CONTRACT DRAWINGS FOR

CITY OF KIRKLAND

JOB NO. 11-20-PW
CIP#: CSD0124

CITY OFFICIALS

PENNY SWEET	MAYOR
JAY ARNOLD	DEPUTY MAYOR
NEAL BLACK	COUNCIL MEMBER
KELLI CURTIS	COUNCIL MEMBER
AMY FALCONE	COUNCIL MEMBER
TOBY NIXON	COUNCIL MEMBER
JON PASCAL	COUNCIL MEMBER
KURT TRIPLETT	CITY MANAGER
JULIE UNDERWOOD	PUBLIC WORKS DIRECTOR
ROD STEITZER	CAPITAL PROJECTS MANAGER

CONTACT PERSONNEL

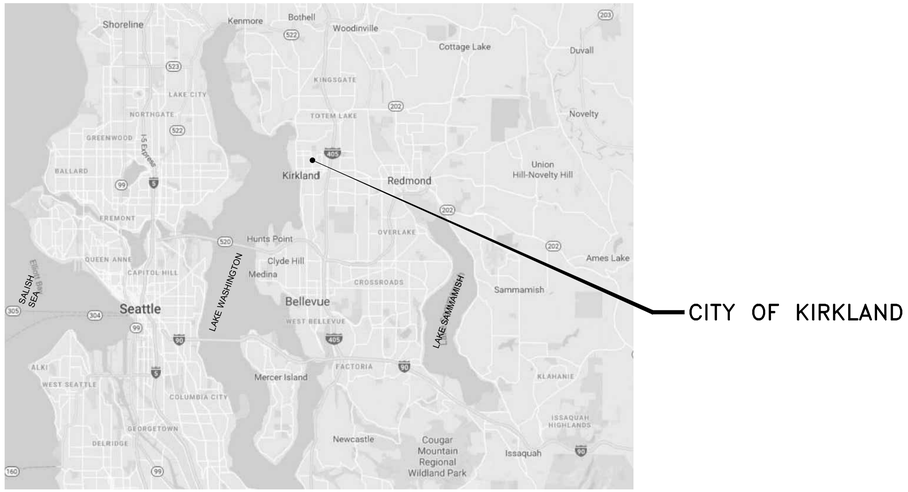
NAME	AGENCY	PHONE
JAMES MCPHERSON PROJECT MANAGER	STANTEC CONSULTING	425-615-3164

CEDAR CREEK CULVERT REPLACEMENT

DESIGN DRAWINGS

CEDAR CREEK
CULVERT REPLACEMENT
100TH AVE NE
KIRKLAND, WA

Stantec



CITY OF KIRKLAND

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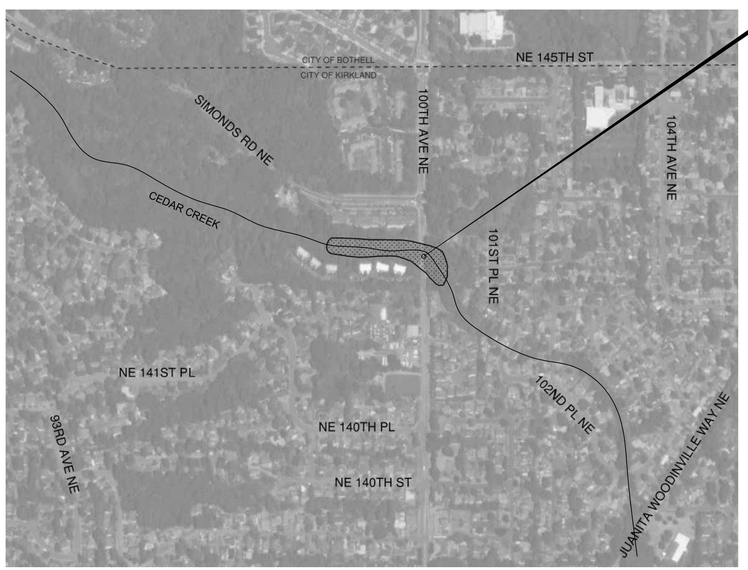
VICINITY MAP

SCALE: NOT TO SCALE



PROJECT AREA

N

LOCATION MAP

SCALE: NOT TO SCALE SIMPLIFIED CREEK ALIGNMENT SHOWN

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Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal

JAMES E. McPHERSON, STATE OF WASHINGTON, 28287, REGISTERED PROFESSIONAL ENGINEER

3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451G-002	IM	LAH	JEM	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
VICINITY MAP,
LOCATION MAP,
AND SHEET INDEX

Project No.	Scale
CSD0124	N/A

Revision Sheet 2 of 33

Drawing No. G-2

PLOTTING DATE: 3/11/2020 1:07 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0528390\10451G-002.dwg

ORIGINAL SHEET - ANSI D

HATCHING LEGEND

- NATIVE SOIL / ENGINEERED FILL
- EXISTING DELINEATED WETLAND
- CONCRETE
- STREAMBED DESIGN GRADATION
- AGGREGATE BASE
- BACKFILL
- CRUSHED SURFACING BASE COURSE

NOTE: HATCHES FOR PLANTING ZONES ON PLANTING SHEETS. CALLOUTS SUPERCEDE THIS LEGEND.

CALLOUT SYMBOLS

A / G01 — SECTION ID LETTER; SHEET OR DRAWING NUMBER WHERE SECTION APPEARS

B / M02 — DETAIL ID LETTER; SHEET OR DRAWING NUMBER WHERE DETAIL APPEARS

■ CP 11144	PREVIOUS SURVEY CONTROL POINTS SEE SHEET C-1
▲ CP 101XX	SURVEY CONTROL POINTS SEE SHEET C-1
● 10515 178.36 REF	REFERENCE POINT

ABBREVIATIONS

COK	CITY OF KIRKLAND
CONC	CONCRETE
CL	CENTER LINE
CPEP	CORRUGATED POLYETHYLENE PIPE
DWG	DRAWING
EX	EXISTING
EL	ELEVATION
FT	FEET (US SURVEY FEET)
FIN FG GR	FINISHED GRADE
GPM	GALLON PER MINUTE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
OC	ON CENTER
PT	POINT
QTY	QUANTITY
R&W	REMOVE & WASTE
REQD	REQUIRED
S	SLOPE
SCH	SCHEDULE
SDMH	STORM DRAIN MANHOLE
SEW	STRUCTURAL EARTH WALL
SPEC, SPECS	SPECIFICATIONS
SS	SANITARY SEWER
SST	STAINLESS STEEL
STA	STATION
STL	STEEL
STRM	STREAM
TOP	TOP OF PIPE
TW	TAILWATER
TYP	TYPICAL
W/O	WITHOUT
VERT	VERTICAL

DEFINITIONS

THALWEG = LOWEST ELEVATION IN A CHANNEL SECTION

LOG = A FELLED TREE, CONSISTING A ROOTWAD AND TRUNK

ROOTWAD = PORTION OF A FELLED TREE BELOW THE TRUNK, CONSISTING OF A MASS OF TREE ROOTS

TRUNK = STRAIGHTEST PORTION OF A FELLED TREE BEGINNING FROM TOP OF ROOTWAD

VANE = STREAMBED DESIGN ELEMENT ORIENTATED AT AN ANGLE FROM BANKS

LINETYPE LEGEND

- SD — SD — EXISTING STORM
- W — W — EXISTING WATER MAIN
- SS — EXISTING SANITARY SEWER MAIN
- G — EXISTING GAS MAIN
- EXISTING GAS VALVE
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- T — EXISTING TELECOM LINE
- OHP — EXISTING OVERHEAD POWER
- EXISTING TELECOM PEDESTAL
- EXISTING BURIED POWER LINE
- EXISTING UTILITY VAULT
- EXISTING CONIFER TREE
- EXISTING DECIDUOUS TREE
- LOD — LOD — LOD — LOD — LOD — LIMIT OF DISTURBANCE
- EXISTING CONTOUR LINES
- PROPOSED CONTOUR LINES
- PROPOSED SMOOTH ROCKERY
- SILT FENCE
- EXISTING CREEK CENTERLINE
- #2026059104 — PARCEL NUMBER
- ROW — ROW — ROW — ROW — ROW — COK RIGHT OF WAY BOUNDARY
- PROPOSED LOG VANE (SEE SPECS FOR DESIGN)
- PROPOSED WOODY TOE PROTECTION
- SAND BAG
- SANDBAG DAM
- PROPOSED COBBLE APRON
- PROPOSED ROCK VANE
- PROPOSED FLOW SPLIT
- SOIL MAT OVERBURDEN (FOR WOODY TOE PROTECTION)
- D — PROPOSED STORM MANHOLE
- PROPOSED STORM PIPE
- RIPRAP

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal

JAMES E. McPHERSON — STATE OF WASHINGTON — 28287 — REGISTERED PROFESSIONAL ENGINEER — 3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451G-003	ES	LAH	JEM	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
LEGENDS AND ABBREVIATIONS

Project No. CSD0124

Scale N/A

Revision

Sheet 3 of 33

Drawing No. G-3

PLOTTING DATE: 3/11/2020 9:03 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451G-003.dwg

ORIGINAL SHEET - ANSI D

GENERAL NOTES:

1. UTILITY RELOCATION IS NOT A PART OF THIS CONTRACT; SEE SHEET D-1.
2. SEE SPECIFICATIONS FOR MATERIALS INFORMATION.
3. GRAVITY SANITARY SEWER PRESENT THROUGHOUT PROJECT AREA. SEE SHEET SC-5 FOR PROTECTION MEASURES.
4. DRAWINGS BASED ON FIELD SURVEY AS DESCRIBED ON DRAWING C-1.
5. ALL WORK SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARD SPECIFICATIONS AND DETAILS UNLESS OTHERWISE SPECIFIED IN THESE PLANS AND SPECIFICATIONS.
6. CONTRACTOR SHALL INSPECT SITE PRIOR TO START OF WORK; VERIFY EXISTING CONDITIONS MATCH PLANS ANS ACCEPT SITE, OR REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
7. ANY DISCREPANCIES IN PLANS, OR DEPARTURE FROM PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY, AND NO WORK SHALL CONTINUE ON THE AFFECTED ISSUE UNTIL DIRECTED BY THE ENGINEER.
8. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL PRE-CONSTRUCTION MEETINGS WITH ALL GOVERNING JURISDICTIONS.
9. THE CONTRACTOR RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS TO COMMENCE WORK. PERMITS OBTAINED BY THE CITY INCLUDE:
   - 9.1. HYDRAULIC PROJECT APPROVAL #18899
   - 9.2. JOINT AQUATIC RESOURCES PERMIT NWS-2019-571
10. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFICATION OF UTILITIES ON-SITE. WASHINGTON UTILITY NOTIFICATION CENTER SHALL BE NOTIFIED BY CONTRACTOR AT LEAST TWO BUSINESS DAYS BEFORE EXCAVATION CAN BEGIN.
11. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CLOSURE AND/OR MANAGEMENT OF PEDESTRIAN TRAFFIC WAYS IN CONJUNCTION WITH CONSTRUCTION ACTIVITIES.
12. THE CONTRACTOR WILL MAKE EVERY EFFORT TO AVOID AND MINIMIZE DAMAGE TO ANY INFRASTRUCTURE, UTILITIES, AND PRIVATE PROPERTY ADJACENT TO THE PROJECT AREA. ANY DAMAGE SHALL BE REPLACED IN-KIND AND BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
13. CONTRACTOR SHALL KEEP JOB SITE FREE OF TRASH AND GARBAGE AND SHALL IMMEDIATELY COLLECT ANY CONSTRUCTION-RELATED DEBRIS OR TRASH THAT IS IN OR DIRECTLY ADJACENT TO THE PROJECT SITE.
14. ALL SOIL EROSION CONTROL MEASURES REQUIRED BY DRAWING NO. D-1 SHALL BE PERFORMED PRIOR TO GRADING, CLEARING, OR GRUBBING. ALL EROSION CONTROL DEVICES SUCH AS SILT FENCES, ETC. SHALL BE MAINTAINED IN WORKABLE CONDITIONS FOR THE LIFE TOF THE PROJECT AND SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT ONLY AFTER OWNER'S APPROVAL.

