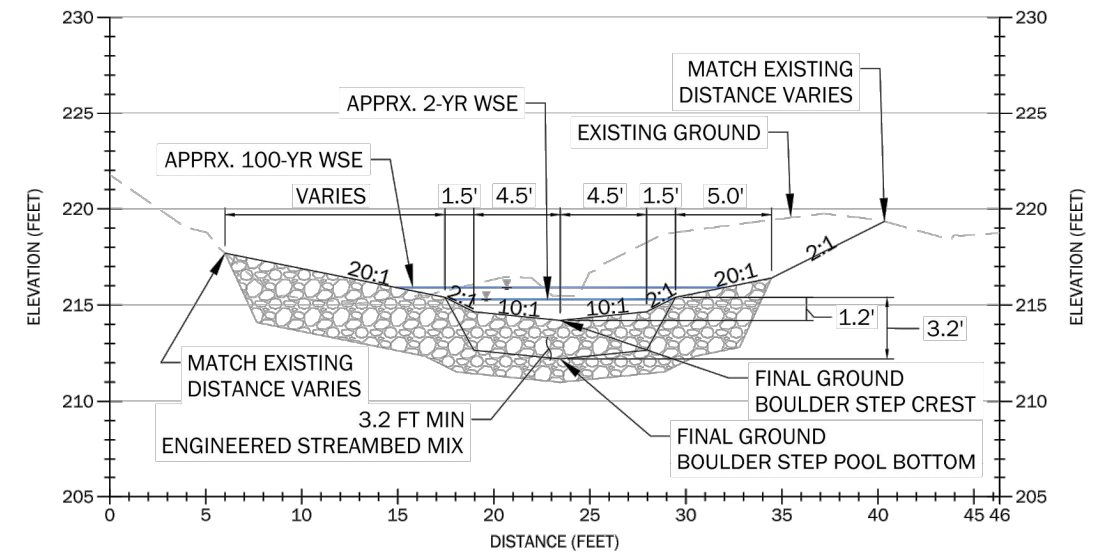
CITY OF DUVALL
 COE-CLEMONS CREEK CULVERT REPLACEMENT
PROPOSED STREAM PLAN AND PROFILE

DRAWING NUMBER:
2.0
 SHEET: 22 OF 42

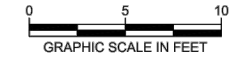
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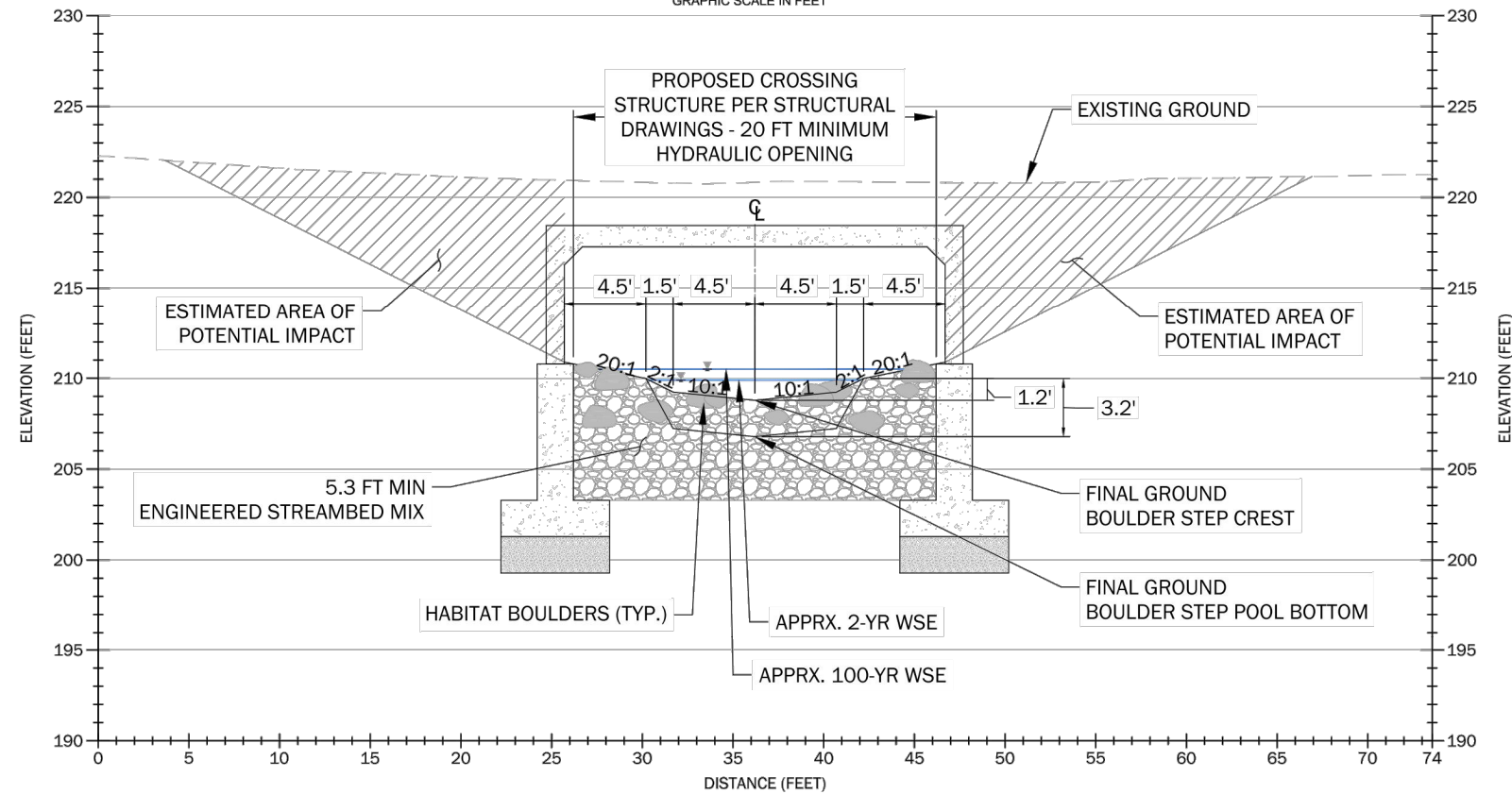
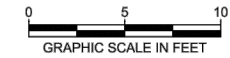
PROPOSED STREAM TYPICAL DOWNSTREAM SECTION STA 0+77 TO 0+89 (A)
 SCALE: 1" = 10'



PROPOSED STREAM TYPICAL UPSTREAM SECTION STA 1+61 TO 2+20 (C)
 SCALE: 1" = 10'

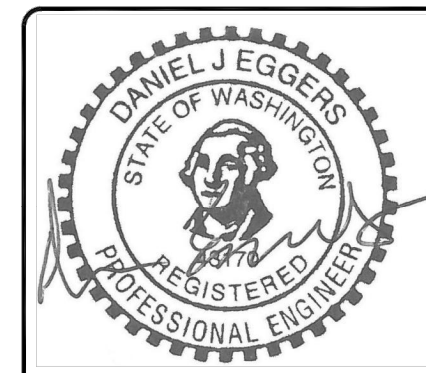


PROPOSED STREAM TYPICAL ROAD SECTION STA 0+89 TO 1+61 (B)
 SCALE: 1" = 10'



NOTE:

1. TYPICAL SECTIONS ARE SHOWN ALONG THE BOULDER STEP CREST. THE BOULDER STEP POOL BOTTOM IS TYPICALLY 1.0 FEET DOWNSTREAM OF EACH CREST. EACH BOULDER STEP CREST IS TYPICALLY 2.4 FEET MEASURED ALONG THE STREAM CENTERLINE.
2. SEE THE PROFILE ON DWG 2.0 FOR BOULDER STEP CREST AND BOULDER STEP POOL LOCATIONS AND STATIONING.
3. SEE DWG 4.0 FOR THE BOULDER STEP CONTROL POINT TABLE AND BOULDER STEP DETAILS. BOULDER STEP CONTROL POINT LOCATIONS COINCIDE WITH BOULDER STEP CRESTS.



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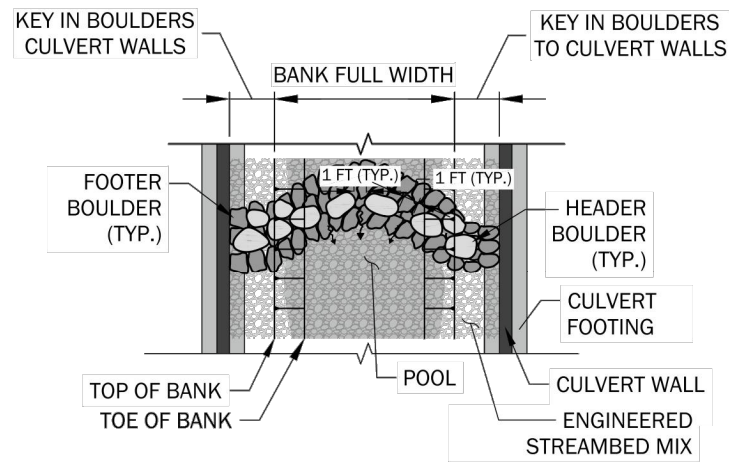
DESIGNED BY:	AGP
DRAWN BY:	AGP
APPROVED BY:	DJE
REVISION NO.:	
DATE:	05/02/24



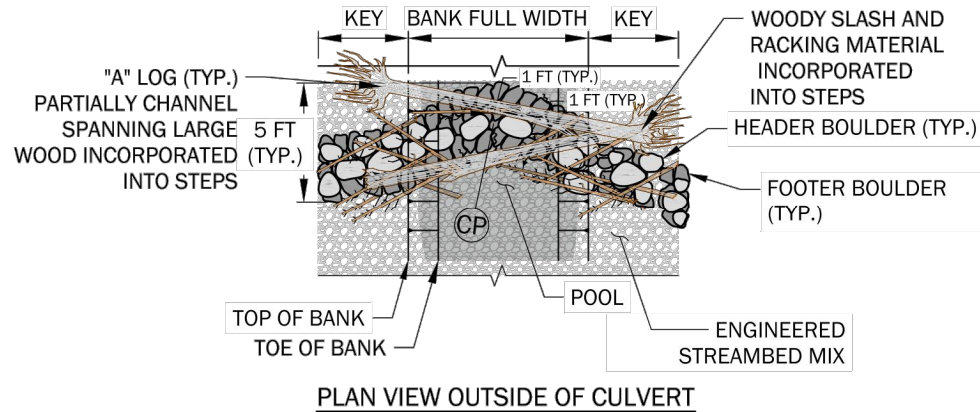
PREPARED FOR:	KPG PSOMAS, INC.
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CITY OF DUVALL COE-CLEMONS CREEK CULVERT REPLACEMENT
PROPOSED STREAM TYPICAL SECTION

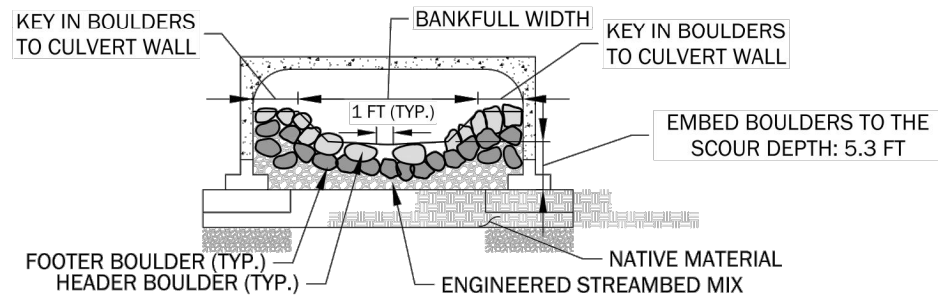
DRAWING NUMBER: 3.0
SHEET: 23 OF 42



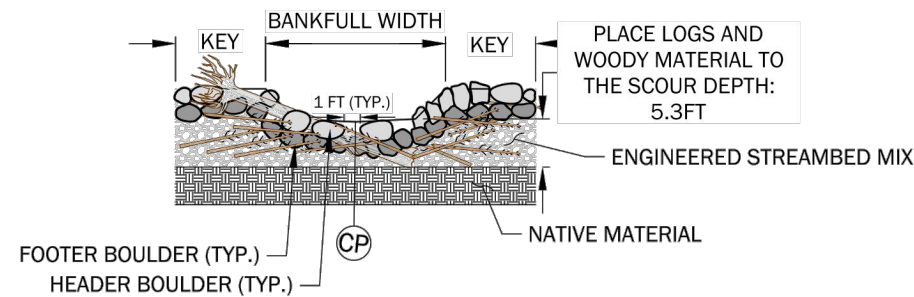
TYPICAL BOULDER STEP POOL PLAN VIEW WITHIN CULTURE
SCALE: NTS 4.0



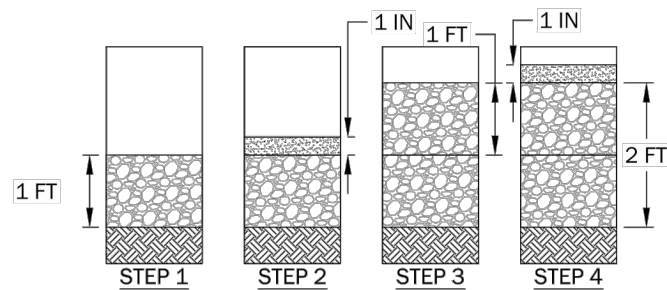
TYPICAL LWM STRUCTURE TYPE 1 - WOOD IN BOULDER STEP POOL
SCALE: NTS 4.0



TYPICAL BOULDER STEP POOL SECTION VIEW WITHIN CULTURE
SCALE: NTS 4.0



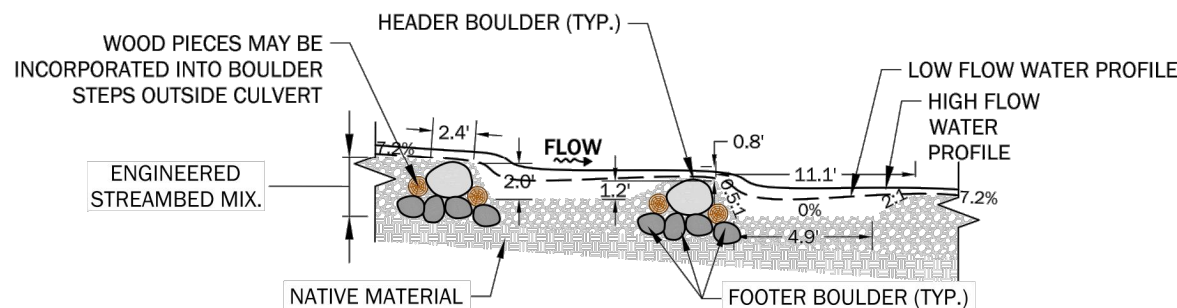
SECTION VIEW OUTSIDE OF CULTURE



STREAMBED CHANNEL PREPARATION NOTES:
 STEP 1. EXCAVATE CHANNEL TO ACCOMMODATE ENGINEERED STREAMBED MIX. PLACE 1 FT LIFT OF ENGINEERED STREAMBED MIX.
 STEP 2. PLACE 1 IN OF STREAMBED SAND UNIFORMLY OVER ENGINEERED STREAMBED MIX. APPLY WATER TO WASH IN STREAMBED SAND. PLACE STREAMBED BOULDERS.
 STEP 3. PLACE 1 FT LIFT OF ENGINEERED STREAMBED MIX TO PROPOSED SURFACE.
 STEP 4. PLACE 1 IN OF STREAMBED SAND UNIFORMLY OVER ENGINEERED STREAMBED MIX. APPLY WATER TO WASH IN STREAMBED SAND. PLACE STREAMBED BOULDERS.

CHANNEL PREPARATION DETAIL
SCALE: NTS 4.0

TYPICAL LWM STRUCTURE TYPE 1 - WOOD IN BOULDER STEP POOL
SCALE: NTS 4.0



TYPICAL BOULDER STEP POOL PROFILE VIEW
SCALE: NTS 4.0

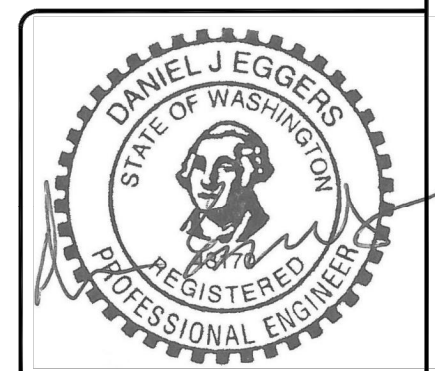
NOTES:

- PURPOSE:**
- PROVIDE GRADE CONTROL DURING HIGH FLOWS AND INSTREAM HABITAT DURING LOW FLOWS.
 - PROVIDE VERTICAL STABILITY TO THE INCREASED CHANNEL SLOPE.
 - PROVIDES HABITAT AND FLOW DIVERSITY.
- DESIGN SPECIFICS:**
1. ENGINEERED STREAMBED MIX AND STREAMBED BOULDER GRADATIONS PER WSDOT STANDARD SPECIFICATION 9-03.11. ENGINEERED STREAMBED MIX COMPOSED OF 30% STREAMBED SEDIMENT, 60% 10" STREAMBED COBBLES, AND 10% 18"-28" STREAMBED BOULDERS. ENGINEERED STREAMBED MIX PURSUANT TO SPECIAL PROVISION 8-19.2.
 2. STREAMBED BOULDERS DIAMETERS RANGE FROM 24 TO 36 INCHES.
 3. MAINTAIN LOW FLOW CHANNEL BETWEEN BOULDERS.
 4. PLACE FOOTER BOULDERS BELOW HEADER BOULDERS.
 5. MAXIMUM HYDRAULIC DROP BETWEEN STEPS IS 0.8 FEET.
 6. BOULDER STEP POOLS WITHIN THE CULTURE SHALL HAVE ALTERNATING PEAKS TO PROMOTE THALWEG COMPLEXITY.
 7. THE CREST OF EACH BOULDER STEP SHALL BE CENTERED AROUND CONTROL POINTS LISTED IN THE CONTROL POINT TABLE.
 8. ENGINEERED STREAMBED MIX SHALL BE INSTALLED BELOW THE BOTTOM ELEVATION OF THE SCOUR POOL EQUAL TO THE SCOUR ELEVATION THROUGHOUT THE ENTIRE LENGTH OF THE CULTURE.
 9. STEP SPACING AND DEPTH OF ENGINEERED STREAMBED MIX MAY BE ADJUSTED BASED ON FIELD CONDITIONS AND DEPTH TO BEDROCK, AS DIRECTED BY THE HYDRAULIC ENGINEER.

STRUCTURE QUANTITIES	
LOG TYPE A - SMALL ROOTWAD	SLASH MATERIAL PER STRUCTURE (CY)
15' MIN. LOG WITH ROOTWAD 9" TO 14" DBH	3.0
12	

BOULDER STEP CONTROL POINT TABLE		
CONTROL POINTS	NORTHING (FT)	EASTING (FT)
CP-1	270492.5	1358174.8
CP-2	270483.5	1358181.1
CP-3	270476.4	1358192.4
CP-4	270472.3	1358202.7
CP-5	270467.2	1358215.1
CP-6	270462.2	1358225.0
CP-7	270454.1	1358235.7
CP-8	270445.9	1358243.2
CP-9	270436.4	1358252.7
CP-10	270433.0	1358263.1
CP-11	270430.7	1358276.3
CP-12	270424.5	1358285.4

NOTE:
ALL BOULDER STEP CONTROL POINTS ARE LOCATED AT THE STREAM CENTERLINE.