CITY OF KIRKLAND EROSION AND SEDIMENTATION CONTROL NOTES

1. THE APPROVED CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:

   A. CONDUCT PRE-CONSTRUCTION MEETING.
   B. FLAG OR FENCE CLEARING LIMITS.
   C. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
   D. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
   E. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
   F. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
   G. FOLLOW ISOLATION AND BYPASS PROCEDURE DESCRIBED ON SHEET 8.
   H. CONSTRUCT SEDIMENT PONDS AND TRAPS.
   I. GRADE AND STABILIZE CONSTRUCTION ROADS.
   J. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
   K. MAINTAIN EROSION CONTROL MEASURE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
   L. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY TESC MINIMUM REQUIREMENTS.
   M. COVER ALL AREAS WITHIN THE SPECIFIED TIME FRAME WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, CRUSHED ROCK OR EQUIVALENT.
   N. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN 7 DAYS.
   O. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
   P. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

2. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS CLEAN AND FREE OF CONTAMINANTS AT ALL TIMES AND FOR PREVENTING AN ILLICIT DISCHARGE (KMC 15.52) INTO THE MUNICIPAL STORM DRAIN SYSTEM. IF YOUR CONSTRUCTION PROJECT CAUSES AN ILLICIT DISCHARGE TO THE MUNICIPAL STORM DRAIN SYSTEM, THE CITY OF KIRKLAND STORM MAINTENANCE DIVISION WILL BE CALLED TO CLEAN THE PUBLIC STORM SYSTEM, AND OTHER AFFECTED PUBLIC INFRASTRUCTURE. THE CONTRACTOR(S), PROPERTY OWNER, AND ANY OTHER RESPONSIBLE PARTY MAY BE CHARGED ALL COSTS ASSOCIATED WITH THE CLEAN-UP AND MAY ALSO BE ASSESSED MONETARY PENALTIES (KMC 1.12.200). THE MINIMUM PENALTY IS $500. A FINE FOR A REPEAT VIOLATION SHALL BE A MULTIPLIED BY THE NUMBER OF VIOLATIONS. A FINE MAY BE REDUCED OR WAIVED FOR PERSONS WHO IMMEDIATELY SELF-REPORT VIOLATION TO THE CITY AT 425-587-3900. A FINAL INSPECTION OF YOUR PROJECT WILL NOT BE GRANTED UNTIL ALL COSTS ASSOCIATED WITH THE CLEAN-UP, AND PENALTIES, ARE PAID TO THE CITY OF KIRKLAND.
3. CONSTRUCTION DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25 NTU, AND NOT CONSIDERED AN ILLICIT DISCHARGE (PER KMC 15.52.090). TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.
4. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND SPECIFICATIONS.
5. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
6. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
7. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
8. A COPY OF THE APPROVED ESC PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
9. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.
10. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF KIRKLAND INSPECTOR.
11. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED (E.G., ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.
12. THE ESC FACILITIES SHALL BE INSPECTED BY THE PERMITTEE/CONTRACTOR DAILY DURING NON-RAINFALL PERIODS, EVERY HOUR (DAYLIGHT) DURING A RAINFALL EVENT, AND AT THE END OF EVERY RAINFALL, AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED. WRITTEN RECORDS SHALL BE KEPT DOCUMENTING THE REVIEWS OF THE ESC FACILITIES.
13. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.
14. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
15. ALL DENUDED SOILS MUST BE STABILIZED WITH AN APPROVED TESC METHOD (E.G. SEEDING, MULCHING, PLASTIC COVERING, CRUSHED ROCK) WITHIN THE FOLLOWING TIMELINES:
    - MAY 1 TO SEPTEMBER 30 - SOILS MUST BE STABILIZED WITHIN 7 DAYS OF GRADING.
    - OCTOBER 1 TO APRIL 30 - SOILS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING.
    - STABILIZE SOILS AT THE END OF THE WORKDAY PRIOR TO A WEEKEND, HOLIDAY, OR PREDICTED RAIN EVENT.
16. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE RATE (EXAMPLE: ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).
17. WHERE STRAW MULCH IS REQUIRED FOR TEMPORARY EROSION CONTROL, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2".
18. ALL LOTS ADJOINING OR HAVING ANY NATIVE GROWTH PROTECTION EASEMENTS (NGPE) SHALL HAVE A 6' HIGH TEMPORARY CONSTRUCTION FENCE (CHAIN LINK WITH PIER BLOCKS) SEPARATING THE LOT (OR BUILDABLE PORTIONS OF THE LOT) FROM THE AREA RESTRICTED BY THE NGPE AND SHALL BE INSTALLED PRIOR TO ANY GRADING OR CLEARING AND REMAIN IN PLACE UNTIL THE PLANNING DEPARTMENT AUTHORIZES REMOVAL.
19. CLEARING LIMITS SHALL BE DELINEATED WITH A CLEARING CONTROL FENCE. THE CLEARING CONTROL FENCE SHALL CONSIST OF A 6-FT. HIGH CHAIN LINK FENCE ALONG THE LIMITS SHOWN ON SHEET 8. CLEARING CONTROL FENCES ALONG WETLAND OR STREAM BUFFERS OR UPSLOPE OF SENSITIVE SLOPES SHALL BE ACCOMPANIED BY AN EROSION CONTROL FENCE. IF APPROVED BY THE CITY, A FOUR-FOOT HIGH ORANGE MESH CLEARING CONTROL FENCE MAY BE USED TO DELINEATE CLEARING LIMITS IN ALL OTHER AREAS.
20. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER EQUIPMENT. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.
21. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1' AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40%-70% PASSING; 2"-4" ROCK/30%-40% PASSING; AND 1"-2" ROCK/10%-20% PASSING. RECYCLED CONCRETE SHALL NOT BE USED FOR EROSION PROTECTION ELSEWHERE ON THE SITE, INCLUDING CONSTRUCTION ENTRANCE AND TEMPORARY STABILIZATION.
22. IF ANY PART(S) OF THE CLEARING LIMIT BOUNDARY OR TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN IS/ARE DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.
23. ALL PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF.
24. AT NO TIME SHALL MORE THAN 1' OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED IMMEDIATELY FOLLOWING REMOVAL OF EROSION CONTROL BMPS. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
25. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION OR DISPERSION SYSTEM, THE FACILITY SHALL NOT BE USED AS A TEMPORARY SETTLING BASIN. NO UNDERGROUND DETENTION TANK, DETENTION VAULT, OR SYSTEM WHICH BACKS UNDER OR INTO A POND SHALL BE USED AS A TEMPORARY SETTLING BASIN.
26. ALL EROSION/SEDIMENTATION CONTROL PONDS WITH A DEAD STORAGE DEPTH EXCEEDING 6" MUST HAVE A PERIMETER FENCE WITH A MINIMUM HEIGHT OF 3'.
27. THE WASHED GRAVEL BACKFILL ADJACENT TO THE FILTER FABRIC FENCE SHALL BE REPLACED AND THE FILTER FABRIC CLEANED IF IT IS NONFUNCTIONAL BY EXCESSIVE SILT ACCUMULATION AS DETERMINED BY THE CITY OF KIRKLAND. ALSO, ALL INTERCEPTOR SWALES SHALL BE CLEANED IF SILT ACCUMULATION EXCEEDS ONE-QUARTER DEPTH.
28. PRIOR TO THE OCTOBER 1 OF EACH YEAR (THE BEGINNING OF THE WET SEASON), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. THE IDENTIFIED DISTURBED AREA SHALL BE SEEDED WITHIN ONE WEEK AFTER OCTOBER 1. A SITE PLAN DEPICTING THE AREAS TO BE SEEDED AND THE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.
29. ANY AREA TO BE USED FOR INFILTRATION OR PERVIOUS PAVEMENT (INCLUDING A 5-FOOT BUFFER) MUST BE SURROUNDED BY SILT FENCE PRIOR TO CONSTRUCTION AND UNTIL FINAL STABILIZATION OF THE SITE TO PREVENT SOIL COMPACTION AND SILTATION BY CONSTRUCTION ACTIVITIES.
30. IF THE TEMPORARY CONSTRUCTION ENTRANCE OR ANY OTHER AREA WITH HEAVY VEHICLE LOADING IS LOCATED IN THE SAME AREA TO BE USED FOR INFILTRATION OR PERVIOUS PAVEMENT, 6" OF SEDIMENT BELOW THE GRAVEL SHALL BE REMOVED PRIOR TO INSTALLATION OF THE INFILTRATION FACILITY OR PERVIOUS PAVEMENT (TO REMOVE FINES ACCUMULATED DURING CONSTRUCTION).
31. ANY CATCH BASINS COLLECTING RUNOFF FROM THE SITE, WHETHER THEY ARE ON OR OFF THE SITE, SHALL HAVE ADEQUATE PROTECTION FROM SEDIMENT. CATCH BASINS DIRECTLY DOWNSTREAM OF THE CONSTRUCTION ENTRANCE OR ANY OTHER CATCH BASIN AS DETERMINED BY THE CITY INSPECTOR SHALL BE PROTECTED WITH A STORM DRAIN PROTECTION INSERT OR EQUIVALENT.
32. IF A SEDIMENT POND IS NOT PROPOSED, A BAKER TANK OR OTHER TEMPORARY GROUND AND/OR SURFACE WATER STORAGE TANK MAY BE REQUIRED DURING CONSTRUCTION, DEPENDING ON WEATHER CONDITIONS.
33. DO NOT FLUSH CONCRETE BY-PRODUCTS OR TRUCKS NEAR OR INTO THE STORM DRAINAGE SYSTEM. IF EXPOSED AGGREGATE IS FLUSHED INTO THE STORM SYSTEM, IT COULD MEAN RE-CLEANING THE ENTIRE DOWNSTREAM STORM SYSTEM, OR POSSIBLY RE-LAYING THE STORM LINE.
34. RECYCLED CONCRETE SHALL NOT BE STOCKPILED ON SITE, UNLESS FULLY COVERED WITH NO POTENTIAL FOR RELEASE OF RUNOFF.

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal

JAMES E. McPHERSON — STATE OF WASHINGTON — 28287 — REGISTERED PROFESSIONAL ENGINEER — 3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

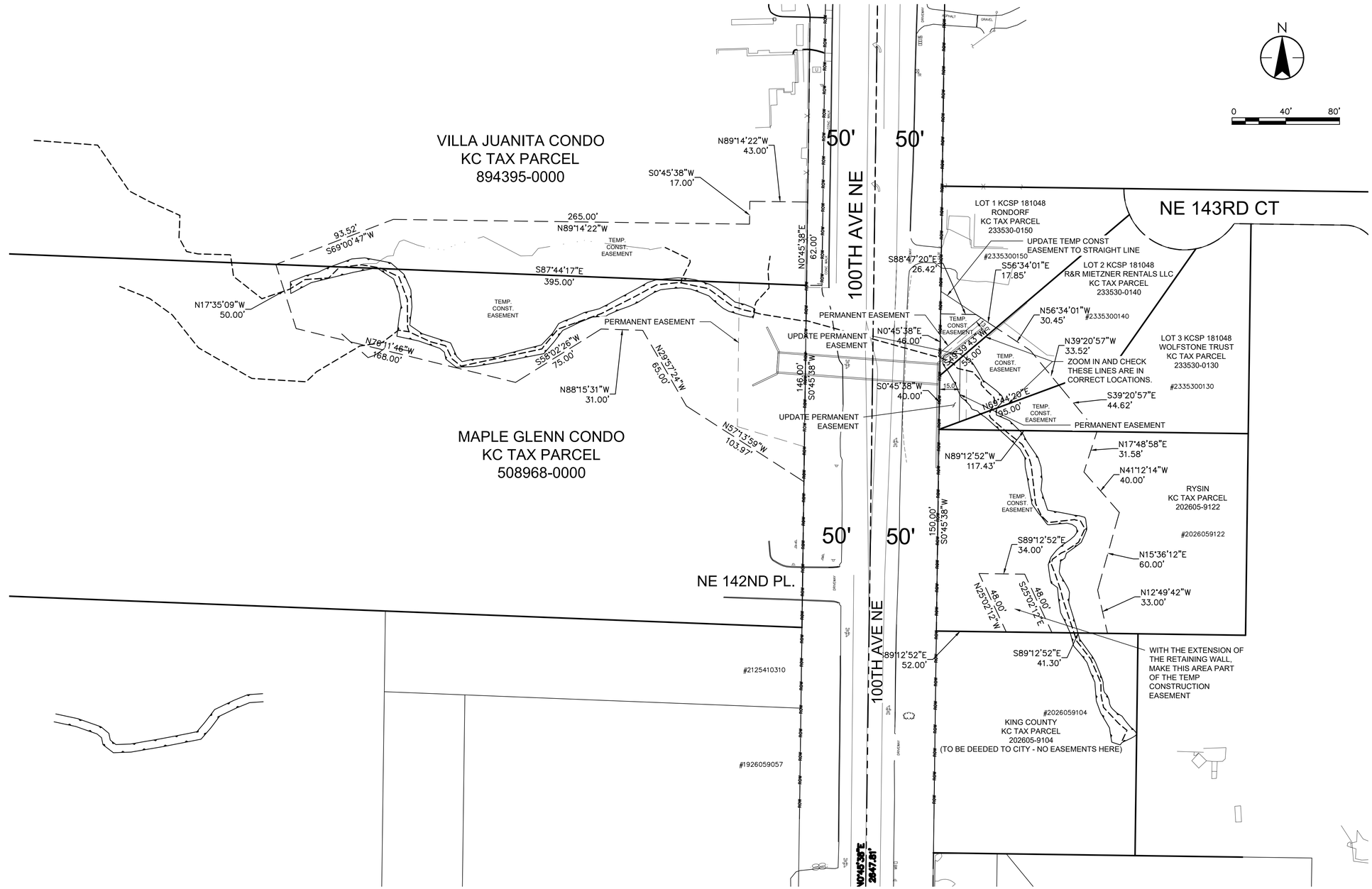
File Name: 10451G-004

ES	LAH	JEM	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CONSTRUCTION NOTES/ CONTRACTOR, STAGING, STORAGE AND ACCESS

Project No. CSD0124
Scale N/A
Revision
Sheet 4 of 33
Drawing No. G-4

PLOTTING DATE: 3/10/2020 9:25 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451G-004.dwg
ORIGINAL SHEET - ANSI D



Revision	By	Appd	YYYY.MM.DD

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STATE OF WASHINGTON
28287
REGISTERED PROFESSIONAL ENGINEER
3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451G-005

BDC	BDC	JEM	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

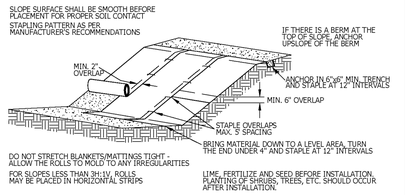
Title
RIGHT OF WAY AND EASEMENTS PLAN

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 5 of 33
Drawing No. G-5

PLOTTING DATE: 3/11/2020 9:16 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451G-005.dwg

ORIGINAL SHEET - ANSI D

LAST REVISED: 1/23/17



NET & BLANKET INSTALLATION

NOT TO SCALE

NOTES:
1. IF BLANKET IS NOT LONG ENOUGH TO COVER THE ENTIRE SLOPE LENGTH, THE TRAILING EDGE OF THE UPPER BLANKET SHOULD OVERLAP THE LEADING EDGE OF THE LOWER BLANKET AND BE STAPLED.

2. MULCH IS REQUIRED FOR NETS, AND NOT REQUIRED FOR BLANKETS.

3. USE 100% BIODEGRADABLE BLANKETS IN SENSITIVE AREAS.

4. MAINTAIN GOOD CONTACT WITH THE GROUND. EROSION MUST NOT OCCUR BENEATH THE BLANKET.

5. INSPECT NETS AND BLANKETS AFTER EACH SIGNIFICANT STORM; MAINTAIN AND REPAIR PROMPTLY.

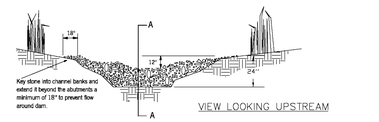
TEMPORARY STABILIZATION NOTES:
1. STRAW, WOOD FIBER CELLULOSE, COMPOST, AND CHIPPED SITE VEGETATION USED FOR TEMPORARY STABILIZATION SHALL BE PLACED AT A MINIMUM 2" THICK ACROSS THE AREA TO BE STABILIZED.

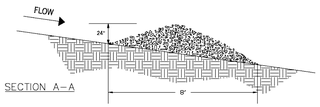
2. HYDRAULIC MATRICES SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATION.

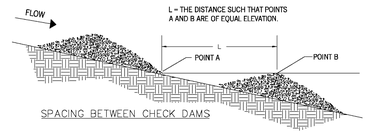
3. SEE TABLE D.2.1.2.A IN THE 2016 KING COUNTY SURFACE WATER DESIGN MANUAL FOR MORE DETAIL.

CITY OF KIRKLAND
PLAN NO. CK– E.06
NETS, BLANKETS, TEMP. STABILIZATION

LAST REVISED: 04/15/12





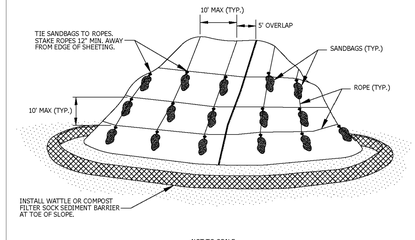


NOTES:
1. CHECK DAMS TO BE CONSTRUCTED OF ROCK, PEA-GRAVEL FILLED BAGS, SAND BAGS, OR EQUIVALENT APPROVED BY PUBLIC WORKS.
2. PLACE CHECK DAMS PERPENDICULAR TO FLOW OF WATER.
3. SIDE SLOPES ARE 2:1 (H:V) OR FLATTER.
4. USE FILTER FABRIC FOUNDATION UNDER CHECK DAM.
5. ROCK CHECK DAMS SHALL BE CONSTRUCTED OF APPROPRIATELY SIZED ROCK, AND PLACED BY HAND OR MECHANICAL MEANS (NO DUMPING OF ROCK TO FORM DAM).
6. INSPECT DAM AFTER EACH SIGNIFICANT STORM; MAINTAIN AND REPAIR PROMPTLY.

NOT TO SCALE

CITY OF KIRKLAND
PLAN NO. CK– E.07
CHECK DAM

LAST REVISED:1/23/17



NOT TO SCALE

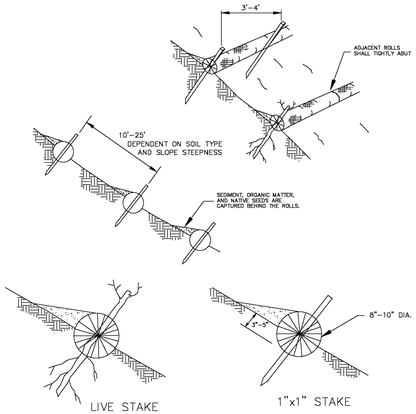
NOTES
1. INSTALL PLASTIC SHEETING VERTICALLY DOWN SLOPE.

2. INSTALL PLASTIC SHEETING SO EDGES OVERLAP AND ARE SHINGLED AWAY FROM PREVAILING WINDS.

3. PLASTIC SHEETING SHALL BE BLACK MIN 6 MIL.

CITY OF KIRKLAND
PLAN NO. CK– E.05
TEMPORARY STOCKPILE

LAST REVISED:04/15/12



NOTES
1. STRAW ROLES SHALL BE PLACED ALONG SLOPE CONTOURS.

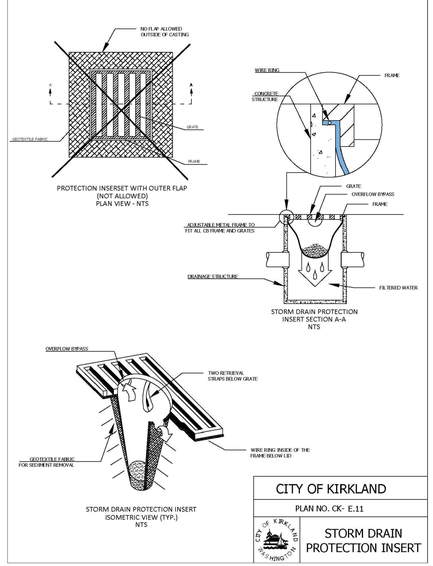
2. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"–5" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

3. DRIVE STAKE THROUGH MIDDLE OF WATTLE, LEAVING 2"–3" OF STAKE PORTRUDING ABOVE WATTLE.

NOT TO SCALE

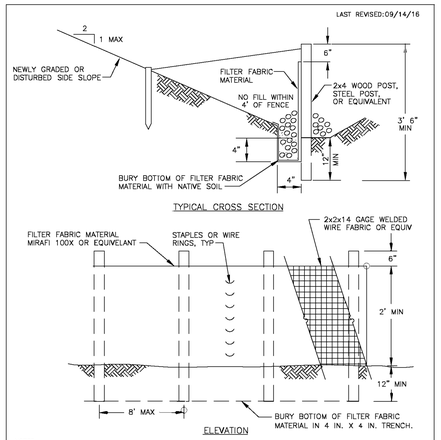
CITY OF KIRKLAND
PLAN NO. CK–E.10
STRAW WATTLES

LAST REVISED: 1/2018



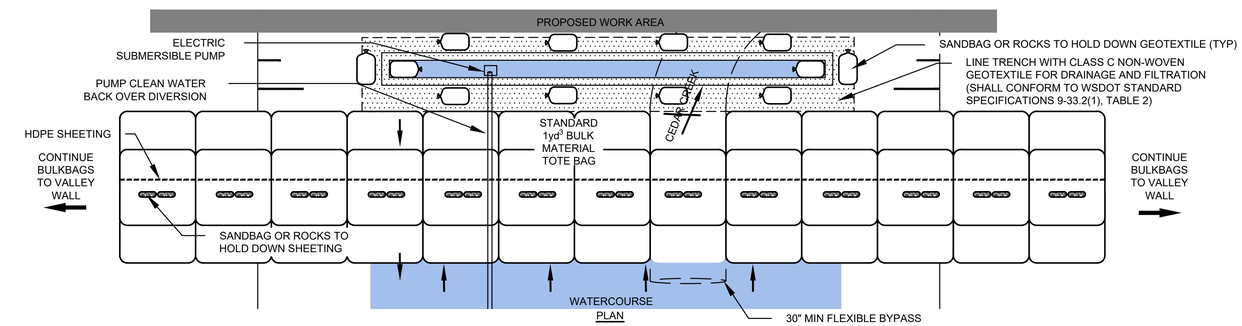
CITY OF KIRKLAND
PLAN NO. CK- E.11
STORM DRAIN PROTECTION INSERT

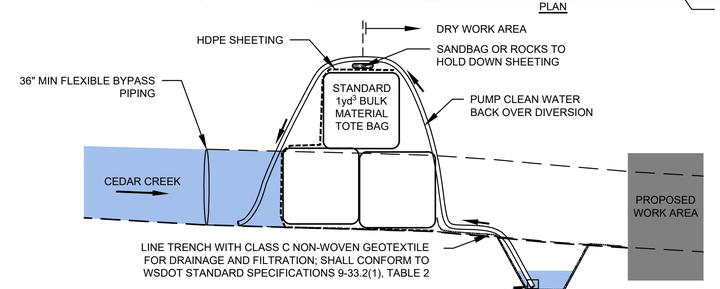
LAST REVISED:09/14/16



NOTES
1. PREFAB FENCE ALLOWED IF REINFORCED AND APPROVED BY CITY INSPECTOR.
2. FENCE SHALL NOT BE INSTALLED ON SLOPES STEEPER THAN 2:1.
3. JOINTS IN FILTER FABRIC SHALL BE OVERLAPPED 6 INCHES AT POST.
4. USE STAPLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC TO FENCE.
5. REMOVE SEDIMENT WHEN IT REACHES 1/3 FENCE HEIGHT.
6. LOCATION OF FENCING SHALL BE AS SHOWN ON APPROVED PLANS OR AS DIRECTED BY THE CITY.
7. MAXIMUM 100' SHEET OR OVERLAND FLOW PATH LENGTH TO SILT FENCE.
8. DO NOT DIRECT FLOWS GREATER THAN 0.5 CFS TO FENCE.
9. SILT FENCE SHOULD NOT BE INSTALLED IN STREAMS OR V-SHAPED DITCHES.

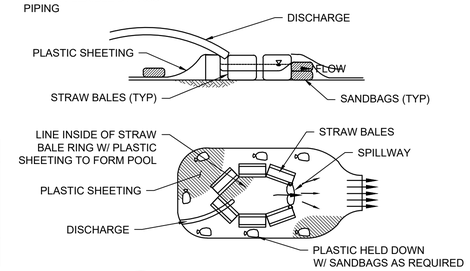
CITY OF KIRKLAND
PLAN NO. CK–E.03
SILT FENCE





1 / D-1 BULKBAG ISOLATION
NOT TO SCALE

NOTE: CONTRACTOR RESPONSIBLE FOR OPERATING BYPASS SYSTEM SUCH THAT NO TURBID WATER IS DISCHARGED INTO CREEK.

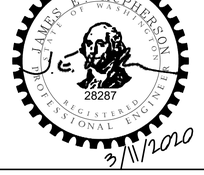


2 / D-1 ENERGY DISSIPATOR
NOT TO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal



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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451GC-001

ES	LAH	JEM	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CIVIL DETAILS 1

Project No. CSD0124
Scale N/A
Revision
Sheet 6 of 33
Drawing No. GC-1

PLOTTING DATE: 3/11/2020 9:16 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451GC-001.dwg

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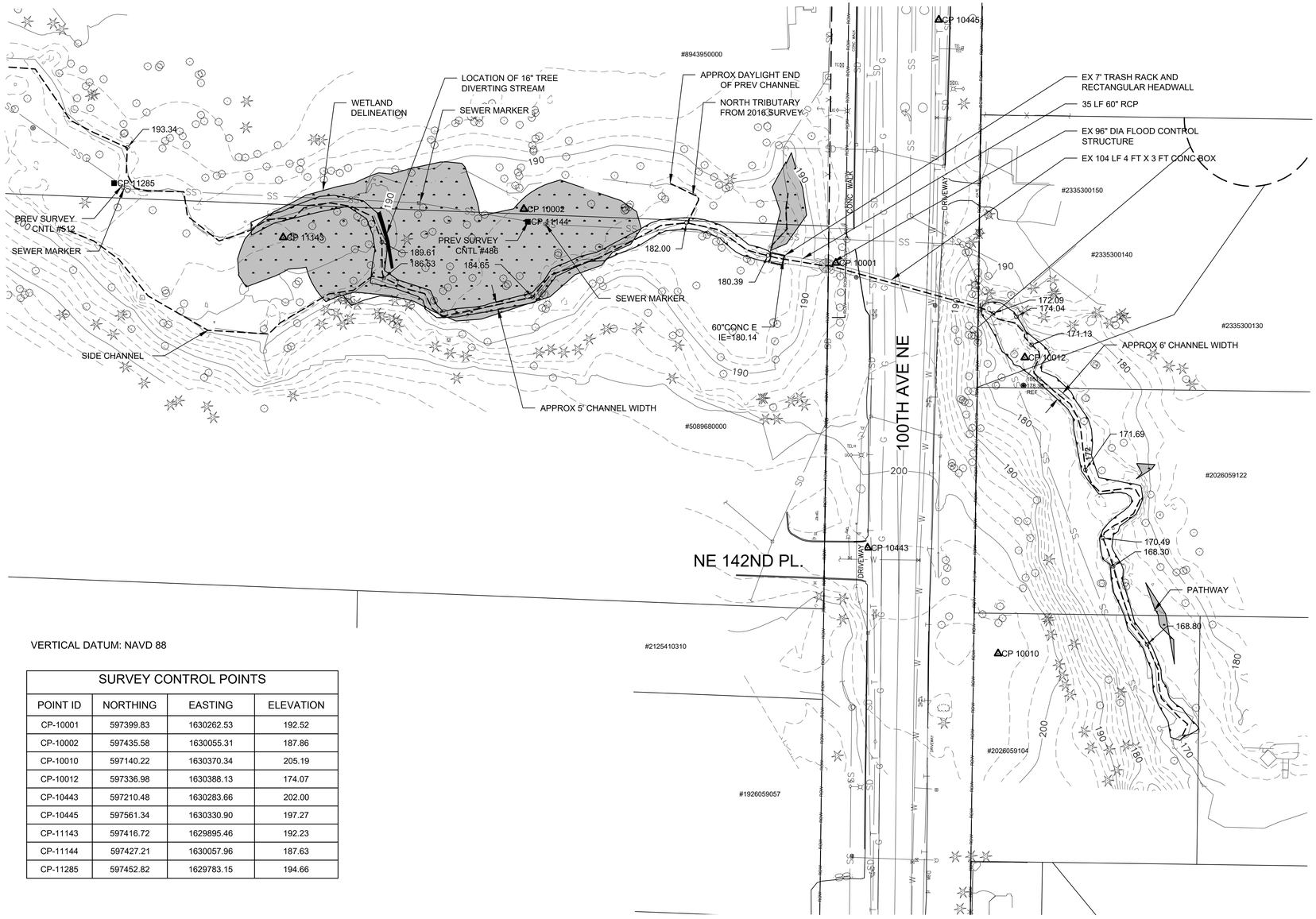