P:\1617 | apederson | gengineers.com\wan\Projects\826026\CAD\00\Culvert Crossing_Stream Restoration\02_90_Percent\82602600_Sht_4_4.0_Stream and Habitat Feature Details.dwg

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DESIGNED BY:	AGP
DRAWN BY:	AGP
APPROVED BY:	DJE
REVISION NO.:	—
DATE:	05/02/24

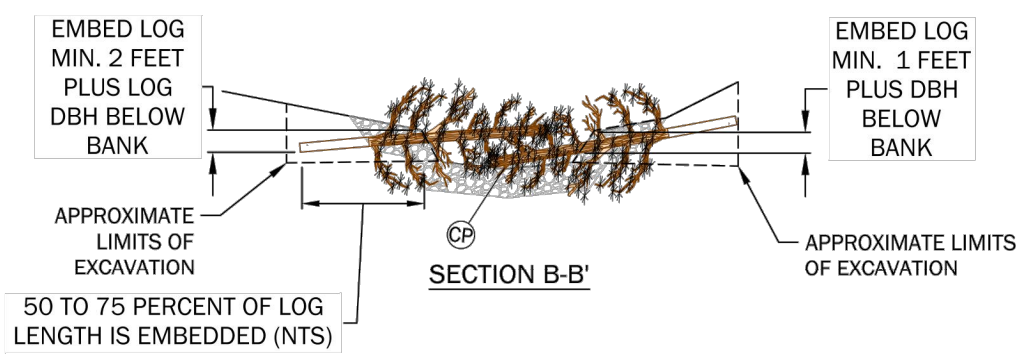
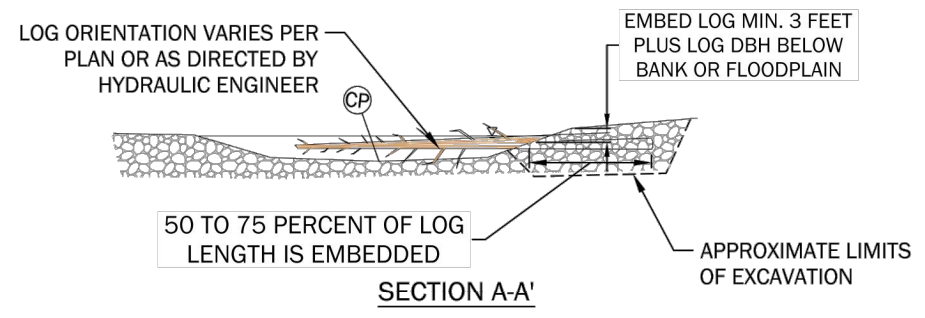
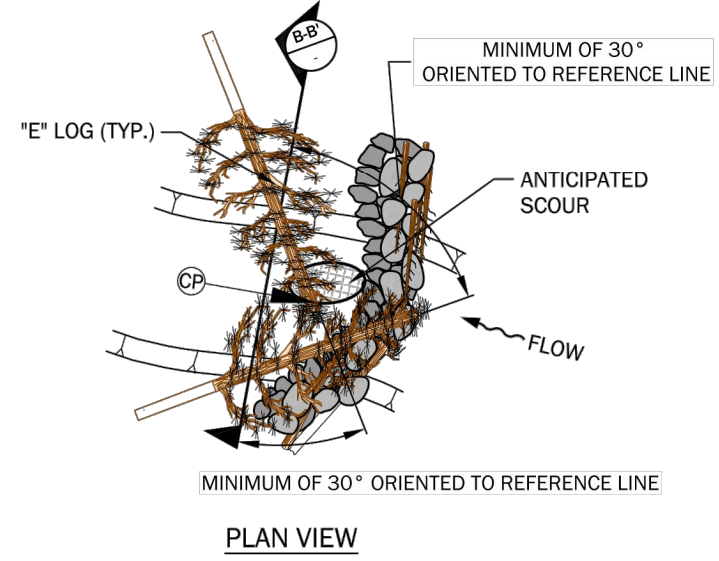
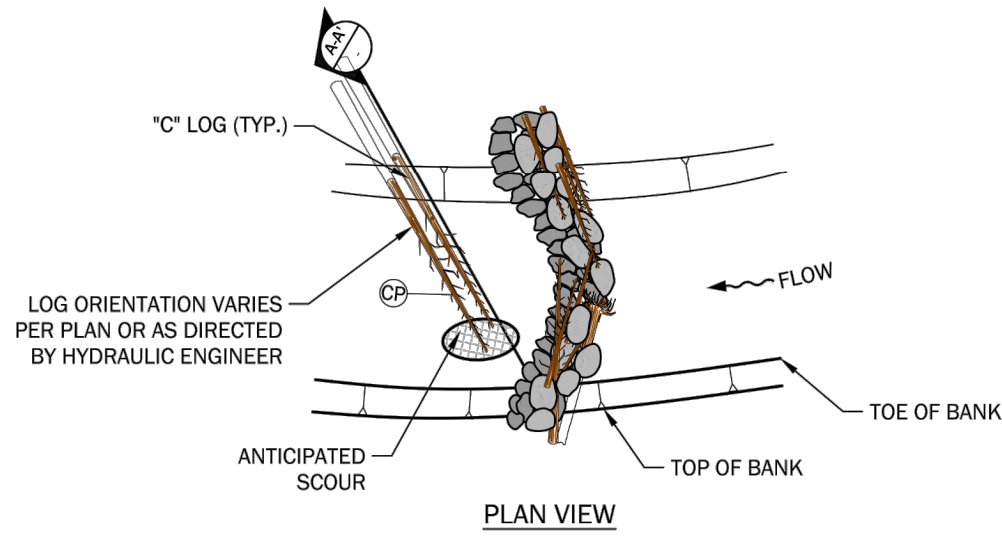


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CITY OF DUVALL
COE-CLEMONS CREEK CULTURE REPLACEMENT
STREAM AND HABITAT FEATURE DETAILS

DRAWING NUMBER:
4.0
SHEET: 24 OF 42

Plotted: 05/02/2024 16:17 | apederson | gengineers.com | Project: 81826026 | CAD: 001 | Culvert Crossing, Stream Restoration v02_90_Percent | 82602600_Sht 5_4.1 | Stream and Habitat Feature Details.dwg



- PURPOSE:**
- REDIRECTS FLOW.
 - CREATES SCOUR.
 - ENCOURAGES GRAVEL DEPOSITION.

- DESIGN SPECIFICS:**
- SWEEPERS MAY BE PLACED INDEPENDENTLY OR INCORPORATED INTO OTHER LARGE WOOD STRUCTURES.
 - TREES WITH BRANCHES OR MULTIPLE TRUNKS PREFERRED.
 - THE DESIGN ENGINEER SHALL MAINTAIN THE ABILITY TO MAKE ADJUSTMENT TO THE PROPOSED STRUCTURE IF SITE CONDITIONS WARRANT.
 - TOTAL LWM QUANTITIES PRESENTED IN STRUCTURE QUANTITIES TABLE.

- PURPOSE:**
- CREATES SCOUR POOL.
 - CREATES DIVERSE FISH HABITAT.
 - PROVIDES COVER.

- DESIGN SPECIFICS:**
- SWEEPERS MAY BE PLACED INDEPENDENTLY OR INCORPORATED INTO OTHER LARGE WOOD STRUCTURES.
 - TREES WITH BRANCHES OR MULTIPLE TRUNKS PREFERRED.
 - THE DESIGN ENGINEER SHALL MAINTAIN THE ABILITY TO MAKE ADJUSTMENT TO THE PROPOSED STRUCTURE IF SITE CONDITIONS WARRANT.
 - TOTAL LWM QUANTITIES PRESENTED IN STRUCTURE QUANTITIES TABLE.

TYPICAL LWM STRUCTURE TYPE 2 - SWEEPER LOGS 4.1
SCALE: NTS

TYPICAL LWM STRUCTURE TYPE 3 - OVERHANGING COVER LOGS 4.1
SCALE: NTS

NOTE:
CONTROL POINTS ARE LOCATED WHERE LWM INTERSECT THE CHANNEL CENTERLINE. EXCEPTIONS ARE CP-19 AND CP-20 AND ARE LOCATED AT THE MIDPOINT OF THE LOG STRUCTURE

- CONSTRUCTION SEQUENCING:**
1. INSTALL WORK ISOLATION STRUCTURES AND DEWATER THE WORK AREA.
 2. ESTABLISH REFERENCE ELEVATION PRIOR TO CONSTRUCTION AND CONFIRM WITH HYDRAULIC ENGINEER. REFERENCE GRADE HUB SHOULD BE ESTABLISHED OUTSIDE OF DISTURBANCE LIMITS AND USED TO CHECK STRUCTURE EMBEDDED DEPTHS. REFERENCE GRADE IS THE TOP OF THE BANK WHERE SWEEPER LOGS WILL BE INSTALLED.
 3. EXCAVATE A TRENCH FOR TYPE C LOGS. TRENCH DEPTH SHALL BE A MINIMUM OF 3 FEET PLUS LOG DBH BELOW THE BANK OR FLOODPLAIN AND TRENCH LENGTH SHALL EXTEND INTO THE FLOODPLAIN TO ENSURE A MINIMUM EMBEDMENT LENGTH OF 50 PERCENT THE LENGTH OF THE LOG.
 4. EMBED TYPE C LOGS ORIENTED A MAXIMUM OF $\pm 30^\circ$ TO PERPENDICULAR TO THE DIRECTION OF FLOW. EMBED TYPE C LOGS SO THAT THE STEM TIP IS AT THE CHANNEL THALWEG.
 5. EXCAVATE A TRENCH FOR TYPE E LOGS. TRENCH DEPTH SHALL BE A MINIMUM OF 2 FEET PLUS LOG DBH BELOW THE BANK FOR TYPE E LOGS INSTALLED ON THE CHANNEL LEFT BANK AND SHALL BE A MINIMUM OF 1 FEET BELOW THE BANK FOR LOGS INSTALLED ON THE CHANNEL RIGHT BANK. TRENCHES SHALL EXTEND INTO THE FLOODPLAIN TO ENSURE A MINIMUM EMBEDMENT LENGTH OF 50 PERCENT THE LENGTH OF THE LOG.
 6. EMBED TYPE E LOGS ORIENTED $\pm 30^\circ$ TO PERPENDICULAR TO THE DIRECTION OF FLOW. EMBED TYPE E LOGS SO THAT THE LOG SPANS A MINIMUM OF 50 PERCENT OF THE CHANNEL. ANGLE TYPE E LOGS VERTICALLY SO THAT THE STEM TIPS ARE ORIENTED TO THE TOE OF BANK OR TOP OF BANK.
 7. ALL LOGS SHALL BE INSTALLED SO THAT THEY ARE A MINIMUM OF 5 FEET FROM THE STRUCTURE AND STRUCTURE WINGWALLS.
 8. BACKFILL STRUCTURE IN 1 FT MAXIMUM LIFTS. COMPACT EACH LIFT FOLLOWING PLACEMENT USING AN EXCAVATOR BUCKET.
 9. REVEGETATE THE BANK AROUND THE STRUCTURE PER REVEGETATION DETAILS.
 10. REMOVE DEWATERING AND FLOW ISOLATION STRUCTURE.

CONTROL POINT TABLE			
STRUCTURE TYPE	CONTROL POINTS	NORTHING (FT)	EASTING (FT)
TYPE 2	CP-13	270502.9	1358171.6
TYPE 2	CP-14	270434.2	1358257.3
TYPE 2	CP-15	270428.8	1358280.1
TYPE 3	CP-16	270497.2	1358173.0
TYPE 3	CP-17	270450.7	1358239.3
TYPE 3	CP-18	270435.7	1358254.7
TYPE 3	CP-19	270429.8	1358241.4
TYPE 3	CP-20	270424.1	1358265.3
TYPE 3	CP-21	270432.0	1358270.9
TYPE 3	CP-22	270427.5	1358281.9

STRUCTURE QUANTITIES	
TYPE 2	TYPE 3
LOG TYPE C - NO ROOTWAD	LOG TYPE E - NO ROOTWAD WITH BRANCHES
20' MIN. LOG WITH ROOTWAD 10" TO 16" DBH	20 MIN. LOG WITH ROOTWAD 6" TO 12" DBH
6	7



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	AGP
DRAWN BY:	AGP
APPROVED BY:	DJE
REVISION NO.:	—
DATE:	05/02/24

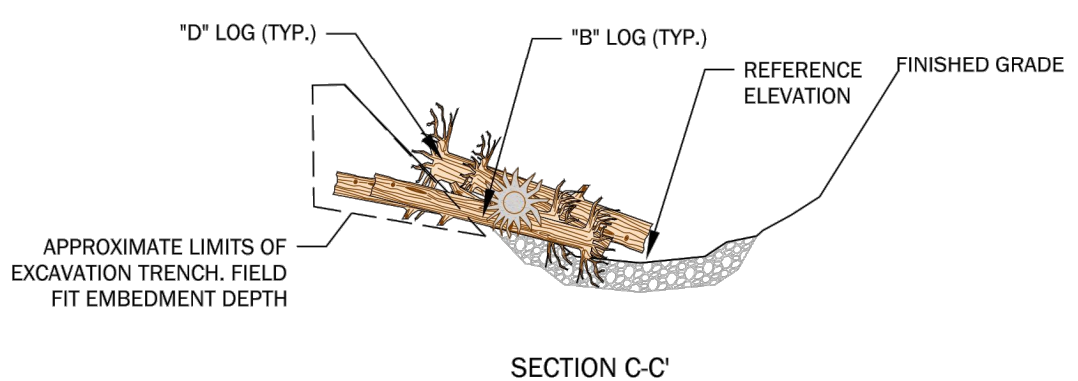
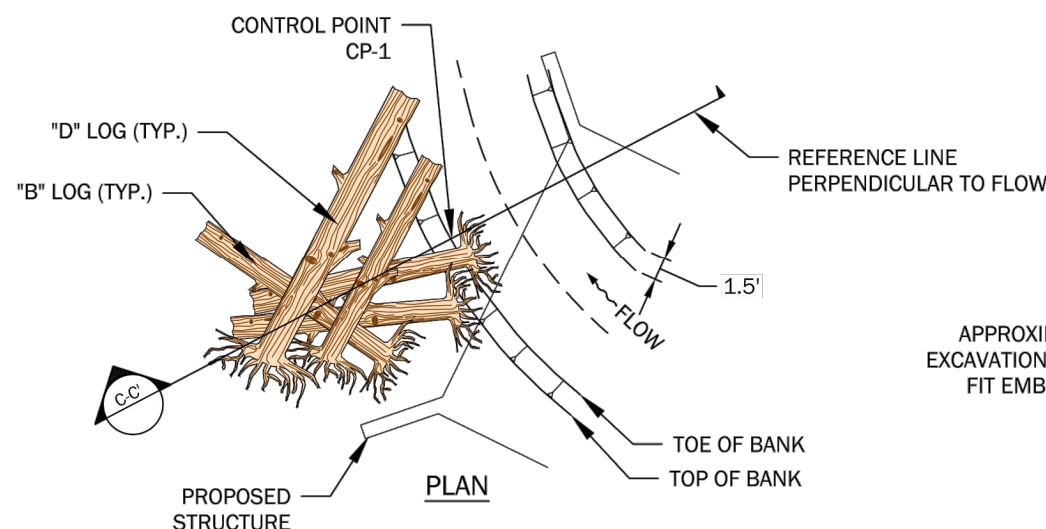


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KPG PSOMAS, INC.

CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT
STREAM AND HABITAT FEATURE DETAILS

DRAWING NUMBER:
4.1
SHEET: 25 OF 42

Plotted: 05/02/2024 16:17 | apederson | gengineers.com | Project: 81826026 | CAD: 001 | Culvert Crossing, Stream Restoration | v02_90_Percent | 82602600_Sht 6.4.2 | Stream and Habitat Feature Details | .dwg



PURPOSE:

- PROVIDES INCREASED HYDRAULIC ROUGHNESS THROUGHOUT THE REACH.
- REDIRECTS FLOWS TO OPPOSITE BANK.
- OVER TIME ACCUMULATES ADDITIONAL LARGE WOOD MATERIAL.

DESIGN SPECIFICS:

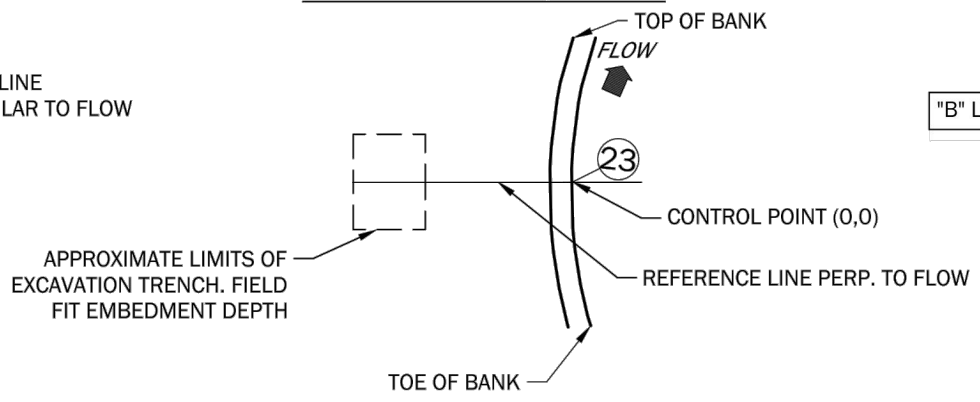
- THE DESIGN ENGINEER SHALL MAINTAIN THE ABILITY TO MAKE ADJUSTMENTS TO THE PROPOSED STRUCTURE IF SITE CONDITIONS WARRANT.
- SEE TABLE FOR MATERIAL SIZES AND QUANTITIES.

STRUCTURE QUANTITIES		
LOG TYPE B - LARGE ROOTWAD	LOG TYPE D - LARGE ROOTWAD	SLASH MATERIAL (CY)
15' MIN. LOG WITH ROOTWAD 16" TO 20" DBH	20' MIN. LOG WITH ROOTWAD 22" TO 26" DBH	
4	1	2

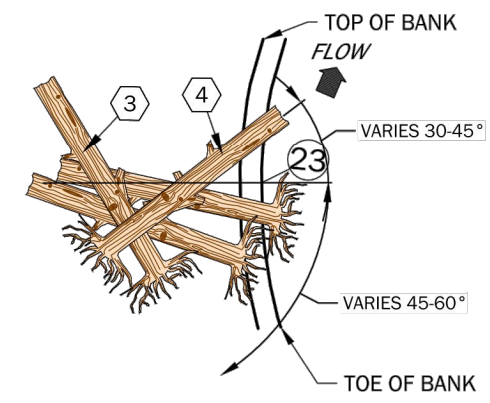
CONTROL POINT TABLE		
CONTROL POINTS	NORTHING (FT)	EASTING (FT)
CP-23	270488.8	1358169.9

TYPICAL LWM STRUCTURE TYPE 4 - FLOW DEFLECTION JAM 4.2
SCALE: NTS

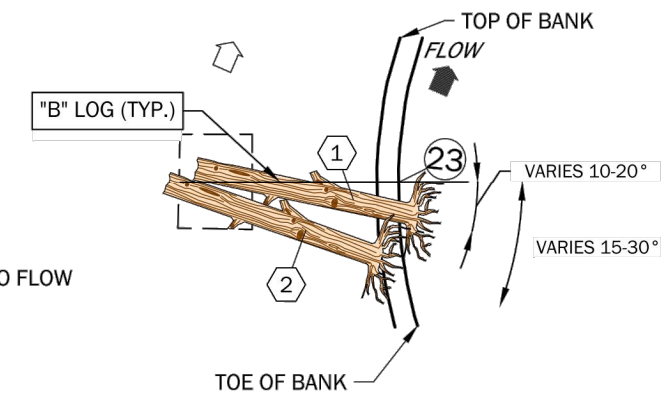
CONSTRUCTION SEQUENCING



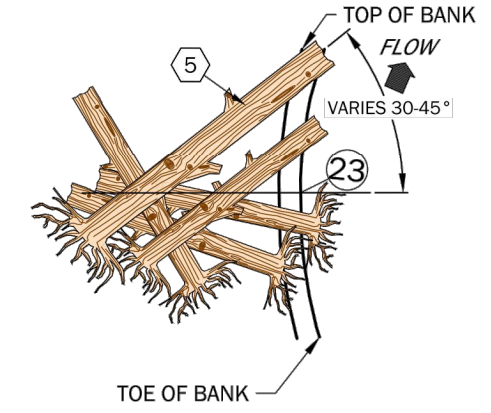
1. INSTALL WORK ISOLATION STRUCTURES AND DEWATER THE WORK AREA.
2. ESTABLISH REFERENCE ELEVATION PRIOR TO CONSTRUCTION AND CONFIRM WITH HYDRAULIC ENGINEER. REFERENCE GRADE HUB SHOULD BE ESTABLISHED OUTSIDE OF DISTURBANCE LIMITS AND USED TO CHECK STRUCTURE EMBEDDED DEPTHS. REFERENCE GRADE IS THE THALWEG ELEVATION ADJACENT TO THE STRUCTURE.
3. EXCAVATE TRENCH TO EMBED LOGS 1 AND 2 (TYPE B).



8. PLACE LOG 3 (TYPE B) ABOVE LOG 1 AND 2 WITH THE ROOTWAD RESTING ON THE FLOODPLAIN BENCH. ORIENT LOG 3 BETWEEN 45-60° TO THE REFERENCE LINE SO THAT STEM TIP IS RESTING ON THE EXISTING GRADE.
9. PLACE LOG 4 (TYPE B) ABOVE LOG 3 WITH THE ROOTWAD COLLAR RESTING ON TOP OF LOG 3. ORIENT LOG 4 BETWEEN 30-45° TO THE REFERENCE LINE SO THAT THE STEM TIP IS AT THE TOE OF THE BANK.



4. PLACE LOG 1 (TYPE B) WITH THE ROOTWAD EXTENDING BEYOND THE TOE OF THE CHANNEL. ORIENT LOG 1 BETWEEN 10-20° TO THE REFERENCE LINE.
5. PLACE LOG 2 (TYPE B) WITH THE ROOTWAD EXTENDING BEYOND THE TOP OF THE BANK. ORIENT LOG 1 BETWEEN 15-30° TO THE REFERENCE LINE SO THAT THE ROOTWAD COLLAR IS RESTING ON THE TOP OF BANK.
6. BACKFILL THE EXCAVATION TRENCH WITH NATIVE MATERIAL.
7. PLACE SLASH BETWEEN LOGS 1 AND 2.



9. PLACE LOG 5 (TYPE D) ABOVE LOG 3, DOWNSTREAM OF LOG 4. ORIENT LOG 5 30-45° TO THE REFERENCE LINE SO THAT THE LOG STEM EXTENDS APPROXIMATELY 1.0 FEET PAST THE TOE OF THE BANK.
10. WEAVE THE REMAINING RACKING MATERIAL AND SLASH BETWEEN THE ROOTWADS AND LOGS.
11. REMOVE DEWATERING AND FLOW ISOLATION STRUCTURE.
12. REVEGETATE THE BANK AROUND THE STRUCTURE PER REVEGETATION DETAILS.