VERTICAL DATUM: NAVD 88

SURVEY CONTROL POINTS			
POINT ID	NORTHING	EASTING	ELEVATION
CP-10001	597399.83	1630262.53	192.52
CP-10002	597435.58	1630055.31	187.86
CP-10010	597140.22	1630370.34	205.19
CP-10012	597336.98	1630388.13	174.07
CP-10443	597210.48	1630283.66	202.00
CP-10445	597561.34	1630330.90	197.27
CP-11143	597416.72	1629895.46	192.23
CP-11144	597427.21	1630057.96	187.63
CP-11285	597452.82	1629783.15	194.66

TOPOGRAPHIC SURVEY INFORMATION

(FOR PORTIONS OF TOPOGRAPY PERFORMED BY STANTEC)

A PORTION OF THE TOPOGRAPHIC MAPPING SHOWN HEREIN WAS PREPARED BY THIS OFFICE UNDER THE DIRECTION OF MICHAEL J. LEMASA, WA. PLS 36802 TO VERIFY CREEK CHANNEL LOCATION AND SPOT ELEVATIONS WITHIN APPROX. 30' OF CREEK FOR APPROXIMATELY 600' UPSTREAM AND 400' DOWNSTREAM OF CULVERT UNDER 100 AVE NE. OTHER ELEMENTS SHOWN ARE PER TOPO BASE MAP CREATED BY 1-ALLIANCE IN 2017 FOR ROADWAY IMPROVEMENTS DESIGN BY HDR INC. (TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY 1-ALLIANCE BELOW). THIS ROADWAY DESIGN INFORMATION WAS PROVIDED TO STANTEC BY CITY OF KIRKLAND FOR DESIGN OF CULVERT UNDER AND ACROSS THE PROPOSED ROADWAY INPROVEMENTS. THIS TOPOGRAPHIC SURVEY VERIFICATION WAS PREPARED FOR THE PURPOSE OF IN-HOUSE CULVERT AND CREEK CHANNEL IMPROVEMENT DESIGN AND IS NOT INTENDED FOR USE BY ANY OTHER ENTITY FOR ANY OTHER PURPOSE.

SURVEY CONTROL ORIGIN (TO MATCH 1-ALLIANCE SURVEY AND HDR DESIGN):

HORIZONTAL: 1-ALLIANCE CONTROL POINT 445 (STANTEC CONTROL POINT 10445 HEREIN) WAS HELD FOR POSITION N=597561.34 E=1630330.90 AND THE LINE BETWEEN SAID POINT AND 1-ALLIANCE POINT 443 (STANTEC CONTROL POINT 10443) WAS HELD AS BASIS OF BEARING S 7°40'06" W. ADDITIONAL PROJECT CONTROL POINTS DERIVED VIA GROUND TRAVERSE FROM SAID 1ALIANCE/HDR CONTROL. DATUM: "PROJECT SITE GROUND DATUM" AS DERIVED BY 1-ALLIANCE. - TO OBTAIN NAD 83/91 GRID COORDINATES, SUBTRACT 100,000 METERS FROM NORTHING AND EASTING VALUES, THEN MULTIPLY BY A COMBINED SCALE FACTOR OF 0.999961486, REFERENCING 0,0 AS BASE POINT PER HDR DESIGN TOPO BASE MAP INSTRUCTIONS. ALSO SEE 1-ALLIANCE TOPOGRAPHIC INFORMATION BELOW.

VERTICAL: 1-ALLIANCE CONTROL POINT 445 WAS HELD FOR ELEVATION AND TRANSFERRED TO ADDITIONAL PROJECT CONTROL POINTS VIA TRIG LEVELLING, AND CHECKING TO 1ALLIANCE/HDR VERTICAL CONTROL POINT 443. DATUM: NAVD '88 PER 1-ALLIANCE TOPO BASE MAP AND HDR DESIGN.

SITE BENCHMARK: HDR CONTROL POINT 445 - MAG NAIL AND WASHER FOUND IN EAST ASPHALT SHOULDER 100TH AVE NE APPROXIMATELY 135' SOUTH OF CENTERLINE SIMONDS RD., AND APPROXIMATELY 180' NORTH OF CULVERT UNDER ROADWAY - ELEVATION = 197.27 FEET NAVD '88.

TOPOGRAPHIC FEATURES, ELEVATIONS, AND CONTOURS WITHIN DESCRIBED STANTEC WORK AREA DERIVED VIA DIRECT GROUND SURVEY UTILIZING A LEICA TS-15 SERIES ROBOTIC TOTAL STATION AND CARLSON SURVEYOR2/SURVE CE DATA COLLECTOR. CONTOUR INTERVAL IS 1 FOOT MEETING OR EXCEEDING NATIONAL MAP ACCURACY STANDARDS (ONE-HALF CONTOUR INTERVAL AT 90% CONFIDENCE LEVEL). INFORMATION WITHIN 100TH AVE NE AND OUTSIDE OF STANTEC WORK AREA TAKEN FROM SAID HDR DESIGN AND 1-ALLIANCE TOPO BASE MAP AND COMPILED HEREIN.

RIGHT-OF-WAY AND PARCEL LINES HEREIN AS SHOWN IN HDR DESIGN / 1-ALLIANCE TOPO BASE MAP. NO ADDITIONAL PARCEL LINES OR RIGHTS-OF-WAY CALCULATED BY STANTEC. THIS MAPPING DOES NOT REPRESENT A BOUNDARY SURVEY AND SHALL NOT BE RELIED UPON AS SUCH.

UTILITY INFORMATION HEREIN COMPILED FROM HDR DESIGN AND 1-ALLIANCE TOPO BASE MAP. MEASUREMENTS MADE TO SURFACE-OBSERVED ABOVE-GRADE FEATURES ONLY WITHIN DESCRIBED STANTEC WORK AREA, NO UTILITY LOCATING OR UTILITY POTHOLING WAS PERFORMED AS PART OF STANTEC SURVEY. UTILITY INFORMATION SHOWN IS APPOXIMATE, AND FOR THE DEVELOPMENT OF SAID DESIGN DRAWINGS ONLY, AND SHALL NOT BE RELIED UPON FOR CONSTRUCTION, PER PROJECT SCOPE. SURVEYOR MAKES NO WARRANTY AS TO THE COMPLETENESS OR ACCURACY OF EXISTING UTILITIES SHOWN ON THIS MAP.

NOTE: PROPOSED ROADWAY IMPROVEMENT DESIGN SURFACE AND FEATURES BY HDR, INC ALSO CONSIDERED IN STANTEC CULVERT AND CREEK CHANNEL IMPROVEMENT DESIGN.

TOPOGRAPHIC SURVEY INFORMATION FROM HDR ROADWAY IMPROVEMENT DESIGN IN 2017

(FOR PORTIONS OF SURVEY SHOWN ON HDR ROADWAY IMPROVEMENT DESIGN IN 2017, SURVEY INFORMATION PROVIDED BY 1-ALLIANCE)

THIS SURVEY WAS MADE AT THE REQUEST OF HDR INC. FOR THE PURPOSE OF DESIGNING ROADWAY IMPROVEMENTS FOR THE CITY OF KIRKLAND. THIS SURVEY MAY NOT BE USED BY ANY OTHER ENTITY FOR ANY OTHER PURPOSE.

HORIZONTAL DATUM: PROJECT SYSTEM DERIVED FROM THE WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4601), NAD83/91, US SURVEY FOOT.

VERTICAL DATUM: NAVD88, BASED ON DIRECT OBSERVATIONS OF KING COUNTY BENCHMARK 491 AT INTERSECTION OF 100TH AVE NE AND NE 132ND ST, ELEVATION 112.04'.

BASIS OF BEARINGS: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4601), NAD83/91, US SURVEY FOOT (GRID)

PROJECT BENCHMARKS: 1-ALLIANCE #300 SET PK NAIL AND WASHER, ELEVATION=117.00'; 1-ALLIANCE #456, ELEVATION = 187.91'.

ALL SHOWN RIGHT-OF-WAY LINES, PARCELS BOUNDARIES, AND EASEMENTS WERE ESTABLISHED BASED ON TITLE REPORTS, AND SUPPORTING DOCUMENTS, AS PROVIDED BY FIRST AMERICAN TITLE INSURANCE COMPANY. ALL BOUNDARY LINES SHOWN ARE PER DEED AND DO NOT PURPORT TO SHOW OWNERSHIP.

TOPOGRAPHIC MAPPING FOR THIS SURVEY WAS PERFORMED BETWEEN APRIL 2016 AND AUGUST OF 2017. ALL FEATURES AND MONUMENTS SHOWN HEREIN WERE LOCATED AND/OR SET DURING THIS TIME FRAME.

CONTOURS SHOWN ARE DERIVED FROM DIRECT FIELD OBSERVATIONS AND ARE SHOWN AT ONE FOOT INTERVALS.

THE PROJECT SCALE FACTOR (COMBINED) USED FOR THIS PROJECT IS 0.999961486.

THE EXISTING UNDERGROUND GRAVITY UTILITIES SHOWN HEREIN ARE APPROXIMATE LOCATIONS BASED ON OBSERVATIONS MADE WITHIN THE STRUCTURES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL UNDERGROUND UTILITIES BEFORE BEGINNING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AN ALL DAMAGES ARISING OUT OF HIS/HER FAILURE TO EXACTLY LOCATE AND PROTECT ALL EXISTING UTILITY FACILITIES.

THE EXISTING UNDERGROUND NON-GRAVITY UTILITIES SHOWN HEREIN ARE APPROXIMATE LOCATIONS BASED ON THE FIELD LOCATION OF UTILITY LOCATE PAINT MARKS AND PHYSICAL FEATURES VISIBLE ON OR ABOVE THE GROUND SURFACE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL UNDERGROUND UTILITIES BEFORE BEGINNING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AN ALL DAMAGES ARISING OUT OF HIS/HER FAILURE TO EXACTLY LOCATE AND PROTECT ALL EXISTING UTILITY FACILITIES.

UTILITY LOCATES WERE PERFORMED BY APPLIED PROFESSIONAL SERVICES (APS) (425-888-2590).

N

0 40' 80'

Revision By Appd YYYY.MM.DD

Issued By Appd YYYY.MM.DD

Permit/Seal

MICHAEL J. LEMASA STATE OF WASHINGTON 36802 REGISTERED PROFESSIONAL LAND SURVEYOR

3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451C-001 | LAH Dwn. | N/A Dsgn. | MJL Chkd. | 2020.03.11 YYYY.MM.DD

Title
EXISTING SITE PLAN AND SURVEY CONTROL

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 7 of 33
Drawing No. C-1

PLOTTING DATE: 3/10/2020 10:44 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451C-001.dwg
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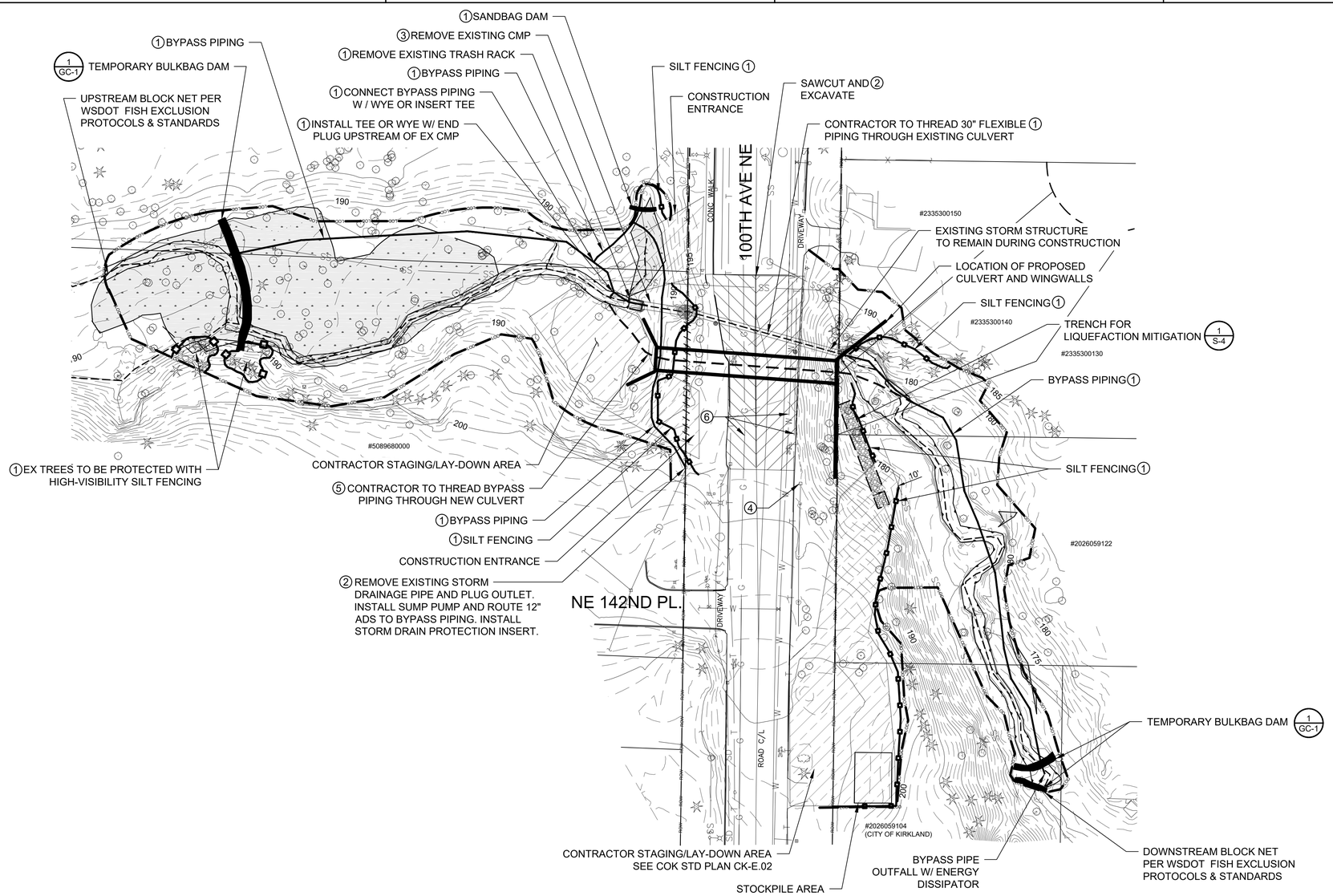

KEY NOTES

1. WORK TO BE PERFORMED DURING THE FIRST STAGE OF STREAM BYPASS SEQUENCE.
2. SEE SHEET C-2 FOR ROADWAY PLAN.
3. WORK TO BE PERFORMED DURING THE THIRD STAGE OF STREAM BYPASS SEQUENCE.
4. STORM DESIGN ON EAST SIDE OF 100TH AVE NE BY OTHERS.
5. WORK TO BE PERFORMED DURING THE FIFTH STAGE OF STREAM BYPASS SEQUENCE.
6. PROTECT EXISTING UTILITIES IN PLACE.

SITE PREPARATION NOTES

1. USE KING COUNTY PARCEL FOR CONSTRUCTION STAGING AND ACCESS.
2. CULVERT AND CHANNEL CONSTRUCTION SHOULD BE ACCOMPLISHED USING THE FOLLOWING PHASES.
3. SEE SHEET P-3 FOR TREE REMOVAL PROCEDURE.
4. CONTRACTOR SHALL PROVIDE PUMP WITH CAPACITY OF 23.1 CFS OR GREATER. PUMP SHALL BE AVAILABLE FOR USE AT ALL TIMES WHILE STREAM BYPASS IS ACTIVE.

STREAM BYPASS SEQUENCE:

1. BLOCK DOWNSTREAM REACH FROM FLOW. CONSTRUCT UPSTREAM SANDBAG AND BULKBAG DAMS AS SHOWN. INSTALL SUMP PUMP WITH FLEXIBLE PIPING EXTENDING TO DOWNSTREAM PROJECT EXTENT THROUGH EXISTING CULVERT AS SHOWN.
2. INSTALL BULKBAG ISOLATION AND ENERGY DISSIPATION POOL AT DOWNSTREAM PROJECT BOUNDARY PER DETAILS ON SHEET GC-1.
3. GRADUALLY DEWATER DOWNSTREAM REACH. COORDINATE WITH WASHINGTON DEPARTMENT OF FISH AND WILDLIFE FOR FISH EXCLUSION PROCEDURES.
4. SALVAGE VEGETATION AND CLEAR INVASIVE VEGETATION PER THE VEGETATION PLAN. SEPARATELY STOCKPILE SALVAGED VEGETATION AND NATIVE MATERIALS FOR USE IN CONSTRUCTION OF MAIN CHANNEL RUNS.
5. GRADE CHANNEL ALIGNMENTS.
6. ONCE NEW CULVERT IS INSTALLED, INSTALL NEW LENGTH OF FLEXIBLE BYPASS PIPING FROM UPSTREAM TEE OR WYE TO DOWNSTREAM PROJECT BOUNDARY THROUGH NEW CULVERT AS SHOWN.
7. REMOVE ORIGINAL LENGTH OF BYPASS PIPING THREADED THROUGH EXISTING CULVERT AND CAP END OF UPSTREAM TEE OR WYE.

CEDAR CREEK FLOW TABLE

RETURN PERIOD (YEARS)	FLOW (CFS)
2	11.5
5	18.4
10	23.1

FLOWS AND RETURN PERIODS ARE APPROXIMATE

TESC LEGEND

SILT FENCE
SANDBAG/BULKBAG DAM
LIMITS OF DISTURBANCE
CONSTRUCTION ENTRANCE
TRENCH FOR LIQUEFACTION MITIGATION

N

0 40' 80'

NOTE:
COORDINATE STAGES OF DEMOLITION WITH TRAFFIC CONTROL

Revision | By | Appd | YYYY.MM.DD

Issued | By | Appd | YYYY.MM.DD

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JAMES E. McPHERSON — STATE OF WASHINGTON — 28287 — REGISTERED PROFESSIONAL ENGINEER — 3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515P-001 | WMM Dwn. | LAH Dsgn. | JEM Chkd. | 2020.03.11 YYYY.MM.DD

Title
SITE PREPARATION AND DEWATERING PLAN

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 8 of 33
Drawing No. SP-1

PLOTTING DATE: 3/11/2020 9:31 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\104515P-001.dwg
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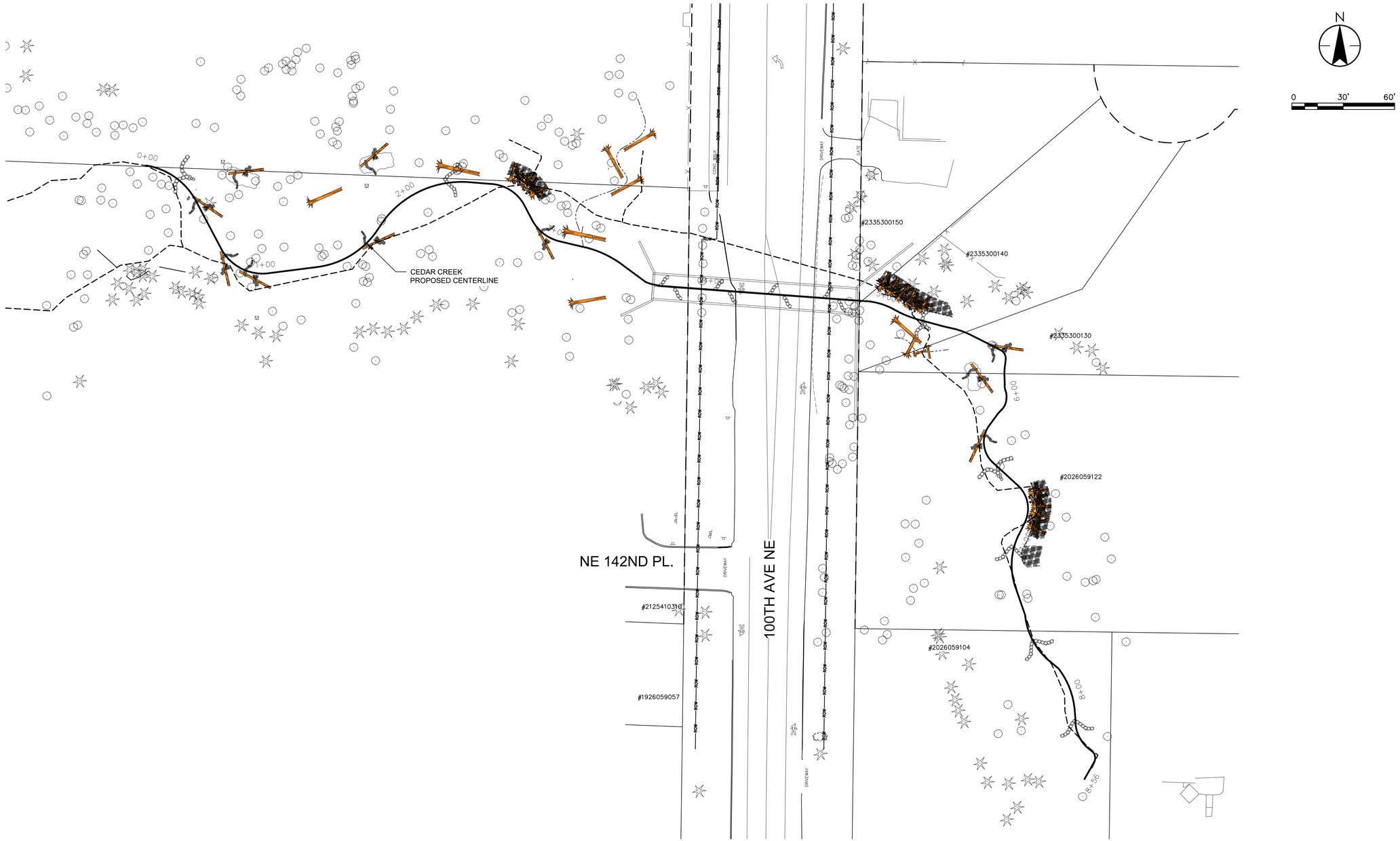

PLOTTING DATE: 3/9/2020 11:59 AM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451C-002.dwg

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

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43170
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3/11/2020

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CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

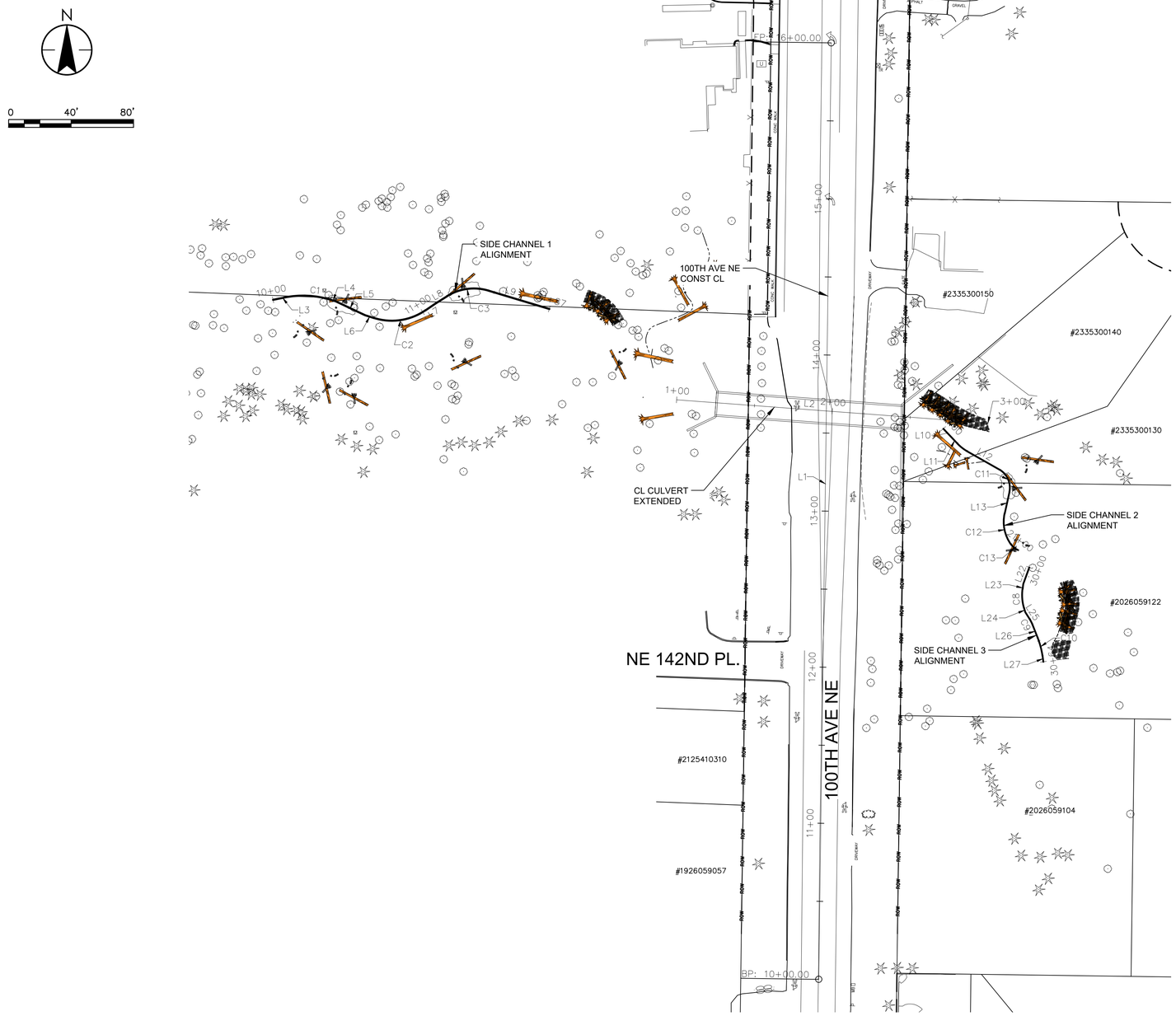
KIRKLAND, WA

File Name: 10451C-002	BDC	LAH	DJE	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
MAIN CHANNEL ALIGNMENT PLAN
CEDAR CREEK PROPOSED CENTERLINE