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	AGP
DRAWN BY:	AGP
APPROVED BY:	DJE
REVISION NO.:	—
DATE:	05/02/24

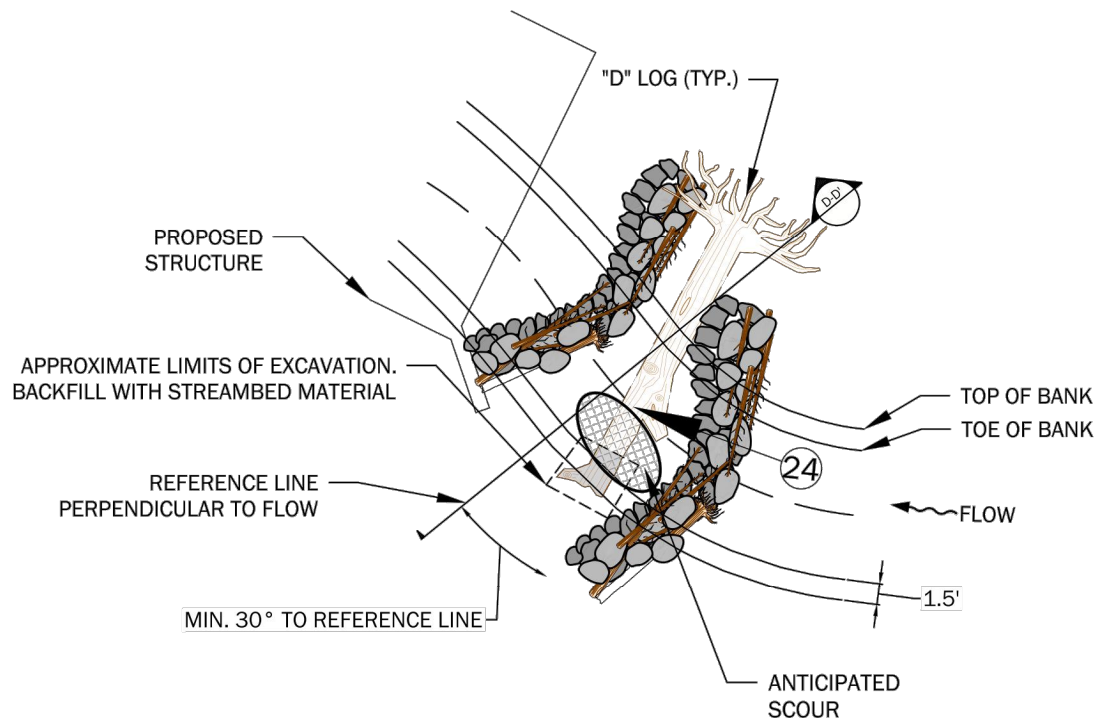


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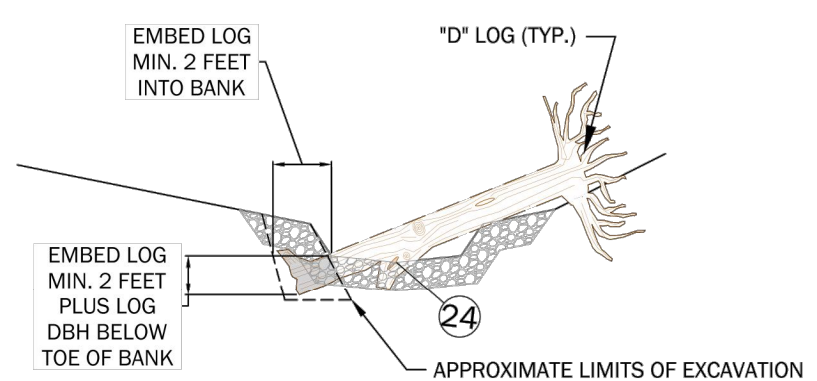
CITY OF DUVALL COE-CLEMONS CREEK CULVERT REPLACEMENT STREAM AND HABITAT FEATURE DETAILS
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DRAWING NUMBER: 4.2 SHEET: 26 OF 42
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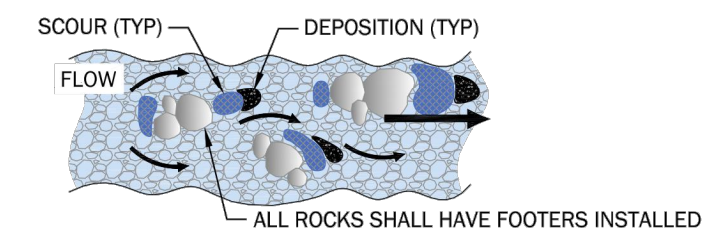
Plotted: 05/02/2024 16:18 | apederson | gengineers.com | Project: 81826026 | CAD: 001 | Culvert Crossing Stream Restoration v02_90_Percent | 82602600_Sht 7_4.3 | Stream and Habitat Feature Details.dwg



PLAN VIEW



SECTION D-D'



TYPICAL CROSSING HABITAT BOULDER PLACEMENT
SCALE: NTS

PURPOSE:

- CREATES IN-STREAM HABITAT DIVERSITY AND COMPLEXITY BY CREATING LOCAL AREAS OF SCOUR, DEPOSITION AND "POCKET WATER" (EDDYS) IN CHANNEL.
- GENERALLY INCREASES HYDRAULIC FRICTION AND CREATES VARIABLE VELOCITIES ACROSS CHANNEL.
- ENHANCES HABITAT FOR MACROINVERTEBRATES AND ALL LIFE STAGES OF FISH SPECIES.

DESIGN SPECIFICS:

- THE DESIGN ENGINEER SHALL MAINTAIN THE ABILITY TO SPECIFY THE LOCATIONS OF THE PROPOSED STREAMBED BOULDERS.
- HABITAT BOULDERS SHALL MEET THE STREAMBED BOULDER GRADATIONS PER WSDOT STANDARD SPECIFICATION 9-03.11 AND PURSUANT TO SPECIAL PROVISION 8-19.2.
- A TOTAL OF 60 STREAMBED BOULDERS SHALL CONSTITUTE THE HABITAT BOULDERS PLACED IN THE STREAM CHANNEL IN ADDITION TO THE STREAMBED BOULDERS SPECIFIED IN THE ENGINEERED STREAMBED MIX AND THE STEP POOLS.
- HABITAT BOULDERS SHALL BE INSTALLED WITH THE ENGINEERED STREAMBED MIX FOLLOWING THE STREAMBED CHANNEL PREPARATION NOTES (D4.0).
- HABITAT BOULDERS SHALL BE INSTALLED TO A MINIMUM DEPTH OF 50% OF THE BOULDER DIAMETER BELOW THE TOP OF THE STREAMBED.
- HABITAT BOULDERS SHALL HAVE A FOOTER BOULDER INSTALLED DOWNSTREAM OF THE HABITAT BOULDER.

NOTE:
CONTROL POINTS ARE LOCATED WHERE LWM INTERSECT THE CHANNEL CENTERLINE.

CONTROL POINT TABLE		
CONTROL POINTS	NORTHING (FT)	EASTING (FT)
CP-24	270440.5	1358247.3
CP-25	270434.2	1358257.4
CP-26	270432.3	1358269.0
CP-27	270421.7	1358289.3

TYPICAL LWM STRUCTURE TYPE 5 - CHANNEL SPANNING LOGS
SCALE: NTS

STRUCTURE QUANTITIES	
LOG TYPE D - LARGE ROOTWAD	SLASH MATERIAL PER STRUCTURE (CY)
20' MIN. LOG WITH ROOTWAD 22" TO 26" DBH	
4	0.5

PURPOSE:

- CREATES HYDRAULIC DIVERSITY AND FLOODPLAIN ROUGHNESS.
- CREATES SCOUR POOLS.
- ENCOURAGES GRAVEL DEPOSITION
- CREATES DIVERSE FISH HABITAT.
- PROVIDES COVER AND SHADE.

DESIGN SPECIFICS:

- CHANNEL SPANNING LOGS SHALL BE INSTALLED WITH THE STEM TIP EMBEDDED IN THE OPPOSITE BANK AS THE ROOTWAD WITH THE ROOTWAD RESTING ON THE FLOODPLAIN.
- THE DESIGN ENGINEER SHALL MAINTAIN THE ABILITY TO MAKE ADJUSTMENT TO THE PROPOSED STRUCTURE IF SITE CONDITIONS WARRANT.
- TOTAL LWM QUANTITIES PRESENTED IN STRUCTURE QUANTITIES TABLE.
- SPECIES SUBSTITUTIONS FOR CHANNEL SPANNING LOGS USING LWM SOURCED ON-SITE MAY BE USED AS DIRECTED BY THE DESIGN ENGINEER.

CONSTRUCTION SEQUENCING:

1. INSTALL WORK ISOLATION STRUCTURES AND DEWATER THE WORK AREA.
2. ESTABLISH REFERENCE ELEVATION PRIOR TO CONSTRUCTION AND CONFIRM WITH HYDRAULIC ENGINEER. REFERENCE GRADE HUB SHOULD BE ESTABLISHED OUTSIDE OF DISTURBANCE LIMITS AND USED TO CHECK STRUCTURE EMBEDDED DEPTHS. REFERENCE GRADE IS THE CHANNEL THALWEG WHERE LONGITUDINAL LOGS WILL BE INSTALLED.
3. EXCAVATE A TRENCH FOR THE TYPE D LOGS. TRENCH DEPTH SHALL BE A MINIMUM OF 2 FEET PLUS LOG DBH BELOW TOE OF THE BANK AND SHALL EXTEND A MINIMUM OF 2 FEET INTO THE FLOODPLAIN.
4. ORIENT THE TYPE D LOGS AT A MINIMUM OF 30° TO PERPENDICULAR TO THE DIRECTION OF FLOW TO ENSURE HORIZONTAL FORCE STABILITY. ORIENT THE TYPE D LOGS SO THAT THE ROOTWAD IS PARTIALLY EMBEDDED IN THE FLOODPLAIN BENCH OR 2:1 CUT SLOPE.
5. BACKFILL STRUCTURE IN 1 FT MAXIMUM LIFTS. COMPACT EACH LIFT FOLLOWING PLACEMENT USING AN EXCAVATOR BUCKET.
6. REMOVE DEWATERING AND FLOW ISOLATION STRUCTURE.



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	AGP
DRAWN BY:	AGP
APPROVED BY:	DJE
REVISION NO.:	—
DATE:	05/02/24

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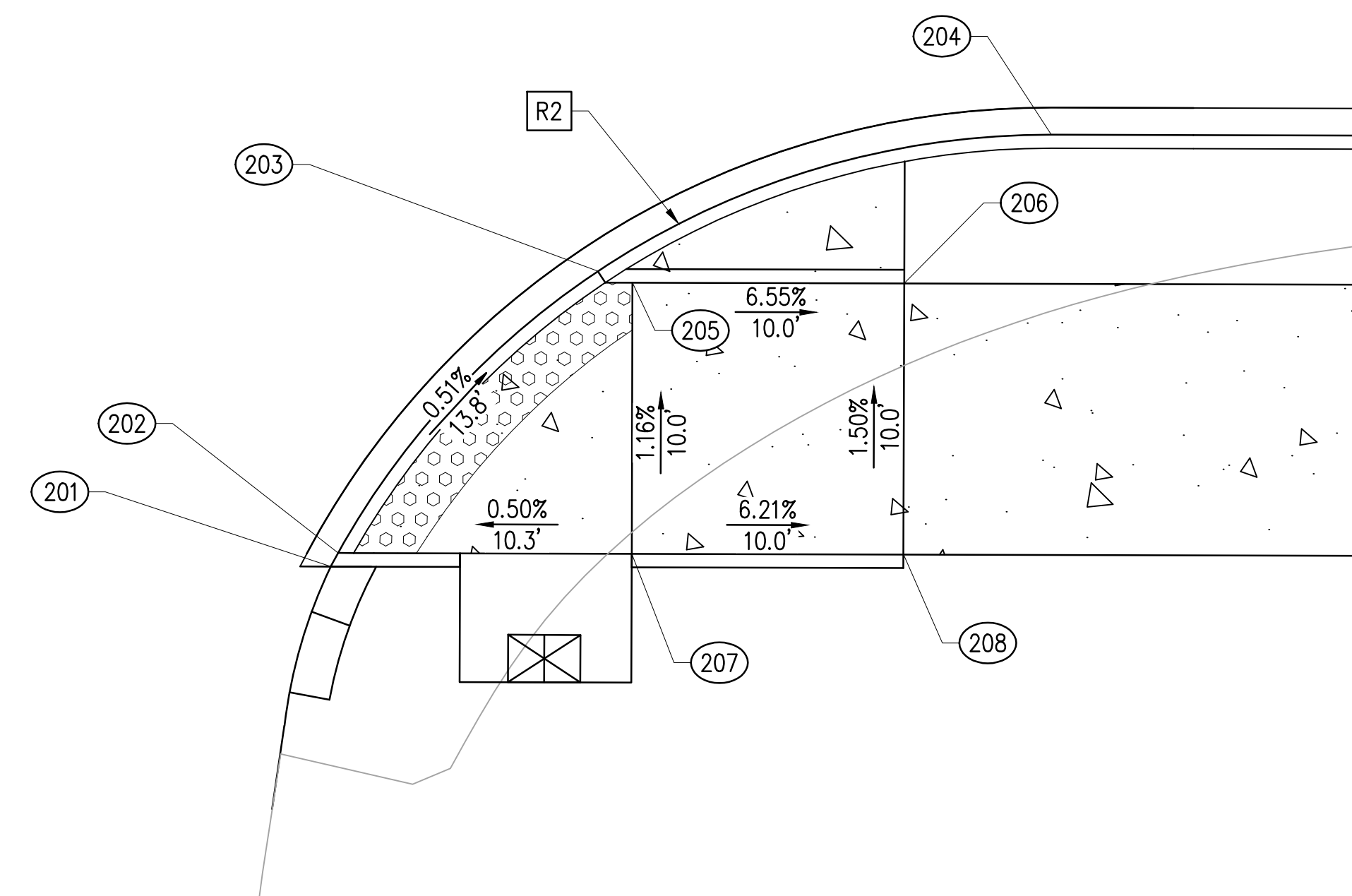
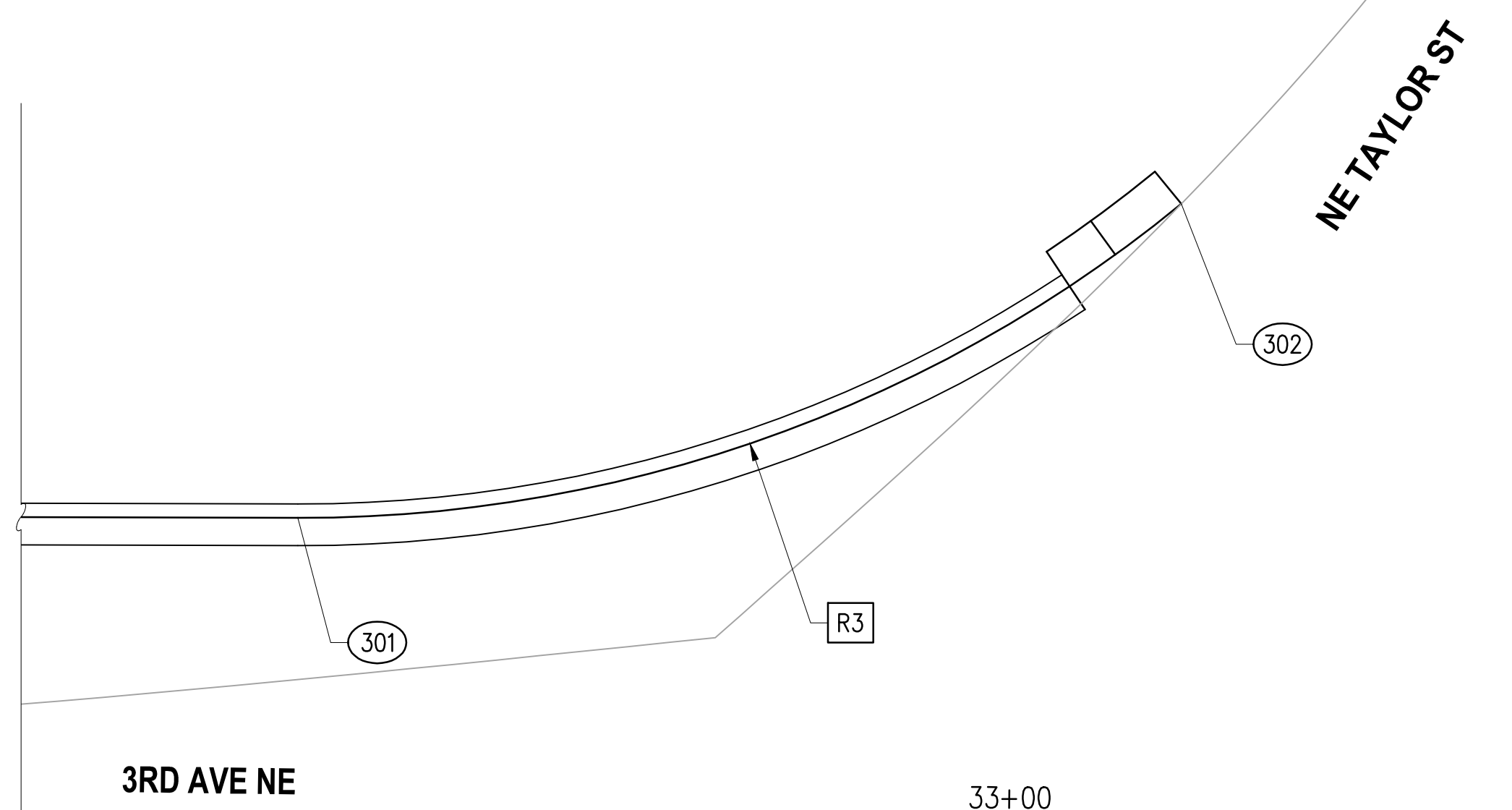
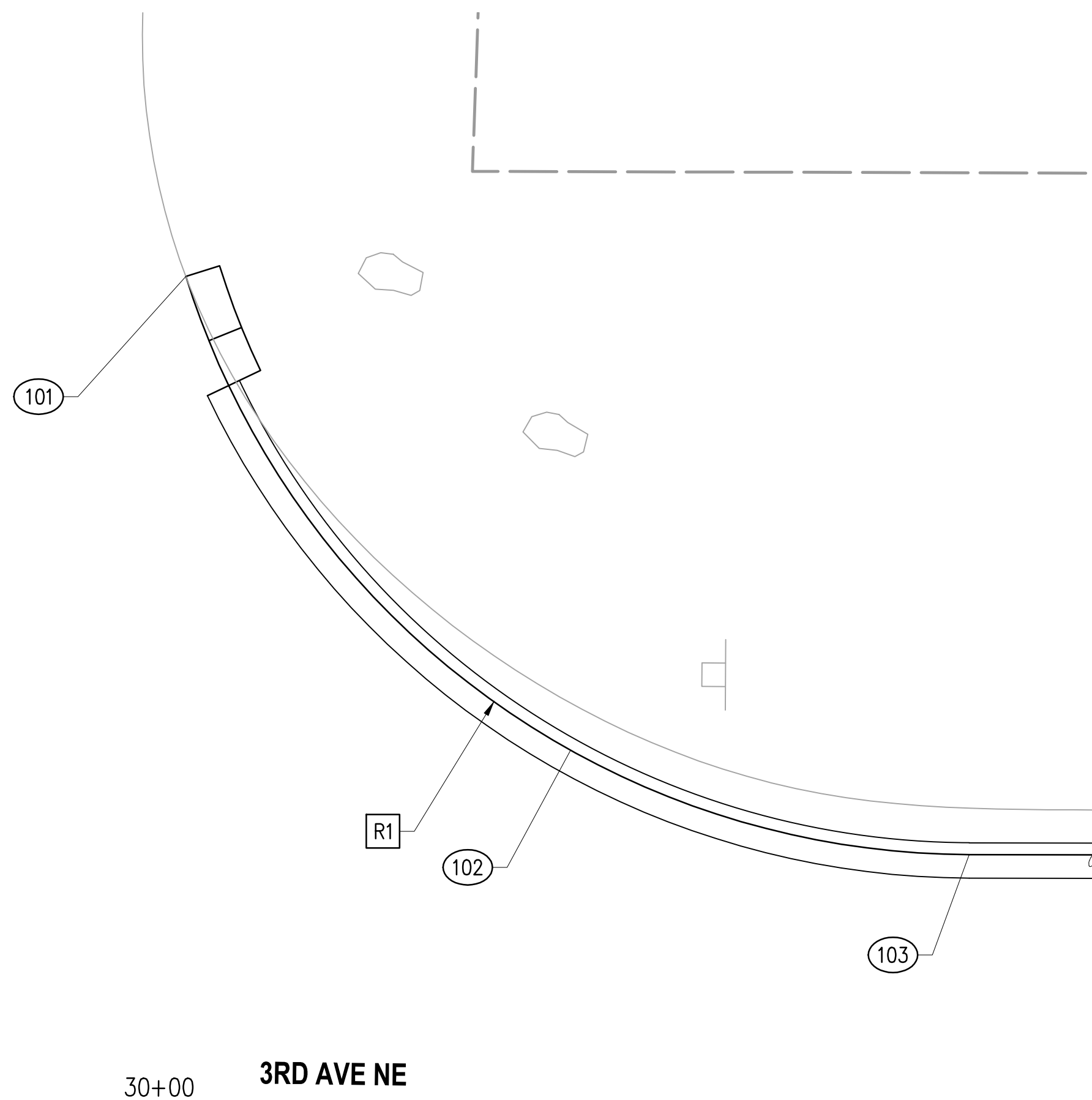
PREPARED FOR:
KPG PSOMAS, INC.

CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT
STREAM AND HABITAT FEATURE DETAILS

DRAWING NUMBER:
4.3
SHEET: 27 OF 42

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NE KENNEDY DR



CURVE TABLE			
	DELTA	RADIUS	LENGTH
R1	72°33'19"	35.00'	44.32'
R2	62°11'17"	30.00'	32.56'
R3	39°27'50"	50.00'	34.44'

GENERAL NOTES

- ALL RAMPS AND SIDEWALKS SHALL BE COMPLIANT WITH CURRENT ADA STANDARDS. COMPLIANCE SHALL BE CHECKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. ANY GRADING MODIFICATIONS REQUIRED FOR ADA COMPLIANCE SHALL BE APPROVED BY THE ENGINEER.
- ALL CASTINGS AND UTILITY COVERS LOCATED WITHIN THE PAR ARE REQUIRED TO BE NON-SLIP.

CURB LAYOUT POINTS				
NUMBER	STATION	OFFSET	ELEV	DESCRIPTION
101	30+01.16	35.50' LT	234.15	FL, PC, R=35'
102	30+17.58	15.38' LT	232.44	FL, PVI
103	30+34.55	11.00' LT	230.64	FL, PT

CURB LAYOUT POINTS				
NUMBER	STATION	OFFSET	ELEV	DESCRIPTION
201	30+02.22	27.00' RT	233.07	FL, PC, R=30'
202	30+02.49	26.50' RT	233.06	FL
203	30+12.04	16.08' RT	232.99	FL
204	30+28.75	11.00' RT	231.22	FL, PT
205	30+13.32	16.50' RT	233.00	LANDING, 6" PED CURB HEIGHT
206	30+23.34	16.50' RT	232.34	RAMP, 0" PED CURB HEIGHT
207	30+13.32	26.50' RT	233.11	LANDING, 6" PED CURB HEIGHT
208	30+23.34	26.50' RT	232.49	RAMP, 0" PED CURB HEIGHT

CURB LAYOUT POINTS				
NUMBER	STATION	OFFSET	ELEV	DESCRIPTION
301	32+74.45	10.99' LT	225.55	PC, R=50'
302	33+06.23	22.39' LT	225.90	PT

LEGEND

- YELLOW REMOVABLE DETECTABLE WARNING SURFACE PER COD STD DETAIL 3-040-006
- CEMENT CONCRETE

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

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FILENAME

JRW DATE 05/2024

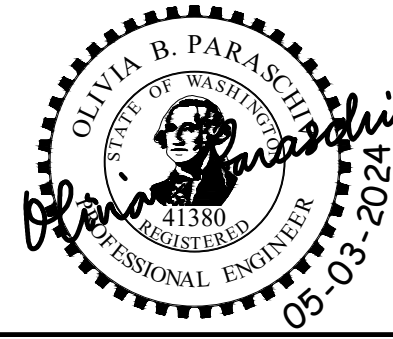
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KAB DATE 05/2024

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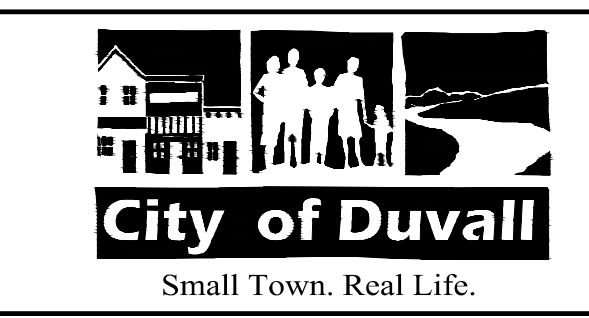
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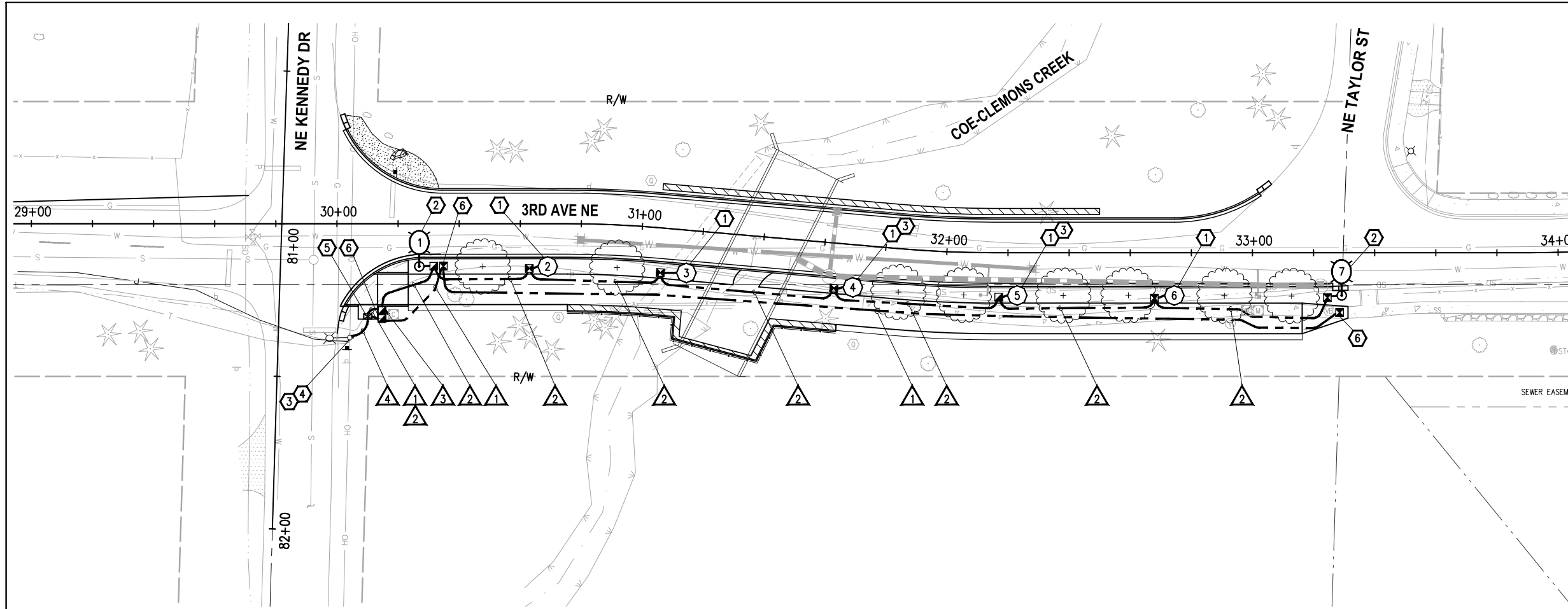


CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT

CURB RETURN AND CURB RAMP PLAN

KPG PROJECT No. 21078 SHT 28 OF 42

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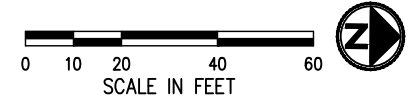


- ### GENERAL NOTES
- ALL WORK SHALL BE COMPLETED IN THE ACCORDANCE WITH WSDOT/APWA STANDARD PLANS, STANDARD SPECIFICATIONS, CITY OF DUVALL STANDARDS, PUGET SOUND ENERGY STANDARDS, THESE PLANS AND SPECIAL PROVISIONS.
 - UTILITY LOCATION (DIAL-A-DIG) PRIOR TO CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
 - THE LOCATION OF ALL CONDUIT, JUNCTION BOXES, AND LUMINAIRES SHOWN ON THIS PLAN ARE FOR GRAPHIC PRESENTATION ONLY. THE CONTRACTOR IS ALLOWED TO INSTALL CONDUIT IN THE JOINT UTILITY TRENCH WHERE PRACTICABLE. FINAL LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER IN THE FIELD.
 - CONTRACTOR SHALL COORDINATE WITH POWER COMPANY REPRESENTATIVE (PSE), ABDUL KAMEL AT (253) 258-8879 REGARDING THE ELECTRICAL SERVICE CONNECTION AND INSTALLATION OF THE METER BASE.
 - NUMBER OF CONDUIT BENDS BETWEEN PULL POINTS SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL). IF NUMBER OF BENDS EXCEEDS 360 DEGREES, THE CONTRACTOR SHALL INSTALL ADDITIONAL JUNCTION BOXES, AS REQUIRED.
 - ALL NEW JUNCTION BOXES INSTALLED IN SIDEWALKS SHALL HAVE LOCKING AND SKID RESISTANT COATED LIDS AND FRAMES. JUNCTION BOXES SHALL NOT BE PLACED IN ADA CURB RAMPS OR ADA CURB RAMP LANDINGS.
 - THE LOCATION OF ALL FEATURES TO BE INSTALLED BY THE CONTRACTOR SHALL BE VERIFIED IN FIELD BY THE ENGINEER PRIOR TO INSTALLATION.
 - EXISTING OR HIGHER ILLUMINATION LEVELS, SHALL BE MAINTAINED BY THE CONTRACTOR DURING THE CONSTRUCTION, BY USING EXISTING OR TEMPORARY ILLUMINATION UNTIL THE NEW SYSTEM IS OPERATIONAL.

- ### CONSTRUCTION NOTES
- CONSTRUCT FOUNDATION PER WSDOT STD PLAN J-28.30 (TYPE A) EXCEPT USE 4-BOLT BASE PLATE CONFIGURATION PER DETAIL SHEET 30 (TOP OF FOUNDATION SHALL MATCH BOTTOM OF SIDEWALK - PROVIDE ADDITIONAL 4" TO ANCHOR BOLT LENGTH, OR MATCH TOP OF SOFTSCAPE WHERE APPLICABLE). FURNISH AND INSTALL DECORATIVE PEDESTRIAN LUMINAIRE POLE, POST TOP DECORATIVE PEDESTRIAN LED LUMINAIRE, DECORATIVE BASE, AND ALL ASSOCIATED EQUIPMENT PER DETAILS SHEET 30. FOR ADDITIONAL LUMINAIRE DETAILS SEE LUMINAIRE SCHEDULE, THIS SHEET. JUNCTION BOX, CONDUIT AND POLE BASE WIRING SHALL BE PER WSDOT STD PLAN J-28.70 (CONDUIT SHALL BE 2" PVC AND WIRING SHALL BE 3-#6 AND 2-#8 AWG). SEE SPECIAL PROVISIONS.
 - CONSTRUCT FOUNDATION PER WSDOT STD PLAN J-28.30 (TYPE A) EXCEPT USE 4-BOLT BASE PLATE CONFIGURATION PER DETAIL SHEET 30 (TOP OF FOUNDATION SHALL MATCH BOTTOM OF SIDEWALK - PROVIDE ADDITIONAL 4" TO ANCHOR BOLT LENGTH, OR MATCH TOP OF SOFTSCAPE, WHERE APPLICABLE). FURNISH AND INSTALL ROADWAY LUMINAIRE POLE, COBRA HEAD TYPE LED LUMINAIRE AND ALL ASSOCIATED EQUIPMENT PER DETAILS SHEET 30. FOR ADDITIONAL LUMINAIRE DETAILS SEE LUMINAIRE SCHEDULE, THIS SHEET. JUNCTION BOX, CONDUIT AND POLE BASE WIRING SHALL BE PER WSDOT STD PLAN J-28.70 (CONDUIT SHALL BE 2" PVC AND WIRING SHALL BE 3-#6 AND 2-#8 AWG). SEE SPECIAL PROVISIONS.
 - LOCATION OF PSE POWER SOURCE AT EXISTING TRANSFORMER. CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT RISER ON POLE PER PSE HANDBOOK. INSTALL WIRING TO TOP OF RISER AND COIL 30'. COORDINATE FEEDER WIRE TERMINATION WITH PSE REPRESENTATIVE PRIOR TO TRENCHING. SEE SPECIAL PROVISIONS.
 - EXISTING TIMBER UTILITY POLE MOUNTED LUMINAIRE TO REMAIN.
 - CONSTRUCT ELECTRICAL SERVICE CABINET FOUNDATION PER WSDOT STD PLAN J-10.10. FURNISH AND INSTALL TYPE D ELECTRICAL SERVICE CABINET PER WSDOT STD PLAN J-10.21. CIRCUITS SHALL MATCH PANEL SCHEDULE PER SHEET 30. VERIFY FINAL LOCATION WITH THE ENGINEER IN THE FIELD. COORDINATE ELECTRICAL METER BASE INSTALLATION WITH THE PSE REPRESENTATIVE. SEE SPECIAL PROVISIONS.
 - JUNCTION BOX FOR SPARE CONDUIT SYSTEM AND FUTURE CONNECTIONS.

LEGEND

EXISTING	NEW	DESCRIPTION
		DECORATIVE PEDESTRIAN LUMINAIRE
		ROADWAY LUMINAIRE
		ELECTRICAL SERVICE CABINET
		JUNCTION BOX TYPE 1, 2
		IRRIGATION CONTROLLER
		CONDUIT
		WIRE NOTE
		CONSTRUCTION NOTE



LUMINAIRE SCHEDULE

LUMINAIRE #	STATION	OFFSET	LUMINAIRE TYPE	LUMINAIRE ARM	MOUNTING HEIGHT	BASE	CIRCUIT #	COMMENTS
1	30+27	14.0' RT	COBRA RDWY 85W, LED, II, 3000K, B1-U2-G2, 240V	6'	25'	FIXED	1	INSTALL HOUSE SIDE SHIELD
2	30+69	14.0' RT	DEC PED 25W, LED, II, 3000K, B1-U0-G1, 240V	-	15'	FIXED	1	ORIENT TOWARDS SHARED USE PATH
3	31+16	14.0' RT	DEC PED 60W, LED, III, 3000K, B1-U0-G1, 240V	-	15'	FIXED	1	INSTALL HOUSE SIDE SHIELD
4	31+70	13.9' RT	DEC PED 25W, LED, II, 3000K, B1-U0-G1, 240V	-	15'	FIXED	1	ORIENT TOWARDS SHARED USE PATH
5	32+23	14.0' RT	DEC PED 60W, LED, III, 3000K, B1-U0-G1, 240V	-	15'	FIXED	1	
6	32+74	14.0' RT	DEC PED 25W, LED, II, 3000K, B1-U0-G1, 240V	-	15'	FIXED	1	ORIENT TOWARDS SHARED USE PATH
7	33+29	14.0' RT	COBRA RDWY 60W, LED, III, 3000K, B1-U1-G2, 240V	6'	25'	FIXED	1	INSTALL HOUSE SIDE SHIELD

WIRE NOTES

WIRE #	RACEWAY/ CONDUIT SIZE	CONDUCTORS	COMMENTS
1	2"		SPARE
2	2"	2-#8 (ILLUM), 2-#6 (REC)	
3	3"	2-#6 (IRR)	
4	3"	3-#3/0	FEEDER, NO GROUND

- ### NOTES
- ALL NEW CONDUITS CONTAINING CONDUCTORS SHALL CONTAIN GROUND WIRE (NOT SHOWN IN THE TABLE ABOVE). GROUND WIRE SIZE SHALL MATCH THE LARGEST CONDUCTOR (MIN #8 AWG OR AS NOTED OTHERWISE IN THE WIRE NOTES). SPARE/EMPTY CONDUITS SHALL CONTAIN DETECTABLE PULL TAPE AND SHALL BE LABELED CITY OF DUVALL CONDUIT.
 - ALL NEW CONDUIT SHALL BE RIGID PVC SCH 80.

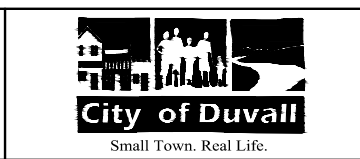
NO.	DATE	BY	APPR.	REVISIONS

Approved By		21078CCC_ILL.dwg
ENGINEERING MANAGER	DATE	EH 05/2024
PROJECT MANAGER	DATE	EH 05/2024
PROJECT ENGINEER	DATE	JC 05/2024
	CHECKED BY	DATE



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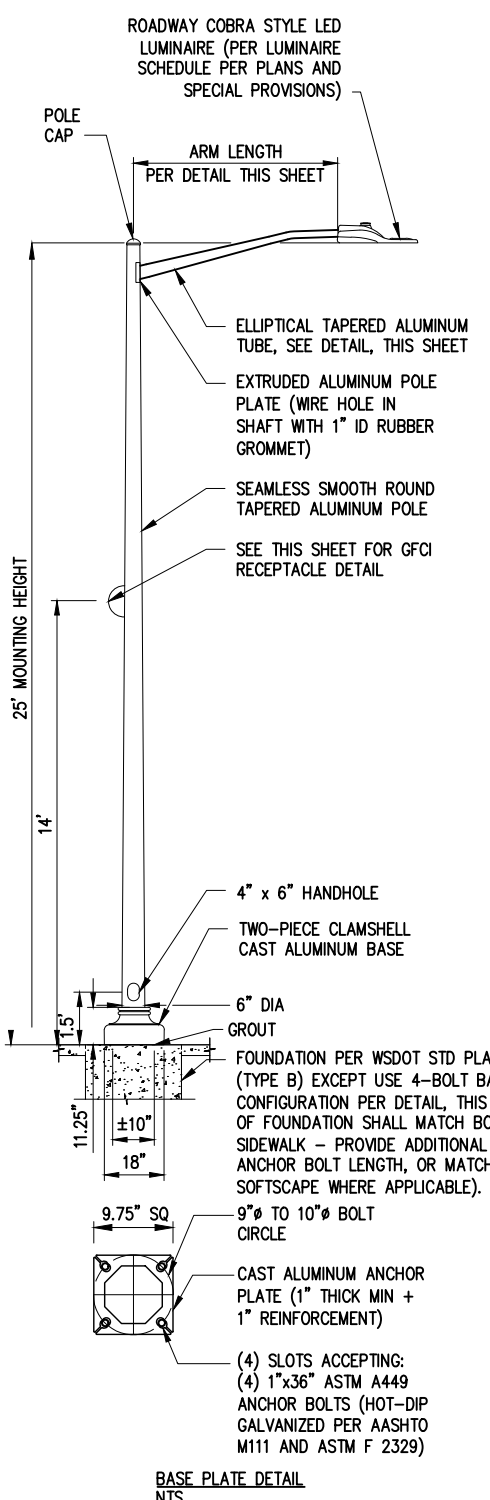
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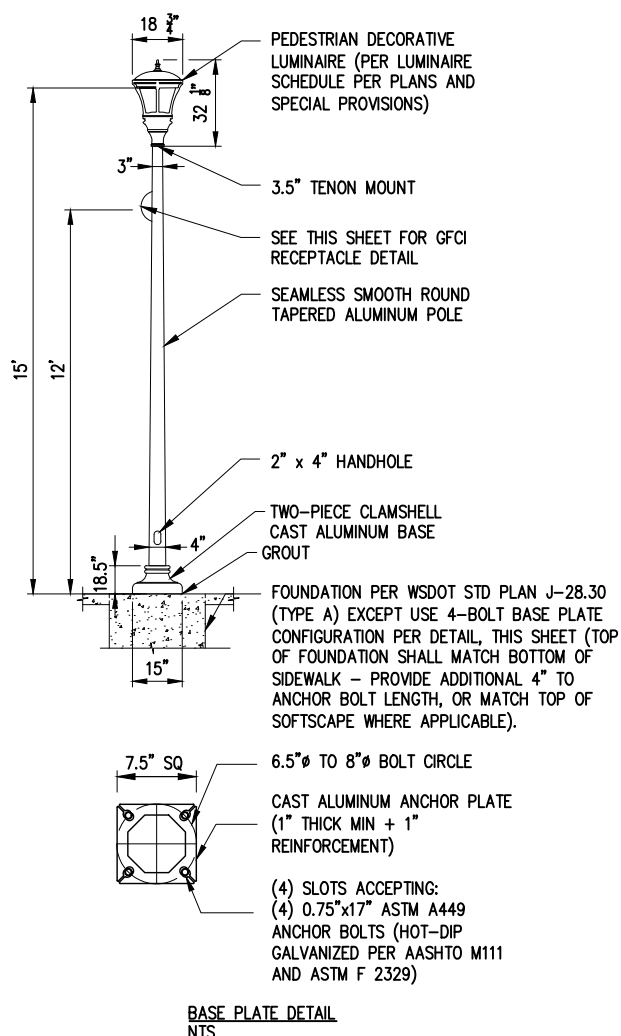
**CITY OF DUVALL
 COE-CLEMONS CREEK CULVERT
 REPLACEMENT**

ILLUMINATION PLAN
 KPG PROJECT No. 21078 SHT 29 OF 42

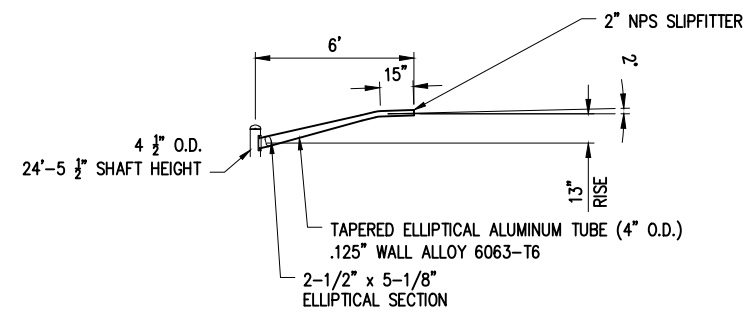
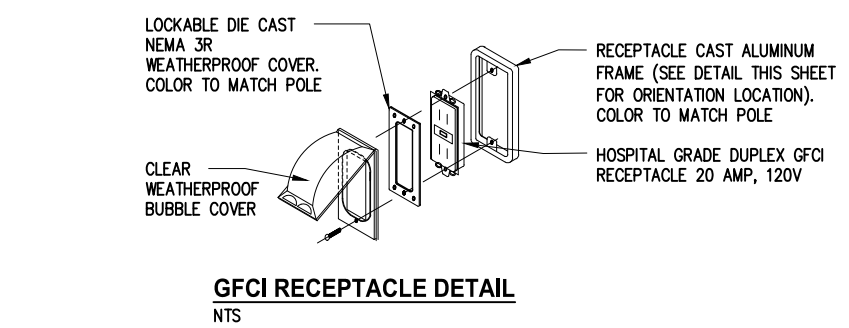
PAINT SPECIFICATIONS:
 ALL ALUMINUM POLE COMPONENTS AND LUMINAIRE FIXTURES SHALL BE FACTORY POWDER COATED WITH PRIMER AND FINISH PAINT. FOR PAINT COLOR AND APPLICATION PROCESS, SEE SECTION 6-07 OF THE SPECIAL PROVISIONS.