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 9 of 33
Drawing No. C-2

ORIGINAL SHEET - ANSI D



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CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451C-003

BDC	LAH	DJE	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SIDE CHANNELS ALIGNMENT PLAN

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 10 of 33
Drawing No. C-3

Revision	By	Appd	YYYY.MM.DD

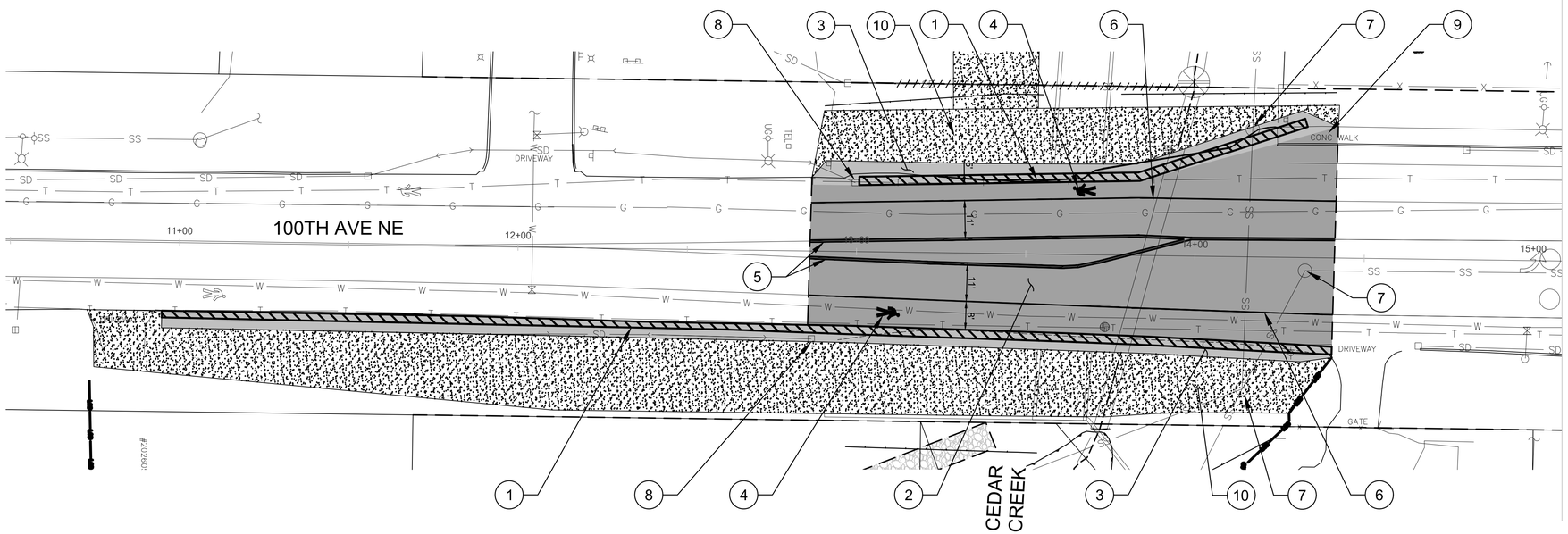
Issued	By	Appd	YYYY.MM.DD

PLOTTING DATE: 3/9/2020 12:41 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451C-003.dwg

ORIGINAL SHEET - ANSI D

KEY NOTES

1. INSTALL CONCRETE BARRIER TYPE 2 PER WSDOT STD PLAN C-8.
2. CONSTRUCT HMA PAVEMENT SECTION PER DETAIL SHEET 12.
3. CONSTRUCT BARRIER PAD PAVEMENT SECTION PER DETAIL SHEET 12.
4. INSTALL PEDESTRIAN LANE MARKING PER CITY OF KIRKLAND STD PLAN CK-R.34B.
5. INSTALL PAINTED DOUBLE YELLOW CENTERLINE PER CITY OF KIRKLAND STD PLAN CK-R.31.
6. INSTALL 4" WHITE PAINTED EDGE LINE PER WSDOT STANDARD PLAN M-20.10-02.
7. ADJUST SEWER MANHOLE TO GRADE PER CITY OF KIRKLAND STD PLAN CK-R.02.
8. ADJUST CATCH BASIN TO GRADE PER CITY OF KIRKLAND STD PLAN CK-R.02.
9. CONSTRUCT HMA TRANSITION RAMP PER DETAIL SHEET 12.
10. INSTALL ±2" CSTC GRAVEL SHOULDER.



ROADWAY LEGEND:

SAWCUT

HMA PAVEMENT SECTION

BARRIER PAD PAVEMENT SECTION

GRAVEL SHOULDER

CONCRETE TRAFFIC BARRIER

N

0 20' 40'

Revision By Appd YYYY.MM.DD

Issued By Appd YYYY.MM.DD

Permit/Seal

STATE OF WASHINGTON
JEAN DANIEL CHASE
49433
REGISTERED PROFESSIONAL ENGINEER
3/11/2020

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CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

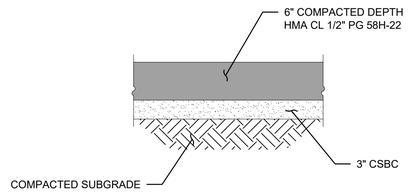
KIRKLAND, WA

File Name: 10451C-004 | LAH Dwn. | BDC Dsgn. | JEM Chkd. | 2020.03.11 YYYY.MM.DD

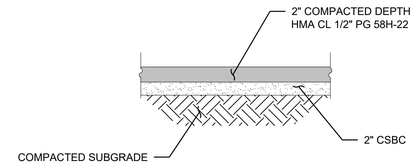
Title
ROADWAY, DRAINAGE, UTILITY, AND CHANNELIZATION PLAN

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 11 of 33
Drawing No. C-4

PLOTTING DATE: 3/9/2020 12:01 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0528390\10451C-004.dwg
ORIGINAL SHEET - ANSI D



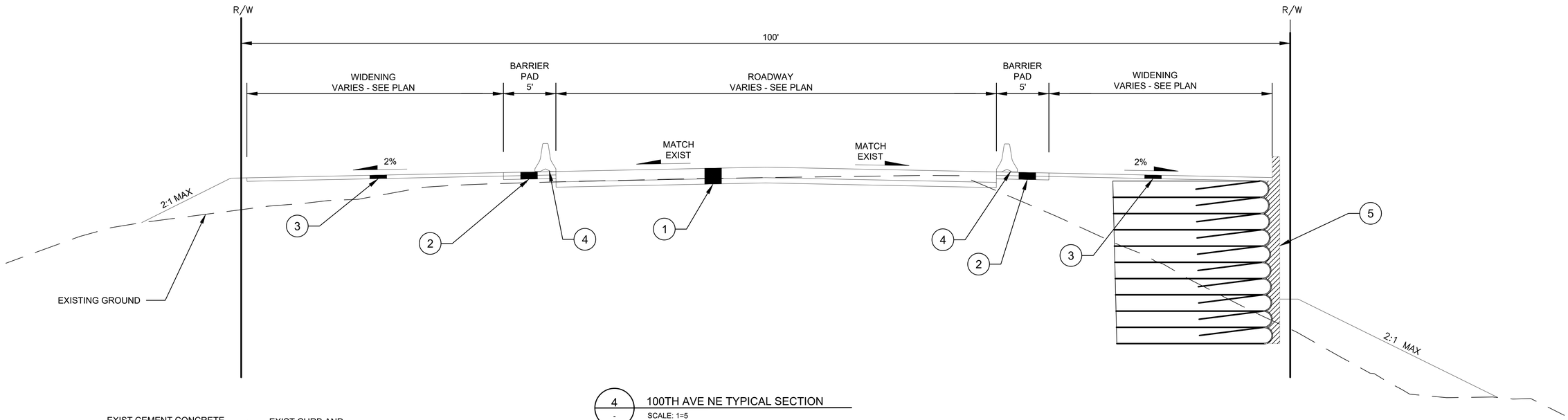
1 - HMA PAVEMENT SECTION
NOT TO SCALE



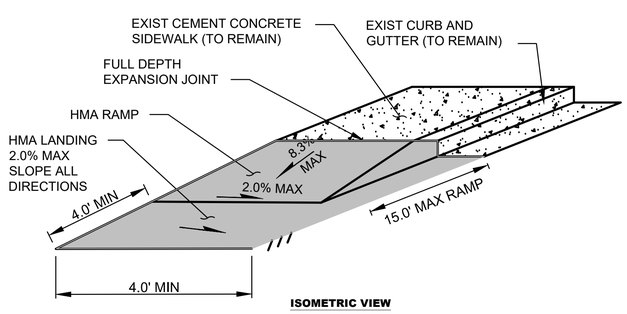
2 - BARRIER PAD PAVEMENT SECTION
NOT TO SCALE

KEY NOTES

1. HMA PAVEMENT SECTION, SEE DETAIL THIS SHEET.
2. BARRIER PAD PAVEMENT SECTION, SEE DETAIL THIS SHEET.
3. 2" CSTC FOR ROAD WIDENIING.
4. PRECAST CONCRETE BARRIER TYPE 2 PER WSDOT STD PLAN C-8.
5. STRUCTURAL EARTH WALL. SEE SHEETS S-3.



4 - 100TH AVE NE TYPICAL SECTION
SCALE: 1=5

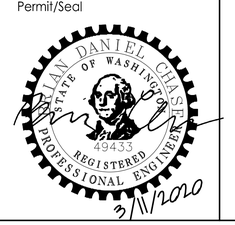


3 - HMA TRANSITION RAMP DETAIL
NOT TO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal



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CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451C-005	LAH	BDC	JEM	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
ROADWAY DETAILS

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 12 of 33
Drawing No. C-5

PLOTTING DATE: 3/9/2020 1:19 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\10451C-005.dwg

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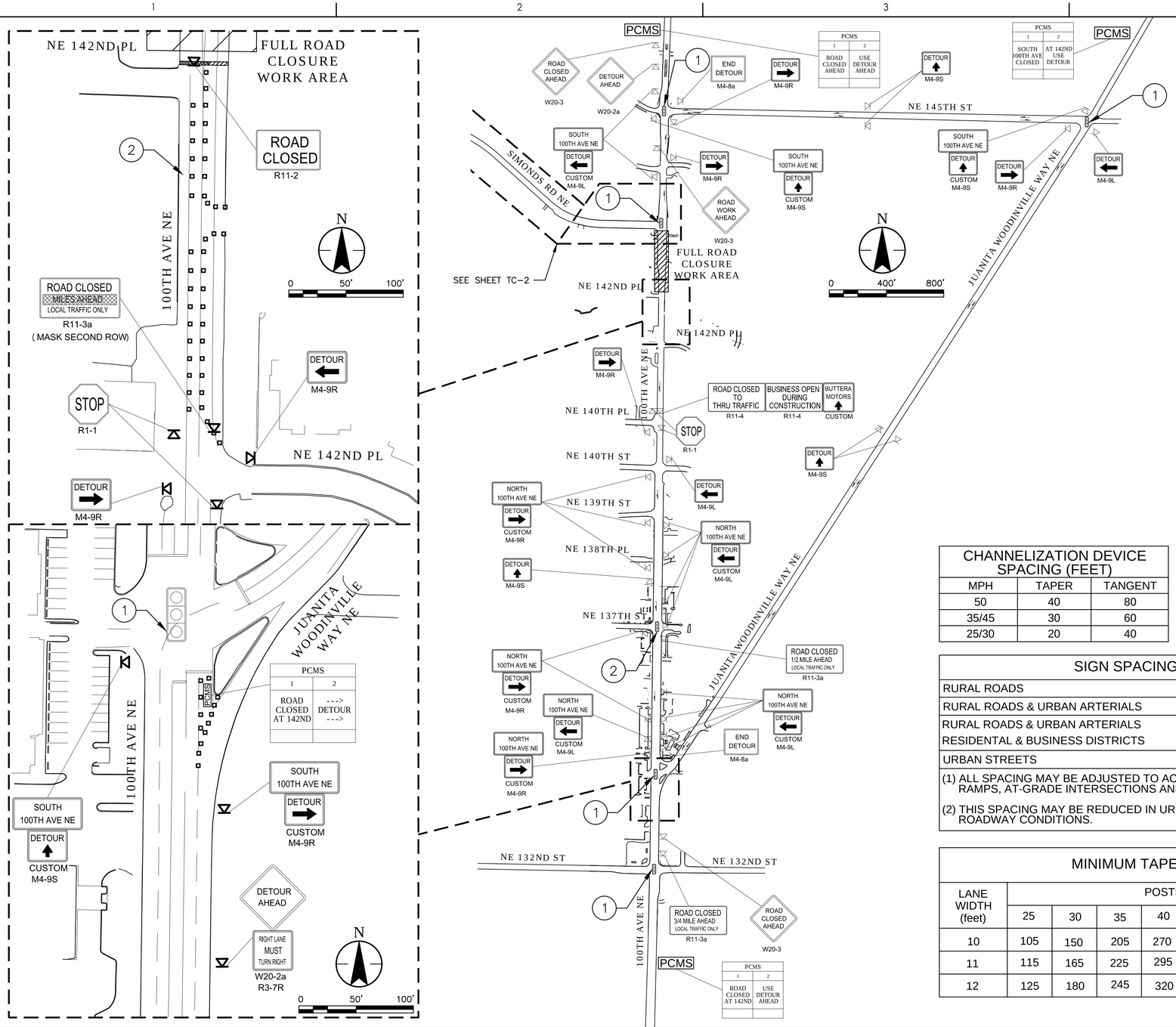