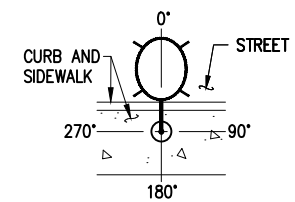
ROADWAY LUMINAIRE POLE DETAIL
 NTS



PEDESTRIAN LUMINAIRE POLE DETAIL
 NTS



ROADWAY LUMINAIRE ARM DETAIL
 NTS



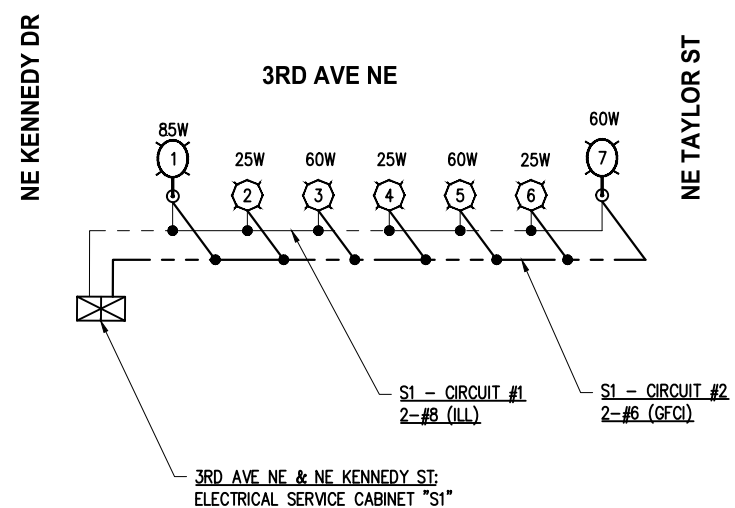
HANDHOLE & RECEPTACLE ORIENTATION
 1. HANDHOLE ACCESS DOOR SHALL BE MOUNTED AT 90°
 2. RECEPTACLE SHALL BE MOUNTED AT 180°

PANEL SCHEDULE

#	S1	LOCATION: 3RD AVE NE & NE 145TH ST SERVING: ILLUMINATION, RECEPTACLES, IRRIGATION	VOLTS: 120/240 MAIN BREAKER: 100 AMPS	PHASE: 1 WIRE: 3			
CKT #	LOAD DESCRIPTION	KVA	TRIP AMPS	TRIP AMPS	KVA	LOAD DESCRIPTION	CKT #
1	ILLUMINATION (1,2,3,4,5,6,7)	0.4	20	20	1.8	RECEPTACLE (1,2,3,4,5,6,7)	2
5	FUTURE ILLUMINATION	-	20	20	-	FUTURE RECEPTACLE	4
9	FUTURE ILLUMINATION	-	20	20	0.5	IRRIGATION	8
13	SPARE	-	-	-	0.3	CABINET GFCI RECEPTACLE	10
17	SPARE	-	-	-	0.3	CONTROL (PHOTOCELL)	12
					-	SPARE	14
					-	SPARE	16
					-	SPARE	18
REMARKS:		CONNECTED LOAD: 3.3 KVA		13.8 AMPS			
		DEMAND LOAD (125%): 4.1 KVA		17.2 AMPS			

ONE-LINE DIAGRAM LEGEND

- NEW** DESCRIPTION
- ROADWAY LUMINAIRE
- DECORATIVE PEDESTRIAN LUMINAIRE
- ELECTRICAL SERVICE CABINET
- WIRE SPLICE



ONE-LINE DIAGRAM
 NTS

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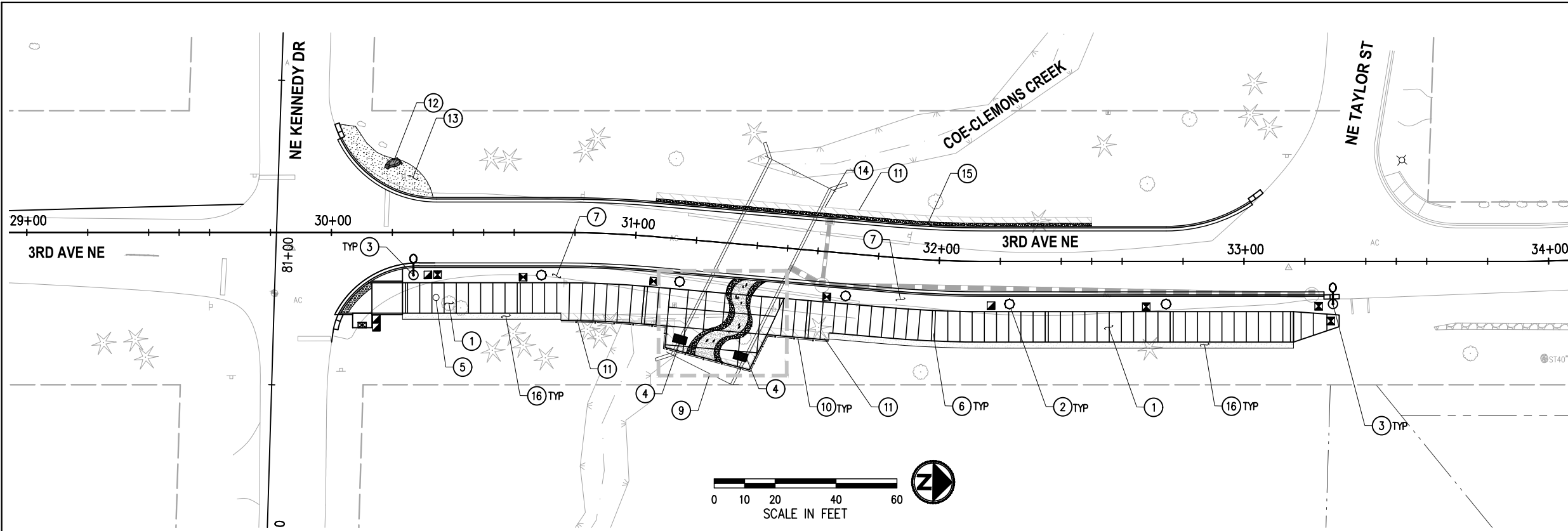
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 REPLACEMENT**

ILLUMINATION DETAILS

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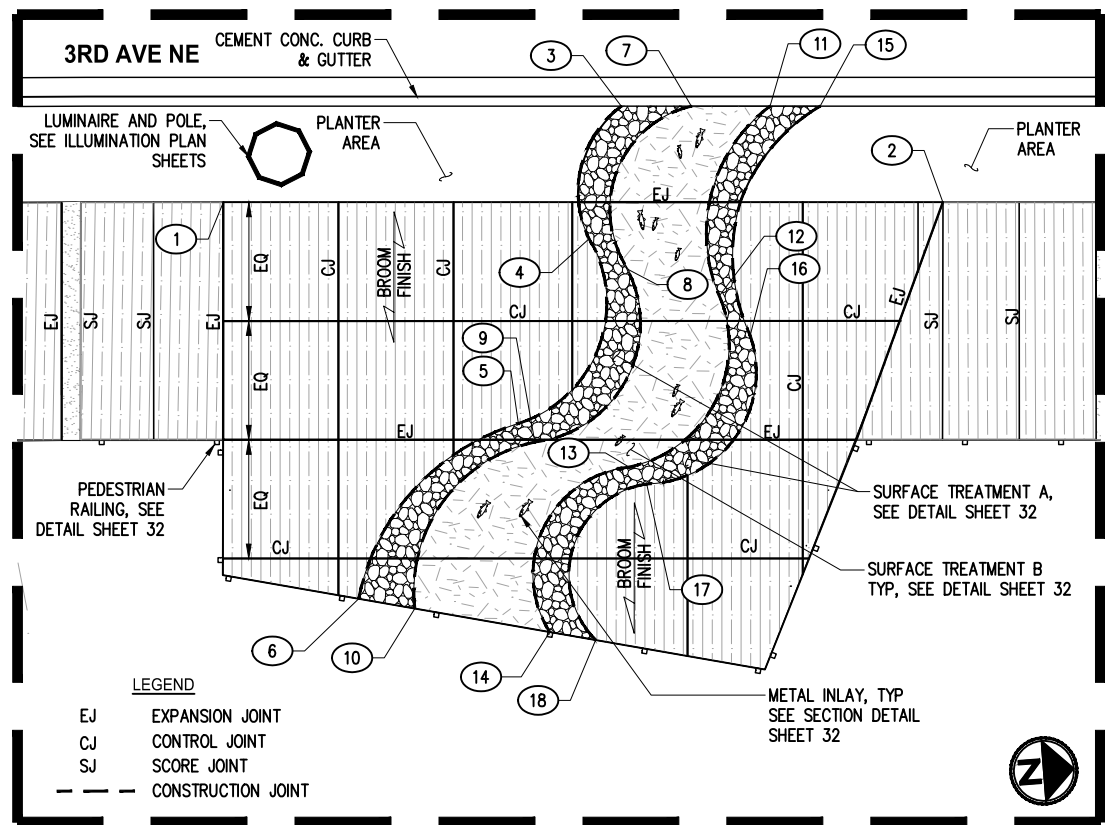


GENERAL NOTES

1. STATION/OFFSET SHALL BE LOCATED AT CENTER OF FEATURE UNLESS OTHERWISE NOTED.

CONSTRUCTION NOTES

- 1 CEMENT CONC. SIDEWALK. SEE URBAN DESIGN DETAIL SHEET 32.
- 2 DECORATIVE PEDESTRIAN LUMINAIRE & POLE. SEE ILLUMINATION DETAILS, SHEET 29.
- 3 DECORATIVE ROADWAY LUMINAIRE & POLE. SEE ILLUMINATION DETAILS, SHEET 30.
- 4 METAL BENCH. SEE URBAN DESIGN DETAIL SHEET 32.
- 5 SHARED USE PATH MARKER. SEE URBAN DESIGN DETAIL SHEET 34.
- 6 ACCENT BAND TREATMENT. SEE URBAN DESIGN DETAIL SHEET 32.
- 7 PLANTER. SEE LANDSCAPE PLANS AND DETAILS, SHEETS 35-37.
- 9 SURFACE TREATMENTS. SEE OVERLOOK ENLARGEMENT LAYOUT PLAN ON THIS SHEET AND URBAN DESIGN DETAIL SHEET 32.
- 10 PEDESTRIAN RAILING. SEE URBAN DESIGN DETAIL SHEET 33.
- 11 RETAINING WALL. SEE STRUCTURAL PLANS, SHEET 14-19.
- 12 BOULDER BENCH. SEE URBAN DESIGN DETAIL SHEET 34.
- 13 CSTC; SEE URBAN DESIGN DETAIL SHEET 34.
- 14 SINGLE SLOPED MOMENT SLAB BARRIER WITH DECORATIVE FORM LINER FINISH, SEE STRUCTURAL PLANS.
- 15 SURFACE TREATMENT A. SEE URBAN DESIGN DETAIL, SHEET 32.
- 16 CRUSHED SURFACING TOP COURSE. SEE TYPICAL ROADWAY SECTION, SHEET 4.



ENLARGEMENT OVERLOOK LAYOUT PLAN

SURFACE TREATMENT JOINT POINTS

NUMBER	STATION	OFFSET
3	31+33.46	11.50' RT
4	31+31.79	18.40' RT
5	31+28.10	28.03' RT
6	31+19.78	37.16' RT
7	31+37.11	11.50' RT
8	31+33.21	18.77' RT
9	31+29.66	28.87' RT
10	31+22.71	37.67' RT
11	31+41.21	11.50' RT
12	31+38.57	21.39' RT
13	31+33.87	30.30' RT
14	31+29.73	38.89' RT
15	31+43.82	11.50' RT
16	31+39.87	22.69' RT
17	31+34.79	31.18' RT
18	31+32.13	39.31' RT

EXPANSION JOINT POINTS

NUMBER	STATION	OFFSET
1	31+12.73	16.50' RT
2	31+50.21	16.50' RT

METAL BENCH SCHEDULE

STATION	OFFSET
31+17.28	32.95' RT
31+37.74	36.75' RT

SHARED USE PATH MARKER SCHEDULE

STATION	OFFSET
30+34.35	21.35' RT

LEGEND
 EJ EXPANSION JOINT
 CJ CONTROL JOINT
 SJ SCORE JOINT
 --- CONSTRUCTION JOINT

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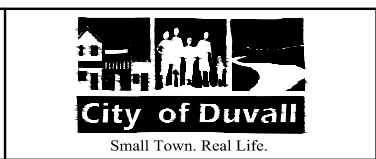
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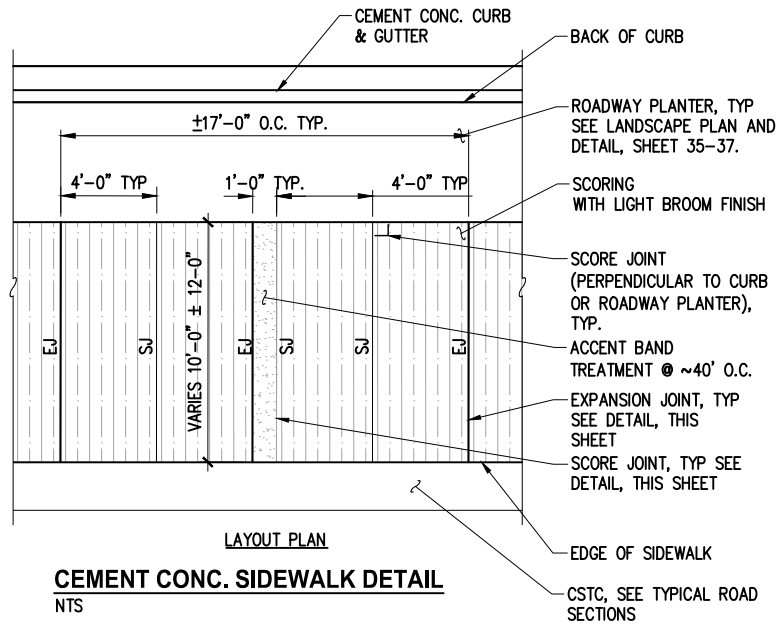
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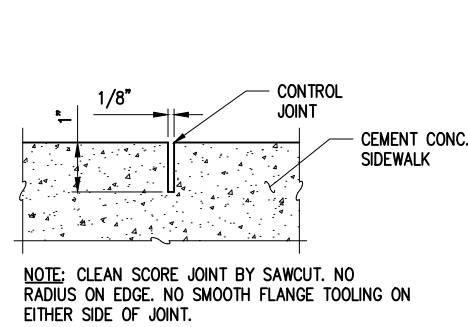
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URBAN DESIGN PLAN
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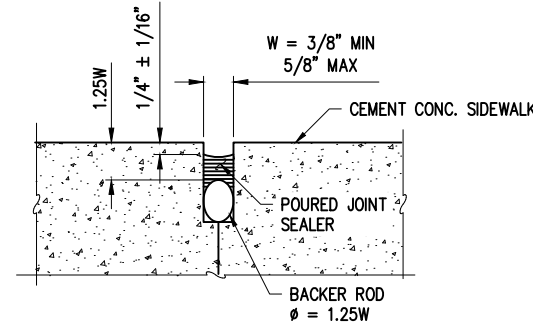
NOTE:
WIDEN 4' WIDE SCORING ALONG OUTSIDE OF RADIUS
ALONG CURVE SECTIONS.



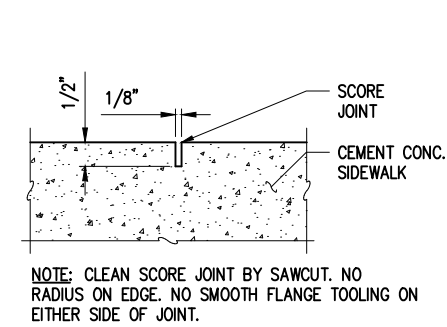
CEMENT CONC. SIDEWALK DETAIL
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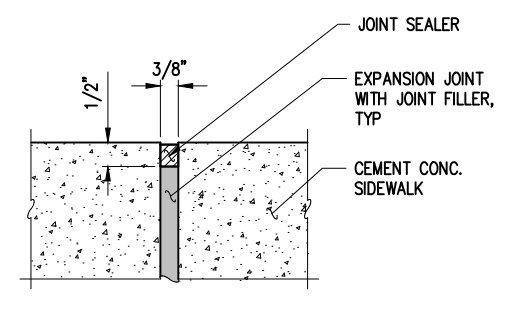
CONTROL JOINT DETAIL
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CONSTRUCTION JOINT DETAIL
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SCORE JOINT DETAIL
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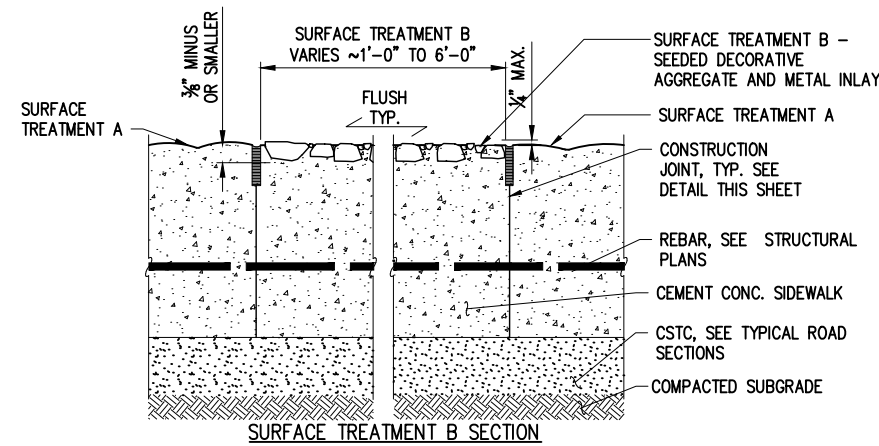
EXPANSION JOINT DETAIL
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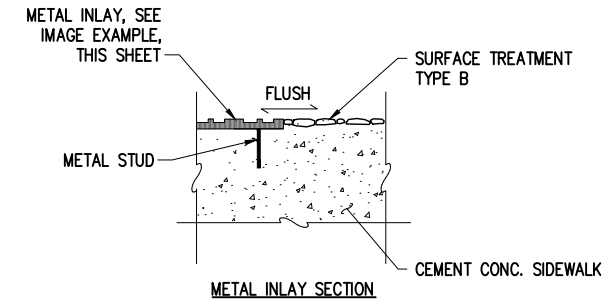
IMAGE EXAMPLE OF SURFACE TREATMENT A



IMAGE EXAMPLE OF SURFACE TREATMENT B



SURFACE TREATMENT B SECTION



METAL INLAY SECTION

1/4" THICK CAST BRONZE METAL INLAY, TYP. RANGING FROM 8" TO 12" BY 3" TO 5" IN SIZE (10 TOTAL)
1/4" DIA X 2 1/2" LENGTH METAL STUD ON UNDERNEATH SIDE



IMAGE EXAMPLE OF METAL INLAY

METAL INLAY DETAIL
NTS

SURFACE TREATMENTS AT COE-CLEMONS CREEK OVERLOOK
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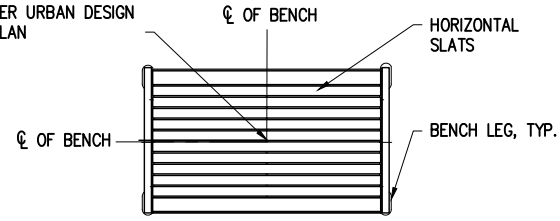
URBAN DESIGN DETAILS
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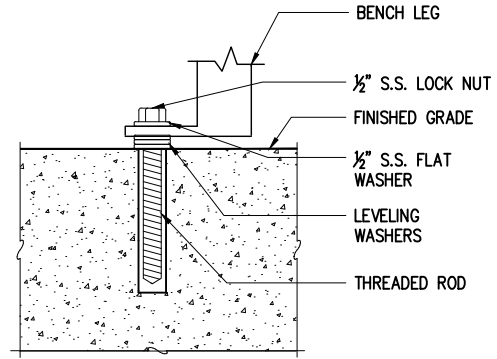
NOTES:

- ENGINEER TO VERIFY EXACT LOCATION AND ORIENTATION OF METAL BENCH PRIOR TO INSTALLATION.
- INSTALL METAL BENCH, LEVEL AND PLUMB.

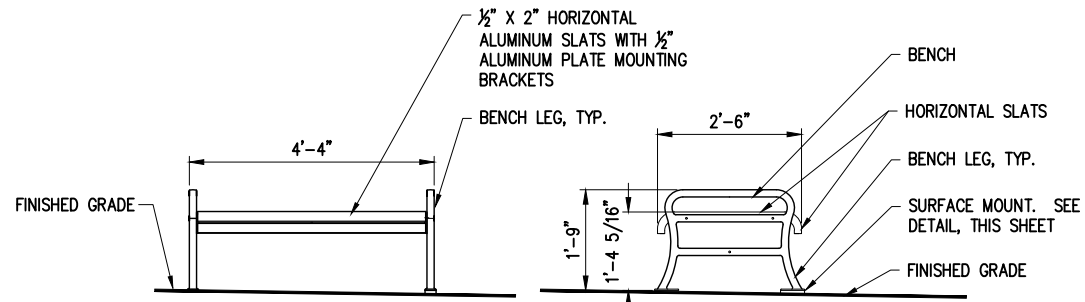
STATION/OFFSET REFERENCING POINT PER URBAN DESIGN PLAN



PLANT VIEW



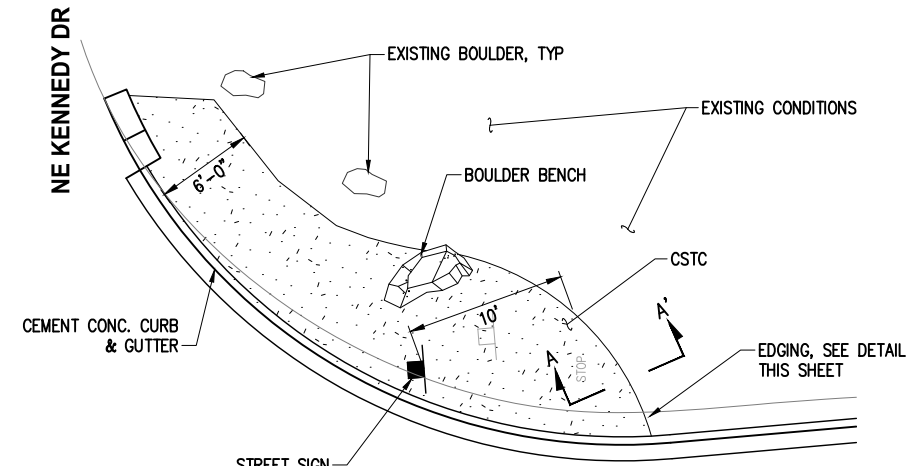
SURFACE MOUNT DETAIL
NTS



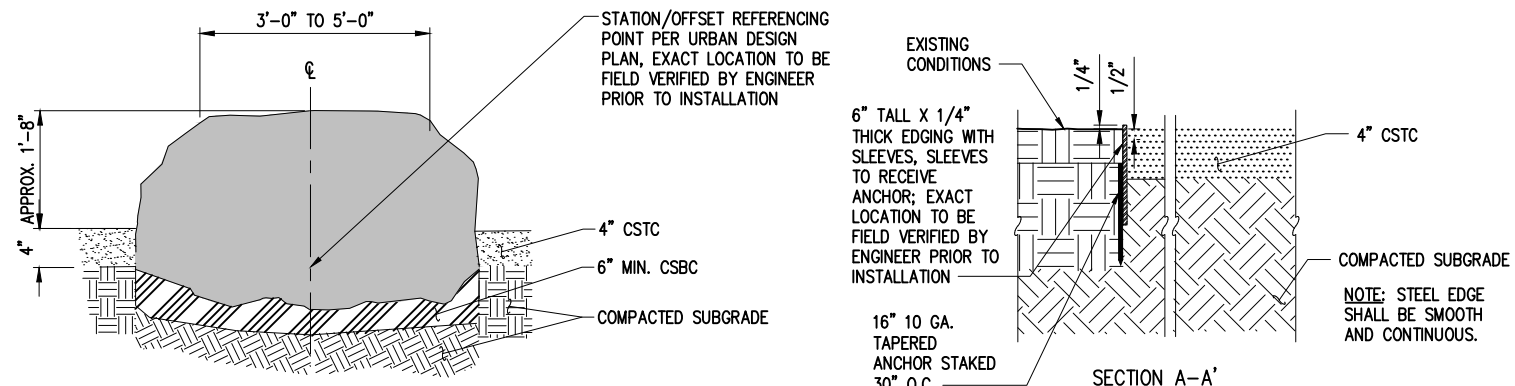
FRONT ELEVATION

SIDE ELEVATION

METAL BENCH DETAIL
NTS

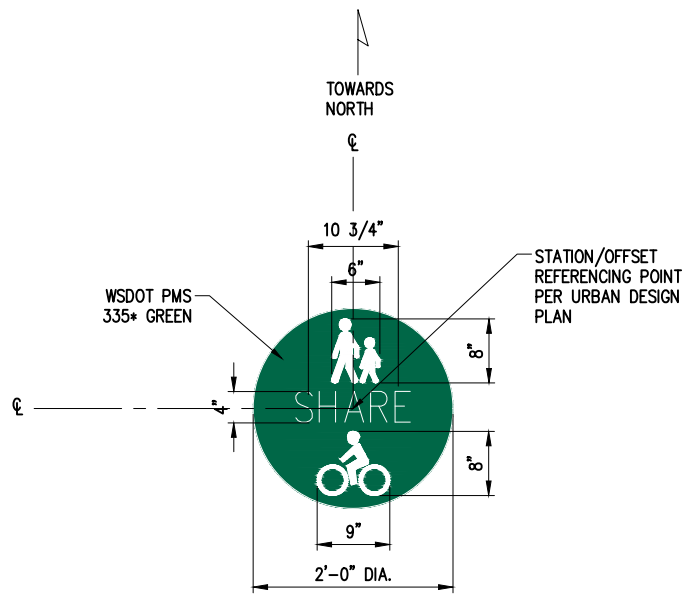


LAYOUT PLAN



BOULDER BENCH FRONT ELEVATION
NTS

BOULDER BENCH DETAIL
NTS



SHARED USE PATH MARKER LAYOUT DETAIL
NTS

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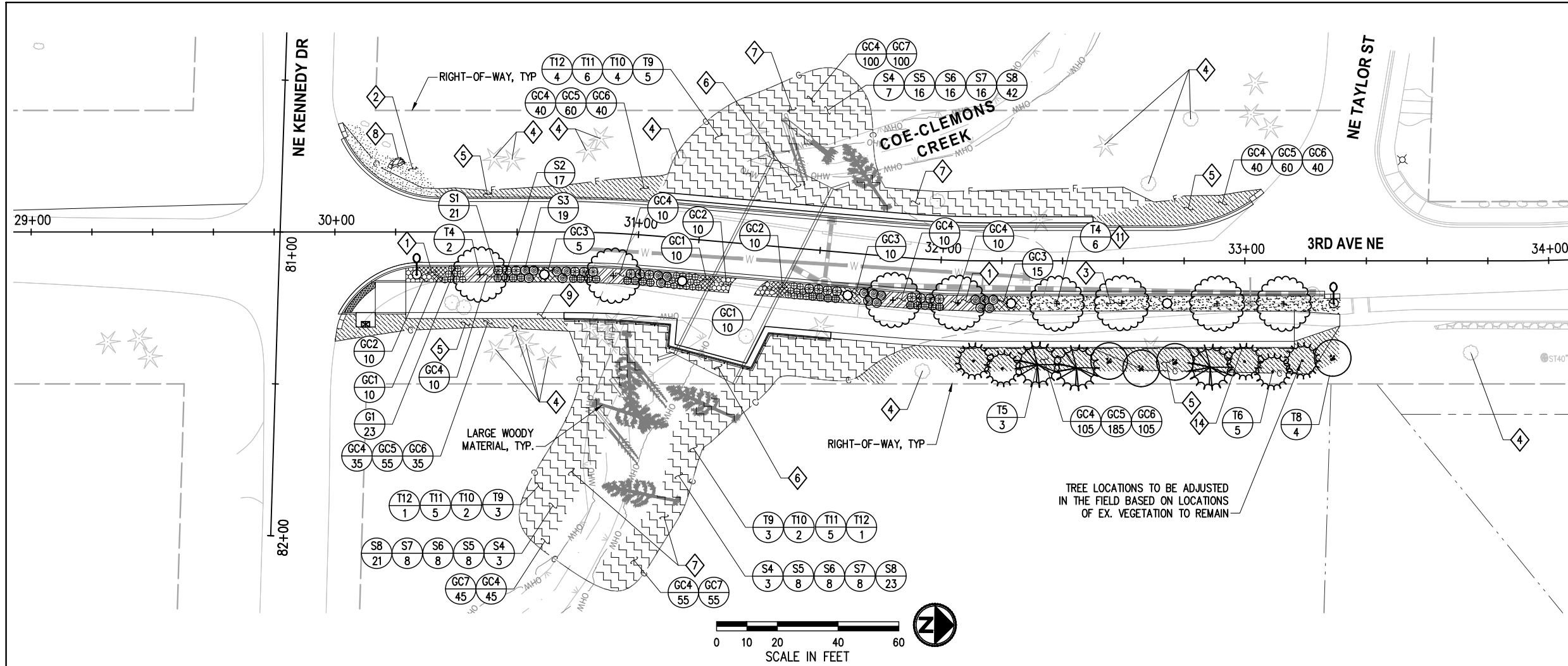
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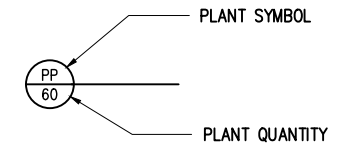
URBAN DESIGN DETAILS
URBAN DESIGN DETAIL
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CONSTRUCTION NOTES

- 1 ROADWAY PLANTER; INSTALL 12" TOPSOIL TYPE A AS OUTLINED IN THE SPECIAL PROVISIONS, AND TOPDRESS WITH 3" BARK OR WOOD CHIP MULCH, TYP.
- 2 4" CSTC; SEE DETAIL, SHEET 34.
- 3 SOD LAWN AREA; INSTALL 12" TOPSOIL TYPE A AS OUTLINED IN THE SPECIAL PROVISIONS.
- 4 EXISTING TREE TO REMAIN. SAVE AND PROTECT PER DETAIL, SHEET 7.
- 5 BACK-OF-WALK PLANTER; AMEND NATIVE SOIL WITH 3" FINE COMPOST AND INSTALL 3" ARBORIST WOOD CHIP MULCH OVER ENTIRE DISTURBED AREA, TYP.
- 6 INSTALL TOPSOIL TYPE A ABOVE CULVERT TO MIN. 12" DEPTH AT BACK OF HEADWALL AND SLOPE UP AT A MIN. 6% TO WALL FACE. FEATHER TO CREATE A SMOOTH TRANSITION TO ADJACENT SOIL FINISH GRADE IN A MANNER THAT PROMOTES POSITIVE DRAINAGE AWAY FROM WALL. SEE STRUCTURAL PLANS. TOPDRESS WITH 3" ARBORIST WOOD CHIP MULCH. NO TREES SHALL BE PLANTED ABOVE CULVERT.
- 7 STREAM RESTORATION PLANTING; AMEND NATIVE SOIL WITH 3" FINE COMPOST AS OUTLINED IN THE SPECIAL PROVISIONS AND TOPDRESS WITH 3" ARBORIST WOOD CHIP MULCH, TYP. INSTALL BIODEGRADABLE EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1, TYP.
- 8 BOULDER BENCH; SEE DETAIL, SHEET 34.
- 9 SHOULDER; SEE TYPICAL SECTIONS, SHEET 4.
- 11 INSTALL MULCH RING PER DETAIL, SHEET 37.
- 14 INSTALL 110 LF OF ROOT BARRIER, TIGHT TO BACK OF GRAVEL SHOULDER, CENTERED ON TREE GROUPING AS SHOWN; SEE DETAIL, SHEET 37.



SEE SHEET 36-37 FOR PLANTING SCHEDULE, DETAILS, AND GENERAL NOTES.

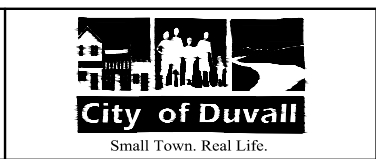
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LANDSCAPE PLAN	
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










TREE SCHEDULE

SYMBOL	BOTANICAL NAME/ COMMON NAME	QTY	SIZE	REMARKS
STREET TREE				
	T4 CORNUS KOUSA X NUTTALLII 'KN4-43' / STARLIGHT DOGWOOD	8	2.75" CAL. 12'-14' HT.	B&B, WELL BRANCHED
BACK-OF-WALK RESTORATION TREES				
	T5 PSEUDOTSUGA MENZIESII / DOUGLAS FIR	3	8'-10' HT.	B&B, WELL BRANCHED
	T6 THUJA PLICATA 'EXCELSA' / EXCELSA WESTERN RED CEDAR	5	8'-10' HT.	B&B, WELL BRANCHED
	T8 RHAMNUS PURSHIANA / CASCARA	4	6'-8' HT.	3-5 CANES MIN. 1" MIN. CAL. PER CANE

GENERAL NOTES

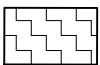
- ALL PLANT MATERIALS SHALL MEET THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 MOST CURRENT VERSION.
- PLAN, MAINTAIN AND WARRANTY PER SECTION 8-02 OF THE SPECIAL PROVISIONS.
- DO NOT SUBSTITUTE SPECIES WITHOUT THE APPROVAL OF THE CITY.
- INSTALL 3" ARBORIST WOOD CHIP MULCH OVER ALL DISTURBED AREAS NOT BEING PLANTED OR SEEDED, UNLESS OTHERWISE NOTED.
- PROPERTY RESTORATION TO BE DONE AS DIRECTED BY THE CITY.
- ALL STREET TREES SHALL MEET WSDOT "STREET TREE GRADE" STANDARD AND SHALL BRANCH AT MIN 6' HT. ABOVE FINISH GRADE.

ROADWAY AND BACK-OF-WALK PLANT SCHEDULE

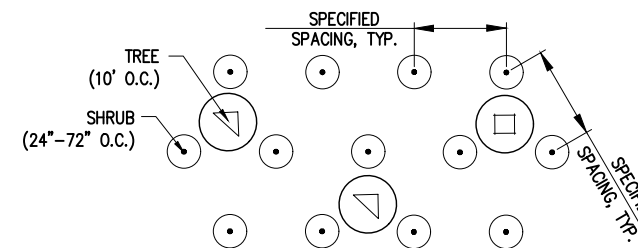
SYMBOL	BOTANICAL NAME/ COMMON NAME	QTY	SIZE	REMARKS
SHRUBS				
	S1 CORNUS SERICEA 'KELSEY' / KELSEY'S DWARF RED TWIG DOGWOOD	21	2 GAL CONT.	30" O.C. TRI. SP. TYP.
	S2 VACCINIUM OVATUM 'VACSID 1' / SCARLET OVATION EVERGREEN HUCKLEBERRY	17	2 GAL CONT.	36" O.C. TRI. SP. TYP.
	S3 SPIRAEA BETULIFOLIA VAR. LUCIDA / BIRCHLEAF SPIREA	19	2 GAL CONT.	36" O.C. TRI. SP. TYP.
GRASSES, PERENNIALS & GROUNDCOVERS				
	G1 DESCHAMPسيا CESPITOSA / TUFTED HARIGRASS	32	1 GAL CONT.	24" O.C. TRI. SP. TYP.
	GC1 ACHILLEA MILLEFOLIUM / COMMON YARROW	30	1 GAL CONT.	18" O.C. TRI. SP. TYP.
	GC2 ARMERIA MARITIMA / SEA THRIFT	30	1 GAL CONT.	18" O.C. TRI. SP. TYP.
	GC3 ARCTOSTAPHYLOS UVA-URSI / KINNIKINNICK	30	1 GAL CONT.	18" O.C. TRI. SP. TYP.
	GC4 POLYSTICHUM MUNITUM / WESTERN SWORD FERN	40	1 GAL CONT.	24" O.C. TRI. SP. TYP.
BACK-OF-WALK PLANTS				
	GC5 FRAGARIA VESCA / WOODLAND STRAWBERRY*	360	4" POT	15" O.C. TRI. SP. TYP.
	GC6 MAHONIA NERVOSA / LOW OREGON GRAPE*	220	1 GAL CONT.	24" O.C. TRI. SP. TYP.
	GC4 POLYSTICHUM MUNITUM / WESTERN SWORD FERN*	220	1 GAL CONT.	24" O.C. TRI. SP. TYP.
	SOD INSTALLATION	70 SY		

* INTERMIX IN GROUPS OF 3-5 MIN. PER SPECIES FOR OREGON GRAPE AND SWORD FERN AND 8-10 MIN. FOR STRAWBERRY.

STREAM RESTORATION PLANT SCHEDULE

SYMBOL	BOTANICAL NAME/ COMMON NAME	QTY	SIZE	REMARKS
TREES*				
	T9 ACER MACROPHYLLUM / BIG-LEAF MAPLE (25%)	11	5 GAL CONT.	10' O.C. TRI. SP. TYP.
	T10 RHAMNUS PURSHIANA / CASCARA (20%)	8	5 GAL CONT.	10' O.C. TRI. SP. TYP.
	T11 THUJA PLICATA / WESTERN RED CEDAR (40%)	16	5 GAL CONT.	10' O.C. TRI. SP. TYP.
	T12 PSEUDOTSUGA MENZIESII / DOUGLAS FIR (15%)	6	5 GAL CONT.	10' O.C. TRI. SP. TYP.
SHRUBS*				
	S4 ACER CIRCINATUM / VINE MAPLE (10%)	13	1 GAL CONT.	72" O.C. TRI. SP. TYP.
	S5 CORYLUS CORNUTA / BEAKED HAZELNUT (15%)	32	1 GAL CONT.	60" O.C. TRI. SP. TYP.
	S6 OEMLERIA CERASIFORMIS / OSO BERRY (15%)	32	1 GAL CONT.	60" O.C. TRI. SP. TYP.
	S7 SAMBUCUS RACEMOSA / RED ELDERBERRY (15%)	32	1 GAL CONT.	60" O.C. TRI. SP. TYP.
	S8 RUBUS SPECTABILIS / SALMONBERRY (15%)	86	1 GAL CONT.	36" O.C. TRI. SP. TYP.
	GC4 POLYSTICHUM MUNITUM / WESTERN SWORD FERN (15%)	200	1 GAL CONT.	24" O.C. TRI. SP. TYP.
	GC7 PTERIDIUM AQUILINUM / BRACKEN FERN (15%)	200	1 GAL CONT.	24" O.C. TRI. SP. TYP.

*NOTE: SEE STREAM RESTORATION PLANT LAYOUT DETAIL, THIS SHEET.



TYPICAL STREAM RESTORATION PLANT LAYOUT

NOTES:

- LAYOUT OF SHRUBS IS CONTINUOUS THROUGH TREES.
- ADJUST SHRUBS AS NECESSARY TO PROVIDE MIN. 2' OFFSET FROM TREES.

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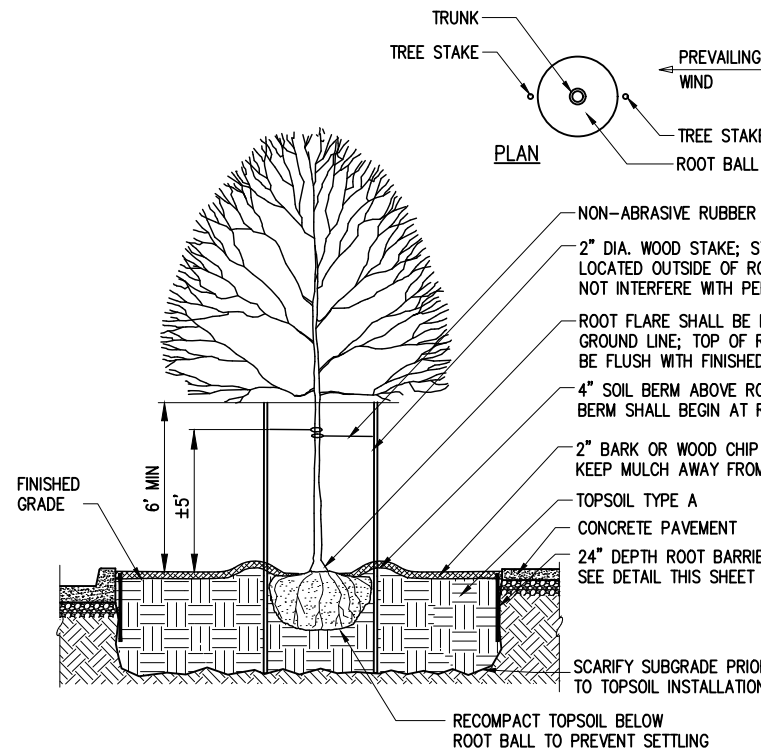
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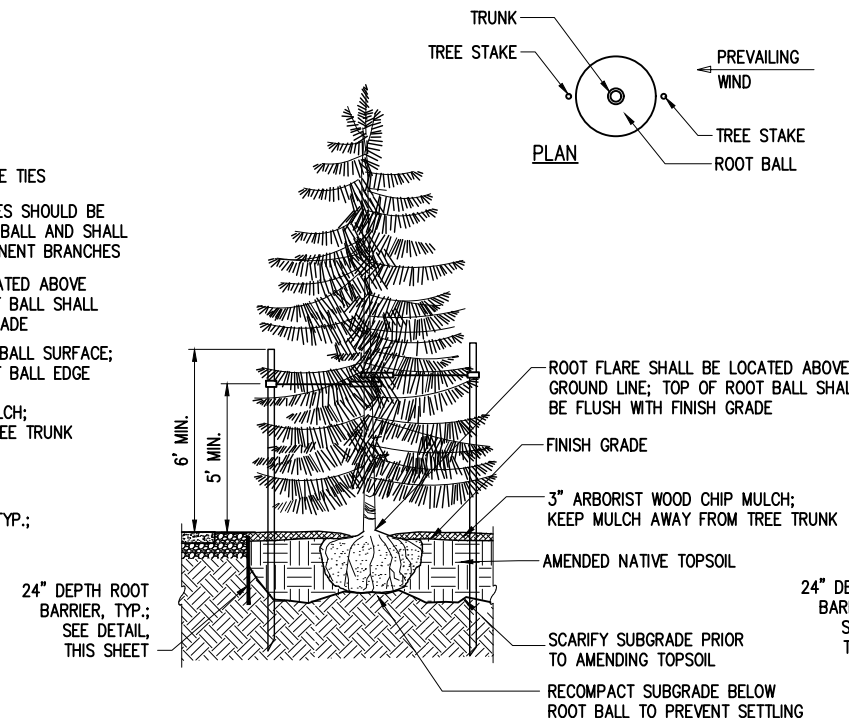
LANDSCAPE DETAILS
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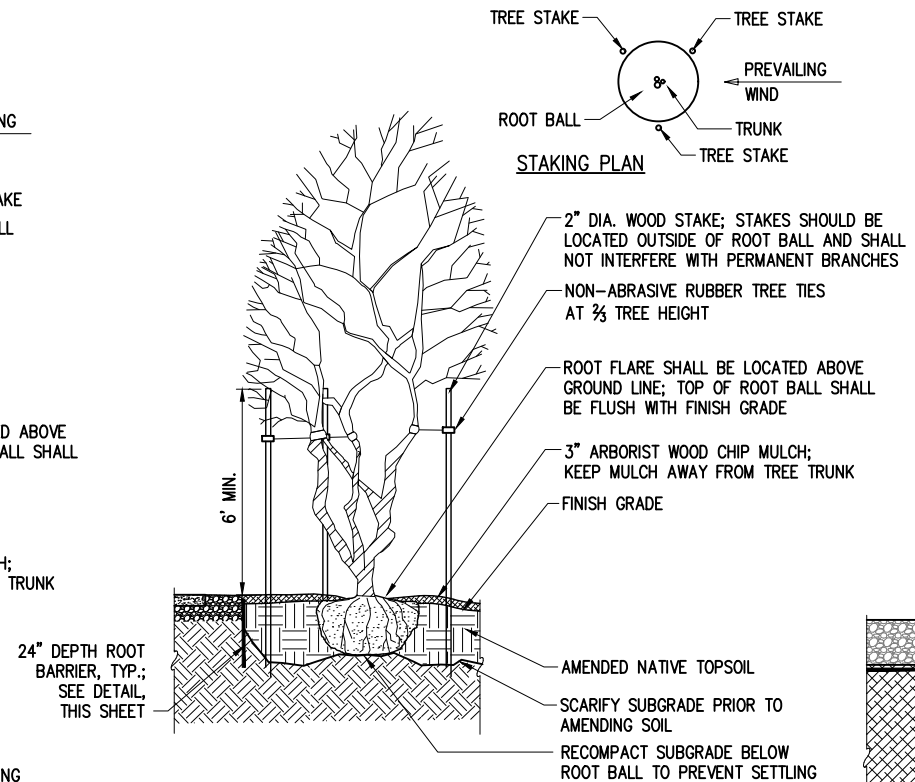
TYPICAL STREET TREE PLANTING DETAIL