TRAFFIC CONTROL GENERAL NOTES

1. FULL ROAD CLOSURE OF 100TH AVE NE SHALL BE ALLOWED ONLY IN ACCORDANCE WITH THE CONTRACT SPECIAL PROVISIONS.
2. ALL TRAFFIC CONTROL SHALL COMPLY WITH MUTCD REQUIREMENTS.
3. MINIMUM TEMPORARY LANE WIDTHS SHALL BE 10FT.
4. SEE ALSO SPECIFICATIONS AND SPECIAL PROVISIONS, INCLUDING WSDOT STD SPEC 1-07.23(1).
5. ALL CONSTRUCTION SIGNS SHALL BE CLASS A UNLESS DESIGNATED OTHERWISE.
6. CONFLICTING SIGNS SHALL BE COVERED OR REMOVED.
7. CONTRACTOR SHALL SUBMIT FOR APPROVAL ANY ADDITIONAL TRAFFIC CONTROL PLANS AS REQUIRED TO COMPLETE WORK.
8. PEDESTRIAN ACCESS THROUGH THE WORK AREA DURING THE FULL ROAD CLOSURE IS NOT REQUIRED. SEE SPECIAL PROVISIONS.
9. CONTRACTOR SHALL CONTACT RIK MAYERS AT (206) 496-4265, OR STEVE HOOPES AT (425) 623-5086 FOR ALL RELATED TRAFFIC SIGNAL COORDINATION.
10. CONTRACTOR SHALL COORDINATE ACCESS FOR SERVICES INCLUDING, BUT NOT LIMITED TO, MAIL DELIVERY, GARBAGE PICKUP, BUSINESS DELIVERIES/PICKUPS, AND ANY SPECIAL TRANSPORTATION SERVICES. CONTRACTOR SHALL COORDINATE WITH BUSINESSES TO ENSURE ALL DELIVERIES AND GARBAGE PICKUP IS MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
11. CONTRACTOR AND/OR IT'S AGENTS SHALL NOT PARK IN ANY BUSINESS PARKING LOTS WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNER.
12. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS TO ALL PROPERTIES UNLESS APPROVED OTHERWISE. THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY CLOSURES WITH THE ONSITE CONTRACTING AGENCY REPRESENTATIVE AND AFFECTED PROPERTY OWNER PRIOR TO IMPLEMENTING CLOSURE.

KEY NOTES

1. COORDINATE TRAFFIC SIGNAL TIMING WITH CONTRACTING AGENCY. SEE TRAFFIC CONTROL GENERAL NOTE 9.
2. SHIFT TRAVEL LANES USING EXIST SHOULDER WIDTH. MINIMUM TRAVEL LANE WIDTH 10FT.

CHANNELIZATION DEVICE SPACING (FEET)

MPH	TAPER	TANGENT
50	40	80
35/45	30	60
25/30	20	40

SIGN SPACING = X (1)

RURAL ROADS	45 / 55 MPH	500'
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350'
RURAL ROADS & URBAN ARTERIALS RESIDENTAL & BUSINESS DISTRICTS	25 / 30 MPH	200' (2)
URBAN STREETS	25 MPH OR LESS	100' (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.

(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

MINIMUM TAPER LENGTH - L (FEET)

LANE WIDTH (feet)	POSTED SPEED (MPH)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	-	-	-	-
11	115	165	225	295	495	550	-	-	-	-
12	125	180	245	320	540	600	-	-	-	-

TRAFFIC CONTROL LEGEND

- TEMPORARY SIGN LOCATION
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE
- DETOUR ROUTE
- TEMPORARY CONCRETE BARRIER
- MOVEABLE TYPE III BARRICADE
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN
- SIGNALIZED INTERSECTION

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Revision By Appd YYYY.MM.DD

Issued By Appd YYYY.MM.DD

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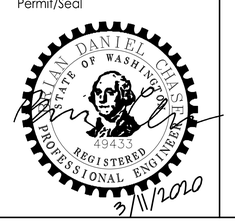

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

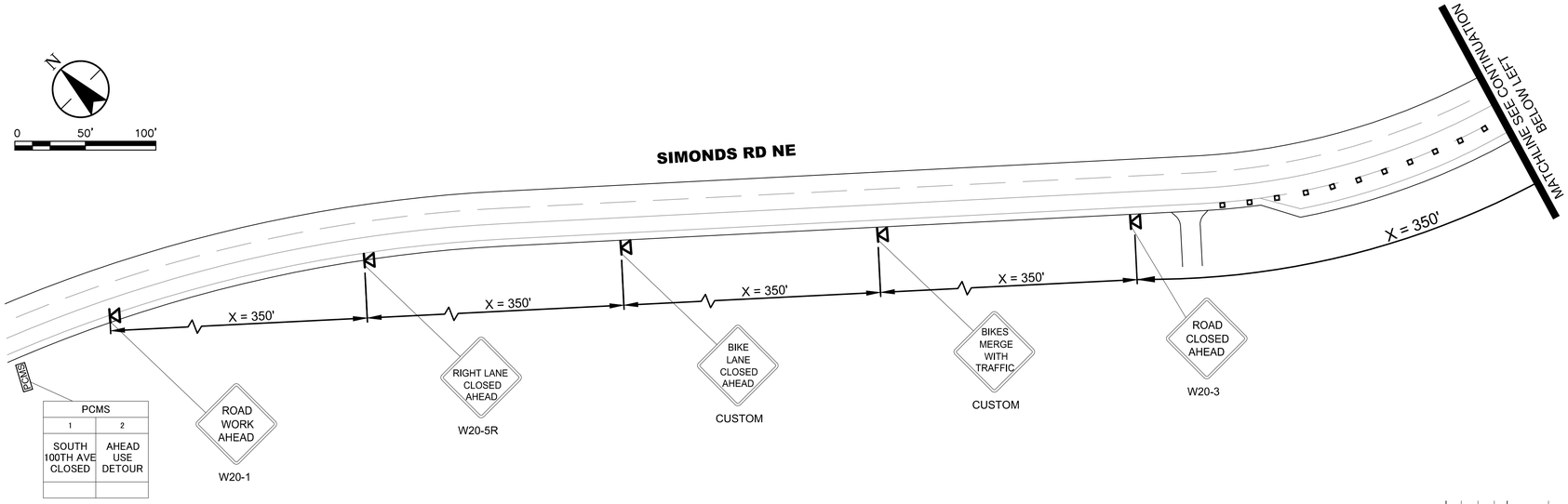
KIRKLAND, WA

File Name: 104511C-001 | BDC Dwn. | BDC Dsgn. | JEM Chkd. | 2020.03.11 YYYY.MM.DD

Title
TRAFFIC CONTROL PLAN - FULL ROAD CLOSURE WITH DETOUR

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 13 of 33
Drawing No. TC-1

ORIGINAL SHEET - ANSI D



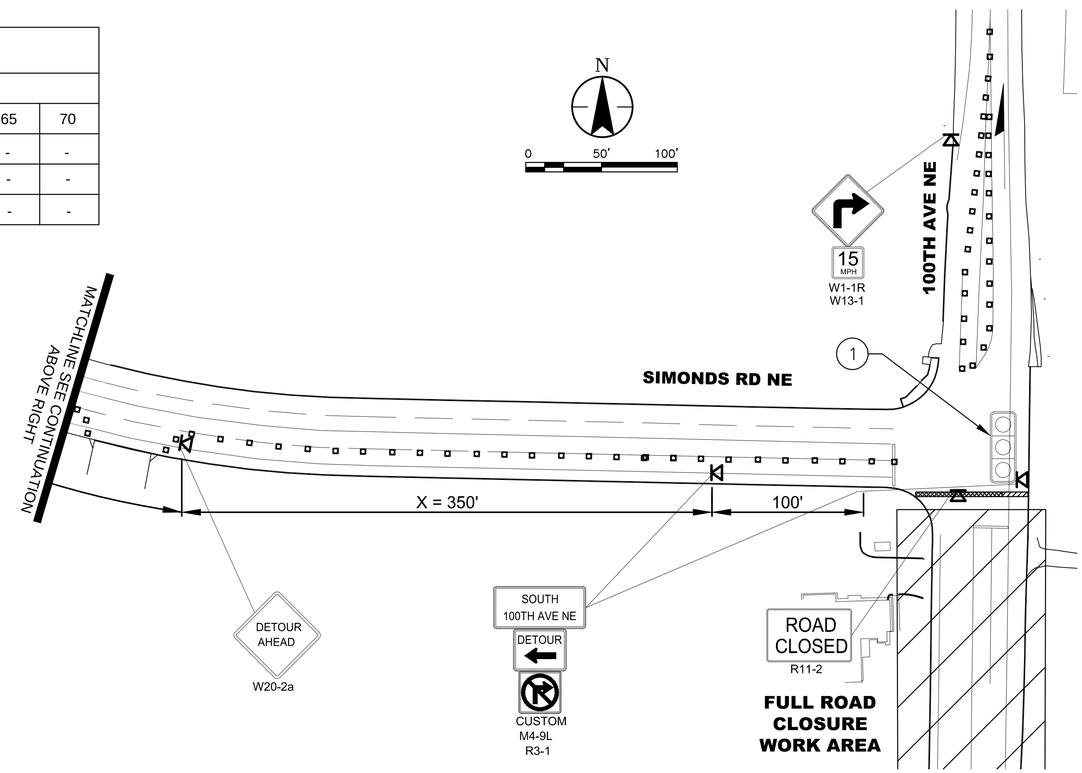
MINIMUM TAPER LENGTH - L (FEET)										
LANE WIDTH (feet)	POSTED SPEED (MPH)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	-	-	-	-
11	115	165	225	295	495	550	-	-	-	-
12	125	180	245	320	540	600	-	-	-	-

SIGN SPACING = X (1)		
RURAL ROADS	45 / 55 MPH	500'
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350'
RURAL ROADS & URBAN ARTERIALS RESIDENTAL & BUSINESS DISTRICTS	25 / 30 MPH	200' (2)
URBAN STREETS	25 MPH OR LESS	100' (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.

(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

CHANNELIZATION DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50	40	80
35/45	30	60
25/30	20	40



TRAFFIC CONTROL GENERAL NOTES

1. FULL ROAD CLOSURE OF 100TH AVE NE SHALL BE ALLOWED ONLY IN ACCORDANCE WITH THE CONTRACT SPECIAL PROVISIONS.
2. ALL TRAFFIC CONTROL SHALL COMPLY WITH MUTCD REQUIREMENTS.
3. MINIMUM TEMPORARY LANE WIDTHS SHALL BE 10FT.
4. SEE ALSO SPECIFICATIONS AND SPECIAL PROVISIONS, INCLUDING WSDOT STD SPEC 1-07.23(1).
5. ALL CONSTRUCTION SIGNS SHALL BE CLASS A UNLESS DESIGNATED OTHERWISE.
6. CONFLICTING SIGNS SHALL BE COVERED OR REMOVED.
7. CONTRACTOR SHALL SUBMIT FOR APPROVAL ANY ADDITIONAL TRAFFIC CONTROL PLANS AS REQUIRED TO COMPLETE WORK.
8. PEDESTRIAN ACCESS THROUGH THE WORK AREA DURING THE FULL ROAD CLOSURE IS NOT REQUIRED. SEE SPECIAL PROVISIONS.
9. CONTRACTOR SHALL CONTACT RIK MAYERS AT (206) 496-4265, OR STEVE HOOPES AT (425) 623-5086 FOR ALL RELATED TRAFFIC SIGNAL COORDINATION.
10. CONTRACTOR SHALL COORDINATE ACCESS FOR SERVICES INCLUDING, BUT NOT LIMITED TO, MAIL DELIVERY, GARBAGE PICKUP, BUSINESS DELIVERIES/PICKUPS, AND ANY SPECIAL TRANSPORTATION SERVICES. CONTRACTOR SHALL COORDINATE WITH BUSINESSES TO ENSURE ALL DELIVERIES AND GARBAGE PICKUP IS MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
11. CONTRACTOR AND/OR IT'S AGENTS SHALL NOT PARK IN ANY BUSINESS PARKING LOTS WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNER.
12. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS TO ALL PROPERTIES UNLESS APPROVED OTHERWISE. THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY CLOSURES WITH THE ONSITE CONTRACTING AGENCY REPRESENTATIVE AND AFFECTED PROPERTY OWNER PRIOR TO IMPLEMENTING CLOSURE.