NTS



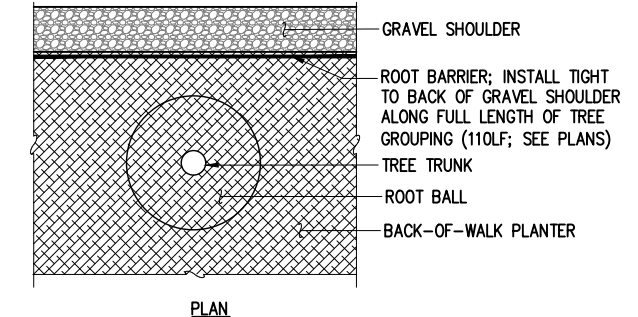
TYPICAL EVERGREEN TREE PLANTING DETAIL

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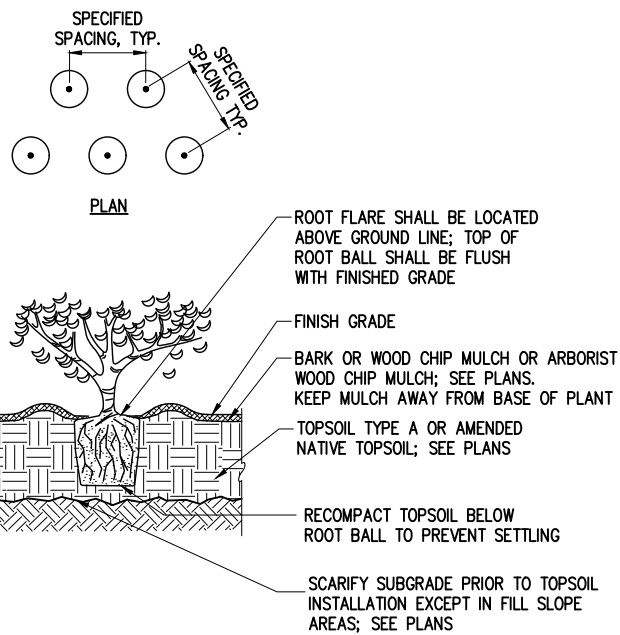
TYPICAL MULTI-STEM TREE PLANTING DETAIL

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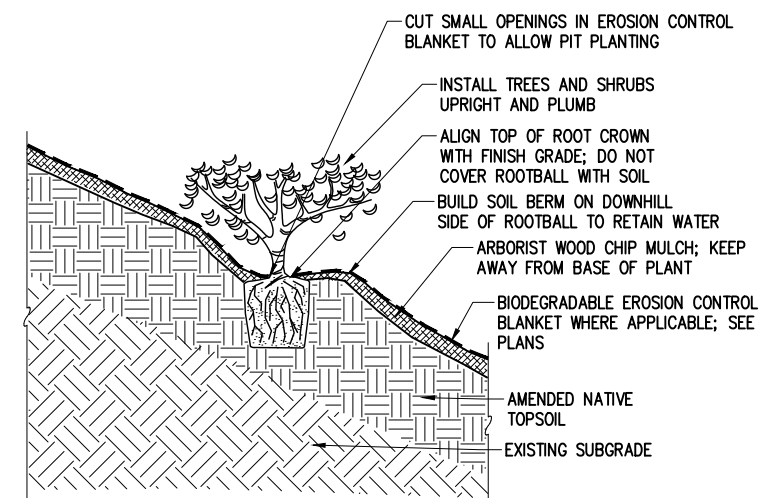
TYPICAL ROOT BARRIER DETAIL AT BACK-OF-WALK LOCATIONS

NTS



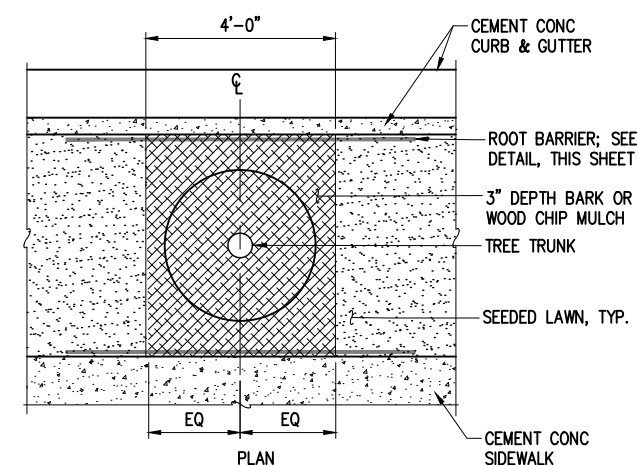
TYPICAL SHRUB/GROUNDCOVER PLANTING DETAIL

NTS



TYPICAL STREAM RESTORATION PLANTING DETAIL

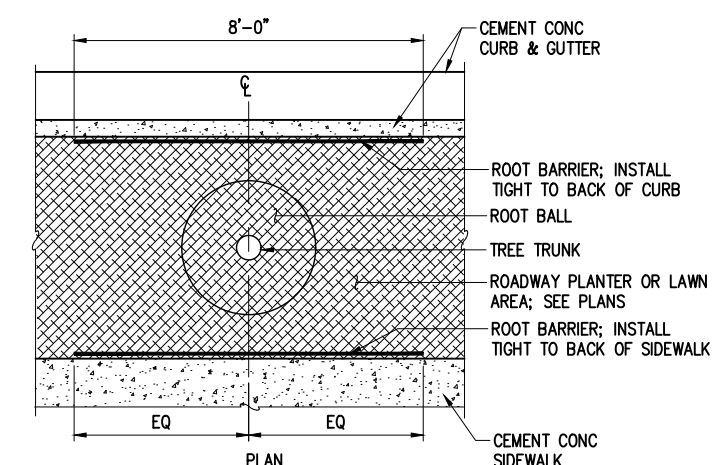
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TYPICAL MULCH RING DETAIL

NTS

NOTE: DETAIL APPLIES ONLY TO NEW TREE PLANTINGS IN LAWN AREAS.



TYPICAL ROOT BARRIER DETAIL AT STREET TREE LOCATIONS

NTS

NO.	DATE	BY	APPR.	REVISIONS

Approved By		21078CCC_LS-OET.dwg
ENGINEERING MANAGER	DATE	DESIGNED BY 05/2024
PROJECT MANAGER	DATE	JS 05/2024
PROJECT ENGINEER	DATE	DRAWN BY 05/2024
	DATE	CS 05/2024
	DATE	CHECKED BY 05/2024
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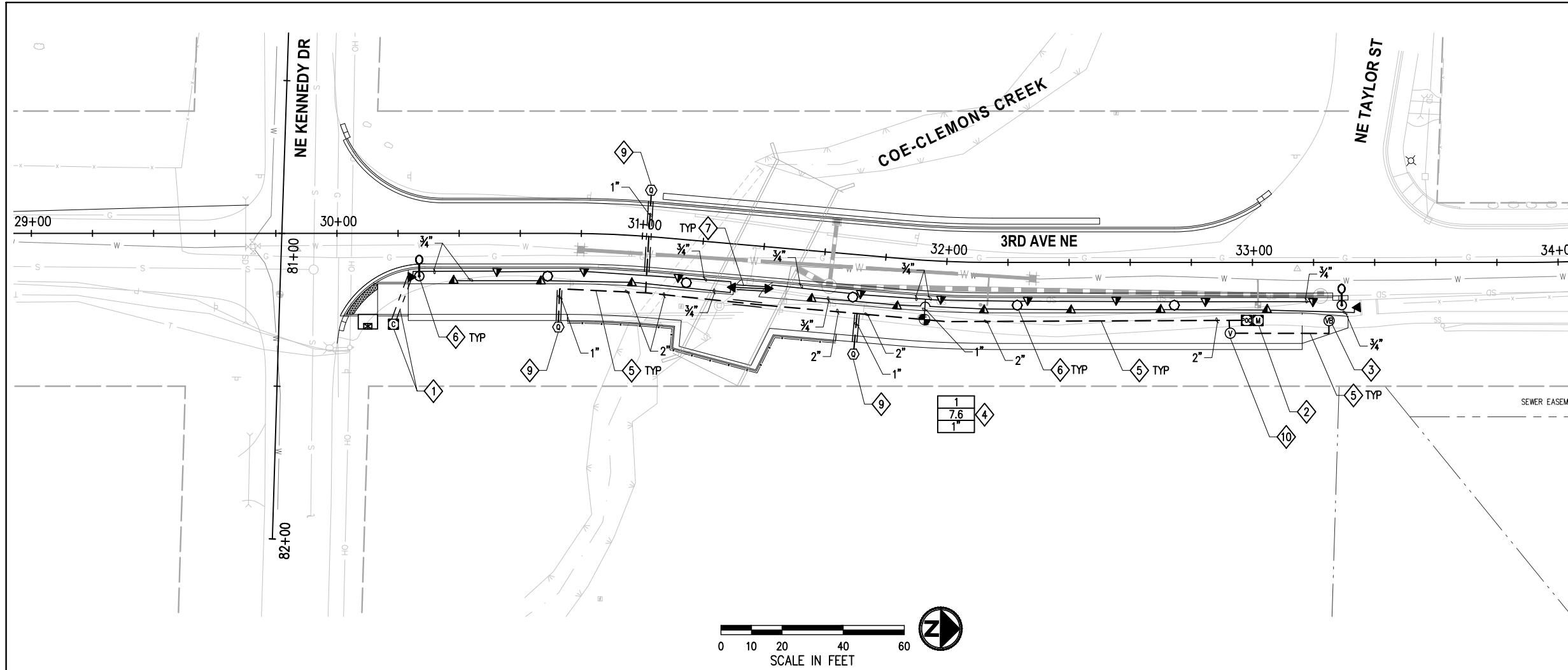
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CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT

LANDSCAPE DETAILS
KPG PROJECT No. 21078 SHT 37 OF 42

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- ### CONSTRUCTION NOTES
- 1 INSTALL IRRIGATION CONTROLLER AND 2" CONDUIT SLEEVE FROM IRRIGATION CONTROLLER TO PLANTER, EXTEND CONDUIT TO PLANTER AS REQUIRED FOR VALVE WIRES. SEE DETAILS SHEET 39-40 AND ILLUMINATION PLANS FOR ELECTRICAL CONNECTION. VERIFY LOCATION WITH ENGINEER PRIOR TO INSTALLATION.
 - 2 INSTALL IRRIGATION METER AND POINT-OF-CONNECTION EQUIPMENT; SEE DETAILS SHEET 39-40. INSTALL IN PLANTER. LOCATION SHOWN IS DIAGRAMMATIC.
 - 3 INSTALL 2" SCH. 40 PVC CAPPED STUBOUT IN VALVE BOX WITH LID. EXTEND 8 SPARE VALVE WIRES TO VALVE BOX AND COIL 5' LENGTH IN BOX.
 - 4 INSTALL CONTROL VALVE BOX IN PLANTER AREA, TIGHT TO EDGE OF PLANTER OR BACK OF SIDEWALK TO MAXIMIZE PLANTING AREA; LOCATION SHOWN ON DRAWINGS IS DIAGRAMMATIC.
 - 5 MAINLINE AND LATERAL LINES TO BE LOCATED IN PLANTER WHERE POSSIBLE. INSTALL IN PLANTER. LOCATION SHOWN IS DIAGRAMMATIC.
 - 6 COORDINATE SLEEVING, MAIN LINE AND LATERAL LINE INSTALLATION WITH ILLUMINATION CONDUIT AND FOOTING LOCATIONS.
 - 7 ALL IRRIGATION LINES LOCATED UNDER PAVEMENT SHALL BE SLEEVED.
 - 9 INSTALL QUICK COUPLER IN VALVE BOX, TIGHT TO BACK OF TRAIL SHOULDER OR BACK OF CURB. SEE DETAIL SHEET 39.
 - 10 INSTALL MANUAL SHUT OFF VALVE ON 2" STUB OUT EXTENSION; SEE SCHEDULE SHEET 39. INSTALL IN PLANTER. LOCATION SHOWN IS DIAGRAMMATIC.

SPRAY IRRIGATION LEGEND

SYMBOL	MANUFACTURER/MODEL NO
	HUNTER CORNER AND SIDE STRIP SERIES MP-LCS/RCS-515, SS-530
	AUTOMATIC CONTROL VALVE
	SCH 40 PVC MAINLINE
	SCH 40 LATERAL LINE
	SCH40 SLEEVE
	QUICK COUPLER

PIPE SIZE CHART

GPM	SIZE
0 - 8	3/4"
8 - 13	1"
13 - 22	1 1/4"
22 - 30	1 1/2"
30 - 50	2"

NOTE: ALL IRRIGATION MAINLINE SHALL BE 2" PVC SCH 40, UNLESS OTHERWISE NOTED ON PLANS.

SEE SHEET 39-40 FOR IRRIGATION SCHEDULE, DETAILS AND GENERAL NOTES.

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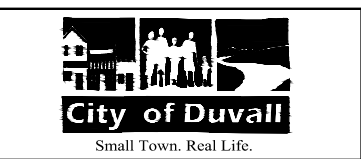
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ENGINEERING MANAGER	DATE	DESIGNED BY	DATE
PROJECT MANAGER	DATE	DRAWN BY	DATE
PROJECT ENGINEER	DATE	CHECKED BY	DATE



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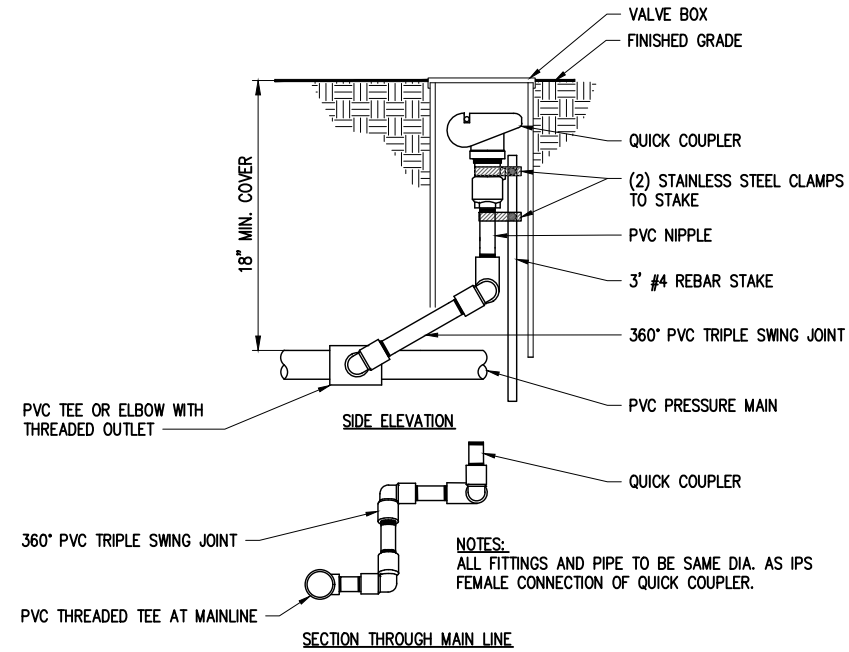


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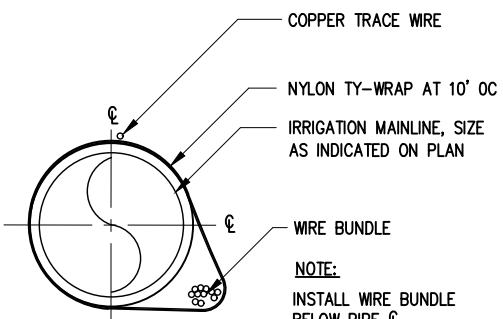
IRRIGATION PLAN	
KPG PROJECT No. 21078	SHT 38 OF 42

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IRRIGATION LEGEND			
SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION
▲ LCS/ RCS	HUNTER MP ROTATOR STRIP NOZZLES	MP-LCS/RCS-515-PROS-06-PRS30-CV, MP-SS-530-PROS-06-PRS30-CV	SHRUB NOZZLE - 6" PLASTIC POP-UP. 5'x15' (LCS/RCS) AND 5'x30' (SS) AT 30 PSI. CORNER AND SIDE STRIP NOZZLE, INSTALL PER FLEXIBLE RISER DETAIL THIS SHEET.
Ⓢ	RAINBIRD	ESP-LXME2 AND LXSS, LXSSPE D PED	IRRIGATION CONTROLLER, WITH STAINLESS STEEL METAL PEDESTAL/CABINET ENCLOSURE, SEE INSTALLATION DETAIL, SHEET 40. SEE ILLUMINATION PLANS FOR ELECTRICAL CONNECTION.
⊕	RAINBIRD OR APPROVED EQUAL	PEB	AUTOMATIC CONTROL VALVE - SIZE AS NOTED ON PLAN. SEE DETAIL, THIS SHEET.
Ⓟ	POINT OF CONNECTION EQUIPMENT. SEE ASSEMBLY DIAGRAM, THIS SHEET.		
Ⓜ			1" IRRIGATION METER, SEE SHEET 8.
Ⓥ			SHUT OFF VALVE, SIZE PER LINE, SEE DETAIL THIS SHEET.
⊗	FEBCO OR APPROVED EQUAL	850	1" BACK FLOW PREVENTION, INSTALL IN LOCATION SHOWN. SEE DETAIL SHEET 40
Ⓠ	RAINBIRD	44LRC	1" BRASS QUICK COUPLER VALVE WITH LOCKING VINYL COVER. INSTALL PER DETAIL, THIS SHEET. INSTALL ONE AT EACH DOUBLE CHECK VALVE ASSEMBLY, AND AS NOTED ON PLANS.
ⓋⓅ			10" DIA. VALVE BOX, WITH LID. INSTALL WITH CAPPED STUB OUT END IN LOCATION SHOWN ON THE PLANS.
---			PVC SCH 40, IRRIGATION MAIN LINE - 24" MIN. COVER - SIZE AS NOTED ON PLAN.
---			PVC SCH 40, LATERAL SUPPLY LINE- 18" MIN. COVER - SIZE AS NOTED ON PLAN.
---			SLEEVING, PVC SCHEDULE 40, SIZE TWICE INSERT PIPE DIA.
1	INDICATES VALVE #		
10.5	INDICATES APPROX. GPM		
1"	INDICATES VALVE SIZE		



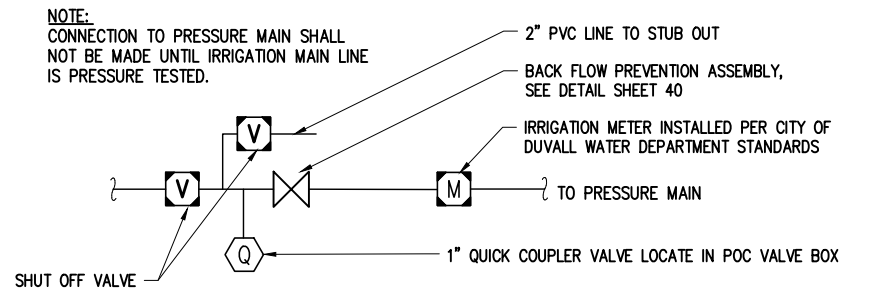
QUICK COUPLING VALVE/TRIPLE SWING JOINT DETAIL
NTS



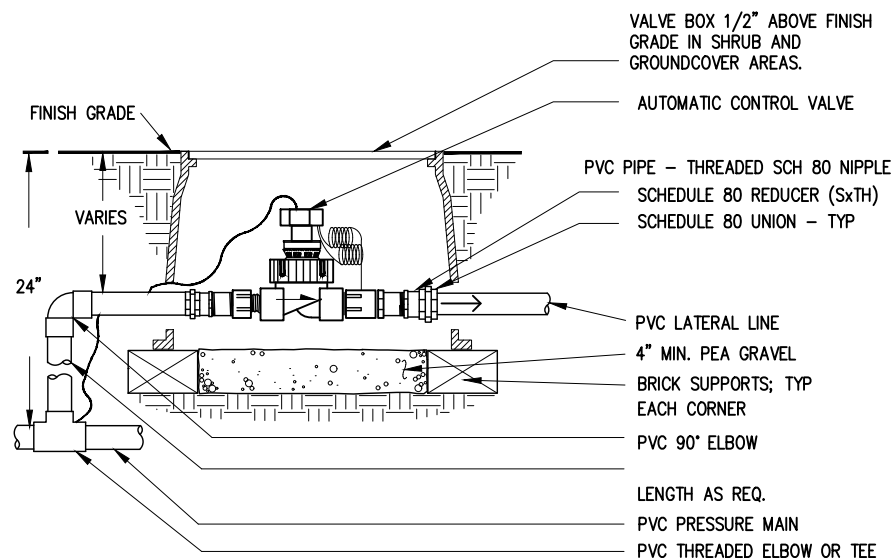
CONTROL WIRE BUNDLE INSTALLATION DETAIL
NTS

GENERAL NOTES

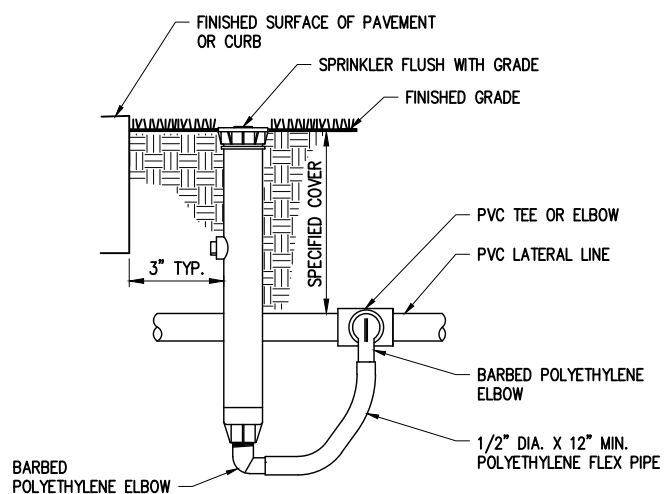
- COORDINATE INSTALLATION OF IRRIGATION SYSTEM WITH INSTALLATION OF OTHER UTILITIES. LOCATE AND PROTECT ALL UNDERGROUND UTILITIES DURING INSTALLATION OF IRRIGATION SYSTEM.
- CONTRACTOR MUST COORDINATE SLEEVING, ROAD CROSSING AND PIPE LOCATIONS WITH INSTALLATION OF UNDERGROUND UTILITIES (INCLUDING ELECTRICAL, SEWER, WATER AND GAS), SIDEWALK, URBAN DESIGN FEATURES AND ILLUMINATION.
- IRRIGATION SYSTEM SHALL BE INSTALLED, TESTED, MAINTAINED AND GUARANTEED AS PER SPECIFICATIONS.
- IRRIGATION SYSTEM IS DESIGNED TO OPERATE AT 25-30 PSI. CONTRACTOR SHALL FIELD CHECK EXISTING WATER PRESSURE, ADJUSTING PRESSURE REDUCING VALVE AS NECESSARY TO PROVIDE OPTIMAL PERFORMANCE.
- LOCATION OF IRRIGATION MAINLINE, LATERALS, SLEEVING AND VALVES INDICATED ON DRAWING ARE DIAGRAMMATIC ONLY. ADJUST LOCATIONS AS NECESSARY. DO NOT OVERSPRAY ONTO PAVED SURFACES.
- MAINLINE SHALL BE BURIED AT A DEPTH OF 24" BELOW FINISH GRADE. LATERAL LINES SHALL BE BURIED TO A DEPTH OF 18" BELOW FINISH GRADE.
- SLEEVE UNDER ALL PAVED SURFACES AND CONCRETE SIDEWALK. SEE IRRIGATION PLANS FOR LOCATION OF PVC SLEEVING, SLEEVING SHALL BE 2 TIMES THE DIAMETER OF THE INSERT PIPE AND WIRES.
- CONTROLLER WIRES SHALL BE TAPED TO IRRIGATION MAIN OR LATERAL LINES WHERE POSSIBLE. IF NOT AVAILABLE, WIRES TO CONTROLLER SHALL BE PLACED IN 1" /1.5" SLEEVE, USE 3M DBY SPLICE KITS.
- ALL EQUIPMENT SHALL BE AS SPECIFIED OR APPROVED EQUAL. SYSTEM IS SPECIFICALLY DESIGNED FOR IRRIGATION EQUIPMENT SHOWN ON PLANS AND SUBSTITUTION WILL REQUIRE REDESIGN AND RECALCULATION OF IRRIGATION ZONES.



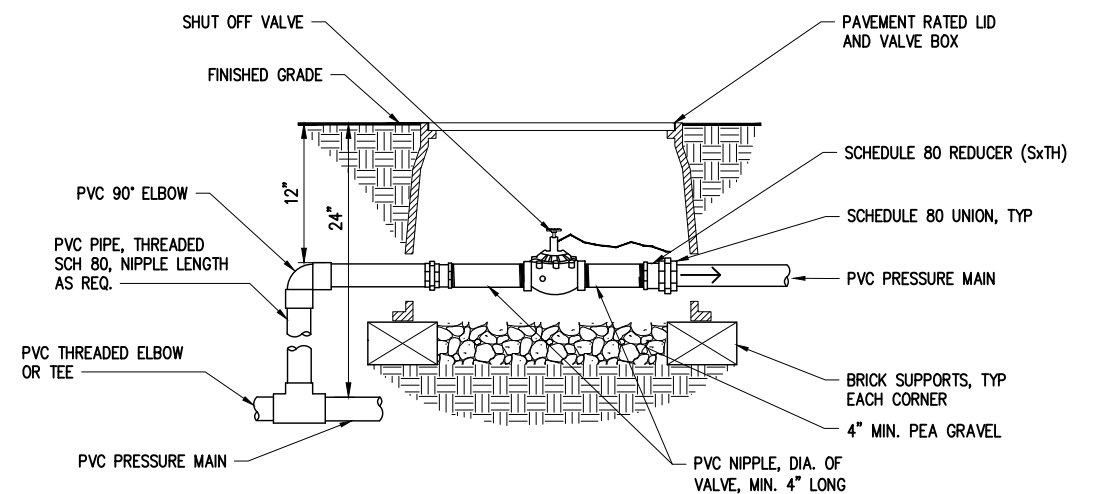
TYPICAL POINT OF CONNECTION ASSEMBLY DETAIL
NTS



AUTOMATIC CONTROL VALVE DETAIL
NTS



TYPICAL FLEXIBLE RISER DETAIL
NTS



SHUT OFF VALVE DETAIL
NTS

NO.	DATE	BY	APPR.	REVISIONS

Approved By		21078CCC_IRR-DET.dwg
ENGINEERING MANAGER	DATE	FILENAME 04/2024
PROJECT MANAGER	DATE	DESIGNED BY 04/2024
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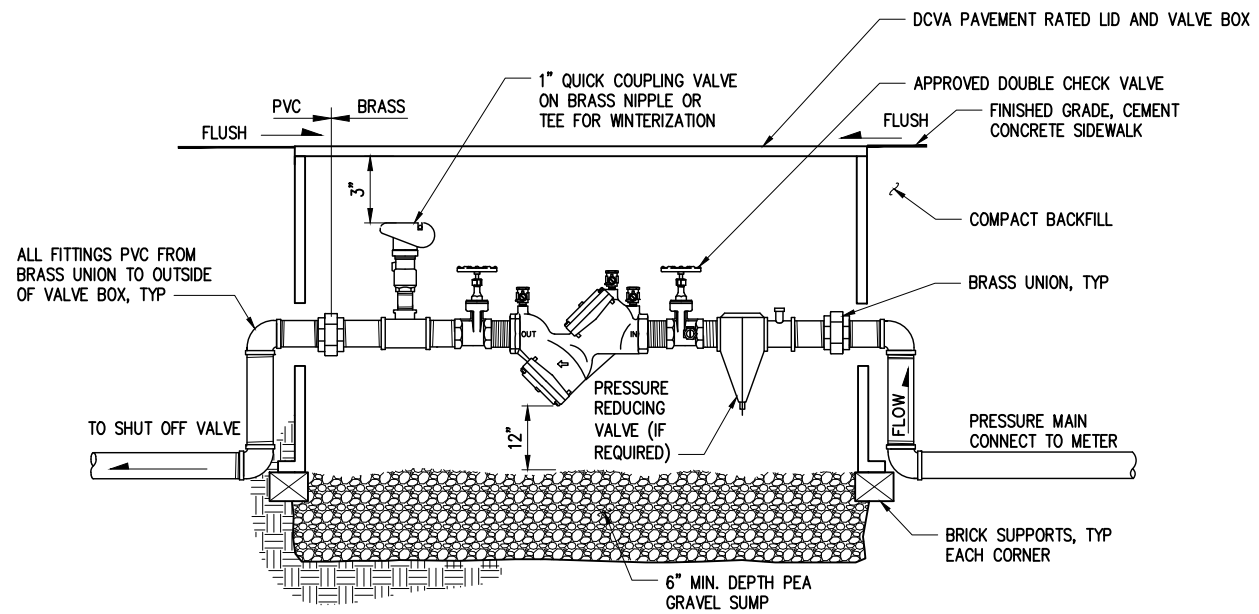
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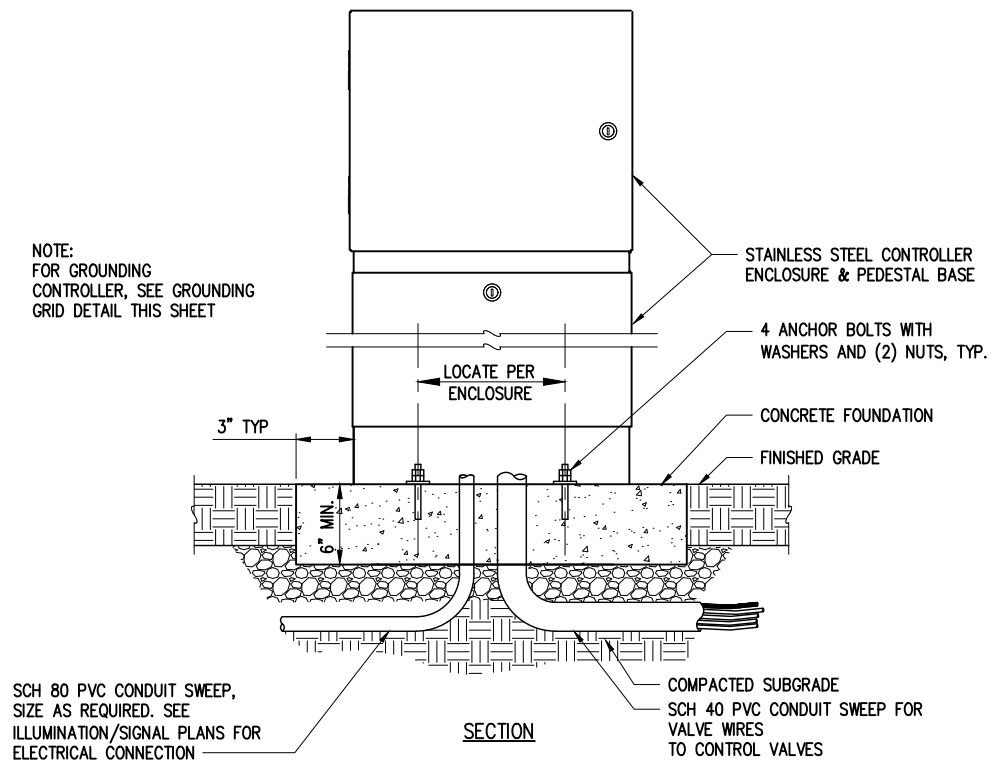
IRRIGATION DETAILS
KPG PROJECT No. 21078 SHT 39 OF 42

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NOTE:
INSTALL ASSEMBLY IN ACCORDANCE WITH
CITY OF DUVALL WATER DEPARTMENT
STANDARD DETAIL 2-153-002

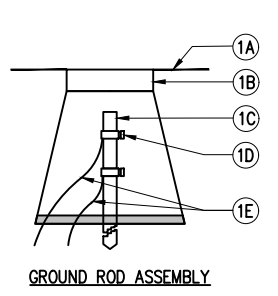
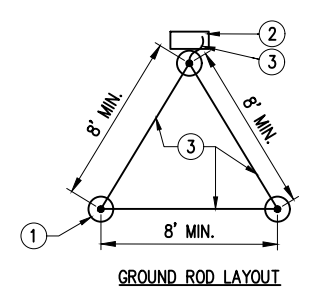
DOUBLE CHECK VALVE ASSEMBLY DETAIL
NTS



NOTE:
FOR GROUNDING
CONTROLLER, SEE GROUNDING
GRID DETAIL THIS SHEET

SCH 80 PVC CONDUIT SWEEP,
SIZE AS REQUIRED. SEE
ILLUMINATION/SIGNAL PLANS FOR
ELECTRICAL CONNECTION

IRRIGATION CONTROLLER TYPICAL DETAIL
NTS



- ① GROUND ROD ASSEMBLY (3 TOTAL)
- ①A FINAL GRADE
- ①B 6" VALVE BOX
- ①C 8' COPPER CLAD GROUND ROD
- ①D GROUND ROD CLAMPS
- ①E MIN 10-1 BARE COPPER
- ② PROTECTED DEVICE
- ③ BARE COPPER GROUND WIRE

NOTES:
1. MINIMUM 8' SPACING BETWEEN RODS
2. USE 10g (MINIMUM) BARE COPPER WIRE.
3. WIRE FROM EQUIPMENT TO FIRST ROD SHOULD
BE AS SHORT AND STRAIGHT AS POSSIBLE.
4. USE SEPARATE CLAMP FOR EACH WIRE.

GROUNDING GRID DETAIL
NTS

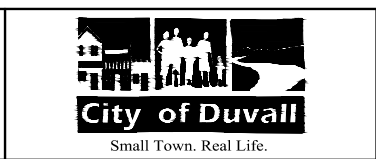
NO.	DATE	BY	APPR.	REVISIONS

Approved By		21078CCC_IRR-DET.dwg
ENGINEERING MANAGER	DATE	FILENAME JS 04/2024
PROJECT MANAGER	DATE	DESIGNED BY JS 04/2024
PROJECT ENGINEER	DATE	DRAWN BY LG 04/2024
	DATE	CHECKED BY



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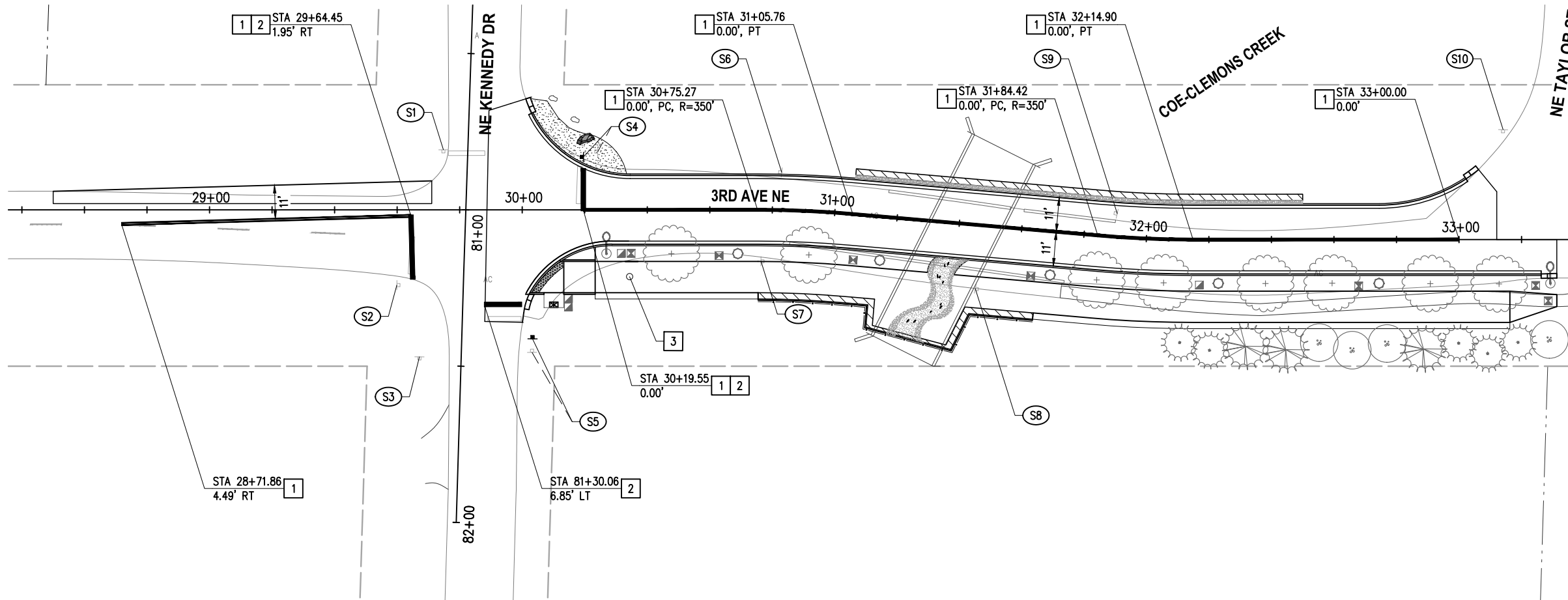
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**CITY OF DUVALL
COE-CLEMONS CREEK CULVERT
REPLACEMENT**

IRRIGATION DETAILS	
KPG PROJECT No. 21078	SHT 40 OF 42

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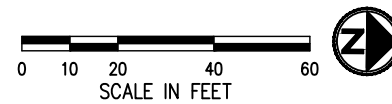


CHANNELIZATION & SIGNING NOTES

1. REMOVE ALL EXISTING CONFLICTING CHANNELIZATION.
2. ALL PAVEMENT MARKING MATERIAL SHALL CONFORM TO THE "STATE OF WASHINGTON ROAD STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION", LATEST EDITION, UNLESS OTHERWISE MODIFIED IN THE SPECIAL PROVISIONS.
3. ALL STREET SIGNS NOTED FOR RELOCATION SHALL BE INSTALLED WITH NEW POSTS AND POST BASE PER COD STANDARD DRAWING 3-050-016.
4. STREET SIGNS SHALL BE INSTALLED PER COD STANDARD DRAWING NUMBER 3-050-016 AND 3-050-017.

CONSTRUCTION NOTES

- 1 PLASTIC LINE, 4" YELLOW DOUBLE CENTERLINE PER WSDOT STANDARD PLAN M-20.10-04.
- 2 PLASTIC STOP LINE, 16" WHITE.
- 3 SHARED USE PATHWAY MARKER, SEE URBAN DESIGN SHEET 31.



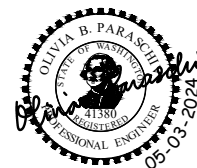
SIGN SCHEDULE					
SIGN NO.	STATION	OFFSET	DESIGNATION	SIZE	REMARKS
S1	29+74.81	19.19' LT	R1-1, STOP		TO REMAIN
S2	29+59.93	24.05' RT	R1-1, STOP		TO REMAIN
S3	29+67.15	47.00' RT	"NOT A THROUGH STREET"		TO REMAIN
S4	30+19.59	16.91' LT	R1-1, STOP	30" x 30"	RELOCATE
S5	30+03.31	41.24' RT	R1-1, STOP	30" x 30"	RELOCATE
S6	30+82.75	12.06' LT	R8-31, FIRE LANE		REMOVE AND SALVAGE TO CITY
S7	30+76.42	16.44' RT	R8-31, FIRE LANE		REMOVE AND SALVAGE TO CITY
S8	31+46.86	20.37' RT	R8-31, FIRE LANE		REMOVE AND SALVAGE TO CITY
S9	31+90.13	7.41' LT	R8-31, FIRE LANE		REMOVE AND SALVAGE TO CITY
S10	33+14.08	35.13' LT	R1-1, STOP		TO REMAIN

LEGEND

- EXISTING SIGN
- PROPOSED SIGN
- SIGN NUMBER

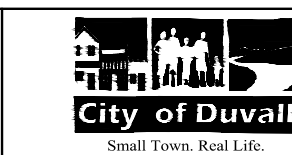
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Approved By		21078CCC_CHAN.dwg
ENGINEERING MANAGER	DATE	DESIGNED BY: JRW 05/2024
PROJECT MANAGER	DATE	DRAWN BY: KAB 05/2024
PROJECT ENGINEER	DATE	CHECKED BY: QBP 05/2024



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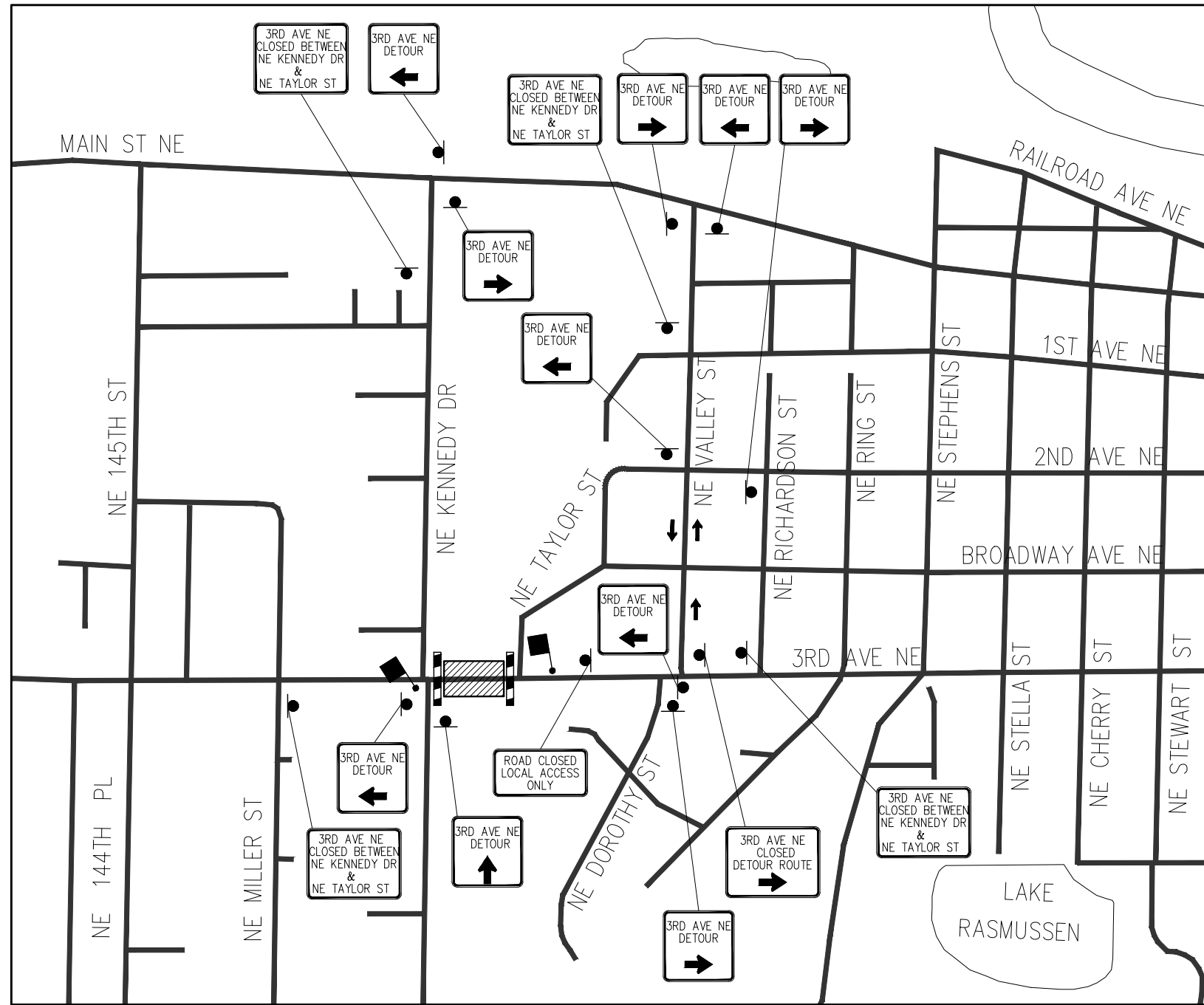
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CITY OF DUVALL
COE-CLEMONS CREEK CULVERT REPLACEMENT

CHANNELIZATION & SIGNING PLAN
KPG PROJECT No. 21078 SHT 41 OF 42

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
3RD AVENUE NE CLOSURE
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GENERAL TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL TO COMPLY WITH MUTCD REQUIREMENTS.
2. MINIMUM LANE WIDTHS TO BE 11'.
3. USE TEMPORARY CONCRETE BARRIERS AND CHANNELIZING DEVICES.
4. CONFLICTING SIGNS SHALL BE COVERED OR REMOVED.
5. CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED.

LEGEND

-  SIGN
-  TYPE 3 BARRICADE WITH "ROAD CLOSED" SIGN ATTACHED
-  FLAGGER
-  WORK ZONE

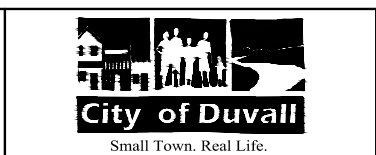
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Approved By		21078CCC_DETOUT.dwg
ENGINEERING MANAGER	DATE	FILENAME OBP 05/2024 DESIGNED BY DATE MRM 05/2024 DRAWN BY DATE OBP 05/2024 PROJECT ENGINEER DATE CHECKED BY DATE



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ROAD CLOSURE DETOUR PLAN	
KPG PROJECT No. 21078	SHT <u>42</u> OF <u>42</u>