KEY NOTES

(1) COORDINATE TRAFFIC SIGNAL TIMING WITH CONTRACTING AGENCY. SEE TRAFFIC CONTROL GENERAL NOTE 9.

TRAFFIC CONTROL LEGEND

- TEMPORARY SIGN LOCATION
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE
- DETOUR ROUTE
- TEMPORARY CONCRETE BARRIER
- MOVEABLE TYPE III BARRICADE
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN
- SIGNALIZED INTERSECTION

Revision | By | Appd | YYYY.MM.DD

Issued | By | Appd | YYYY.MM.DD

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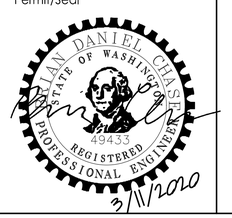

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

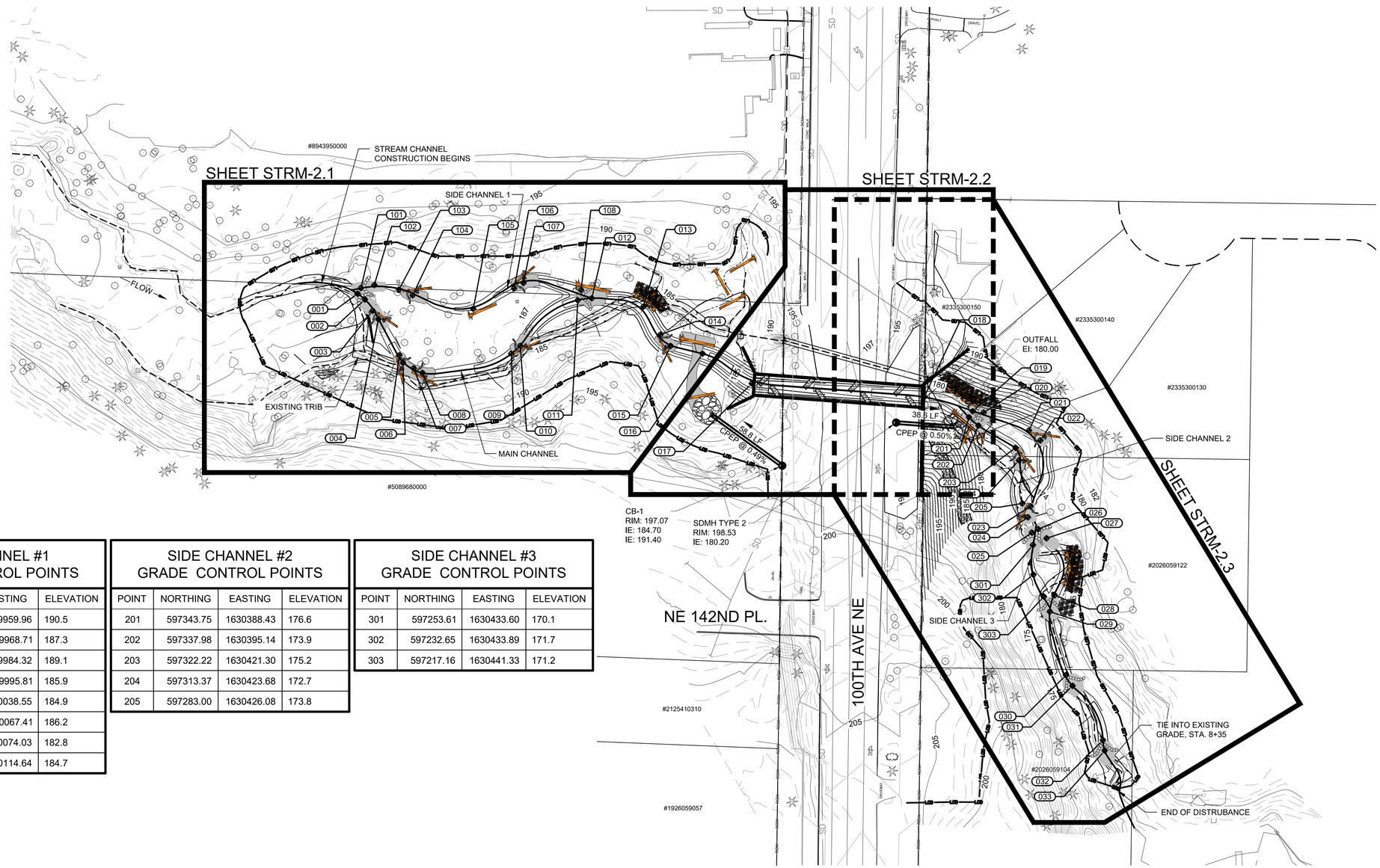
KIRKLAND, WA

File Name: 104511C-001 | BDC Dwn. | BDC Dsgn. | JEM Chkd. | 2020.03.11 YYYY.MM.DD

Title
TRAFFIC CONTROL PLAN - NORTH CLOSURE

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 14 of 33
Drawing No. TC-2

PLOTTING DATE: 3/13/2020 2:40 PM USER: Shoymerman, Eduard FILE NAME: C:\pwworkdir\d0526390\104511TC-001.dwg
ORIGINAL SHEET - ANSI D



MAIN CHANNEL GRADE CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION
1	597431.07	1629956.90	190.0
2	597426.93	1629962.06	187.8
3	597418.97	1629967.59	189.0
4	597413.11	1629971.66	186.5
5	597387.58	1629986.35	187.9
6	597382.32	1629988.91	185.7
7	597378.46	1629996.52	186.9
8	597375.08	1630002.69	184.4
9	597388.68	1630065.42	185.8
10	597394.25	1630071.73	183.3
11	597426.45	1630112.33	184.7
12	597427.78	1630122.22	182.2
13	597421.97	1630158.70	181.3
14	597402.13	1630170.64	182.5
15	597394.15	1630177.86	179.2
16	597388.69	1630200.37	180.7
17	597367.70	1630235.13	180.1
18	597358.16	1630356.85	177.1
19	597348.03	1630391.11	176.1
20	597347.11	1630398.78	173.4
21	597334.44	1630430.80	174.9
22	597327.46	1630438.77	172.2
23	597280.98	1630431.98	173.7
24	597273.17	1630430.06	171.0
25	597262.35	1630432.77	173.0
26	597264.76	1630437.30	172.5
27	597258.39	1630443.15	169.5
28	597218.10	1630448.95	171.2
29	597206.58	1630445.51	168.2
30	597161.70	1630456.91	169.9
31	597154.21	1630461.54	167.2
32	597114.24	1630482.45	168.7
33	597106.50	1630484.58	167.1

SIDE CHANNEL #1 GRADE CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION
101	597438.18	1629959.96	190.5
102	597437.15	1629968.71	187.3
103	597433.91	1629984.32	189.1
104	597429.98	1629995.81	185.9
105	597420.35	1630038.55	184.9
106	597434.80	1630067.41	186.2
107	597438.61	1630074.03	182.8
108	597433.64	1630114.64	184.7

SIDE CHANNEL #2 GRADE CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION
201	597343.75	1630388.43	176.6
202	597337.98	1630395.14	173.9
203	597322.22	1630421.30	175.2
204	597313.37	1630423.68	172.7
205	597283.00	1630426.08	173.8

SIDE CHANNEL #3 GRADE CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION
301	597253.61	1630433.60	170.1
302	597232.65	1630433.89	171.7
303	597217.16	1630441.33	171.2

Revision By Appd YYYY.MM.DD

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-001.1

LAH	LAH	DJE	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
STREAM CONTROL PLAN, SHEET KEY MAP AND POINT TABLES

Project No. CSD0124

Scale AS NOTED

Revision

Sheet 16 of 33

Drawing No. STRM-1.1

PLOTTING DATE: 3/11/2020 12:19 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\104515TRM-001.1.dwg

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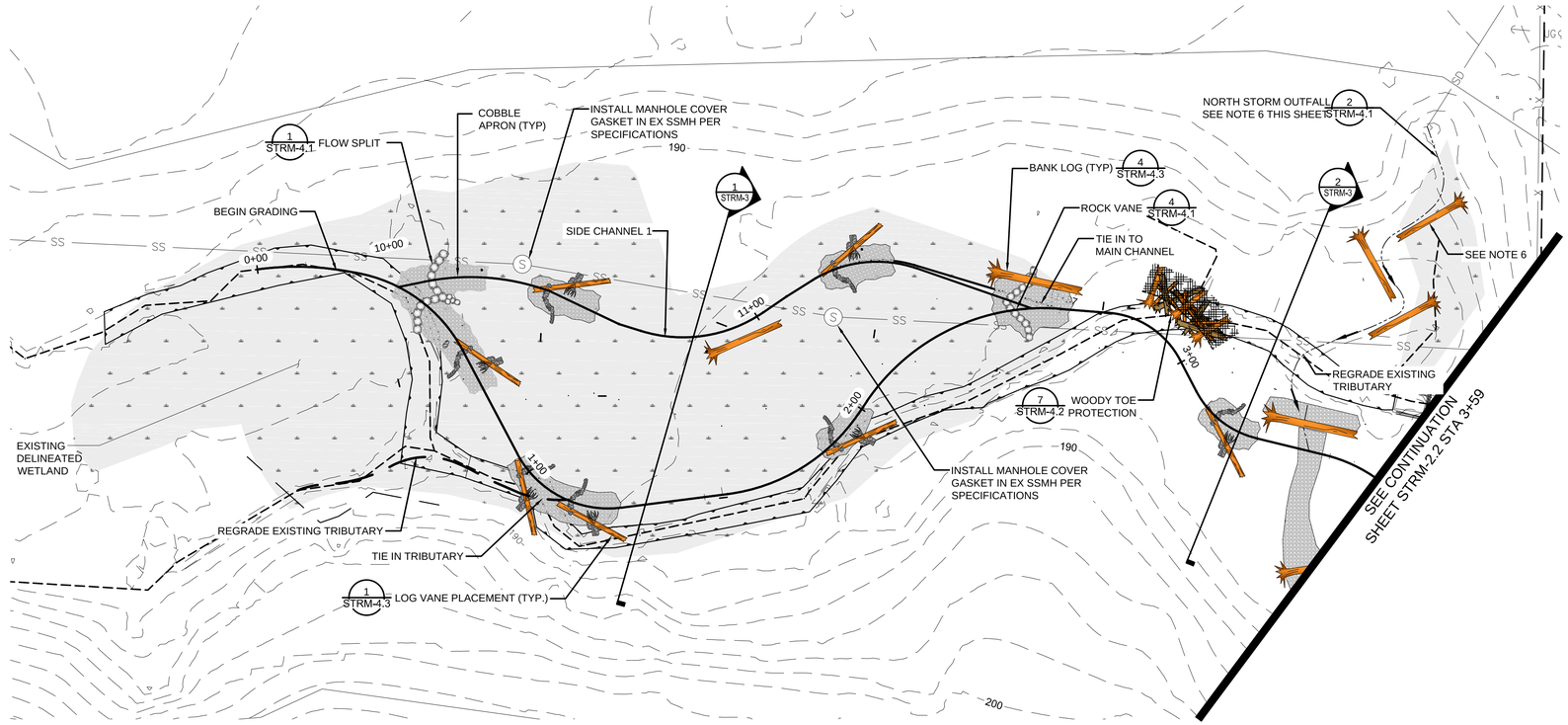
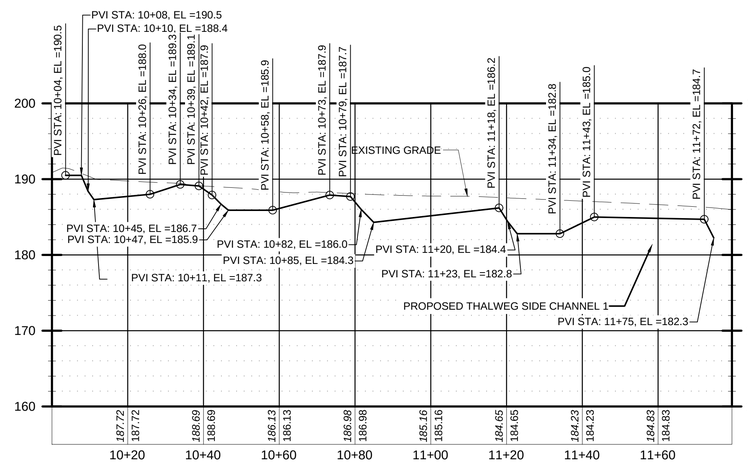
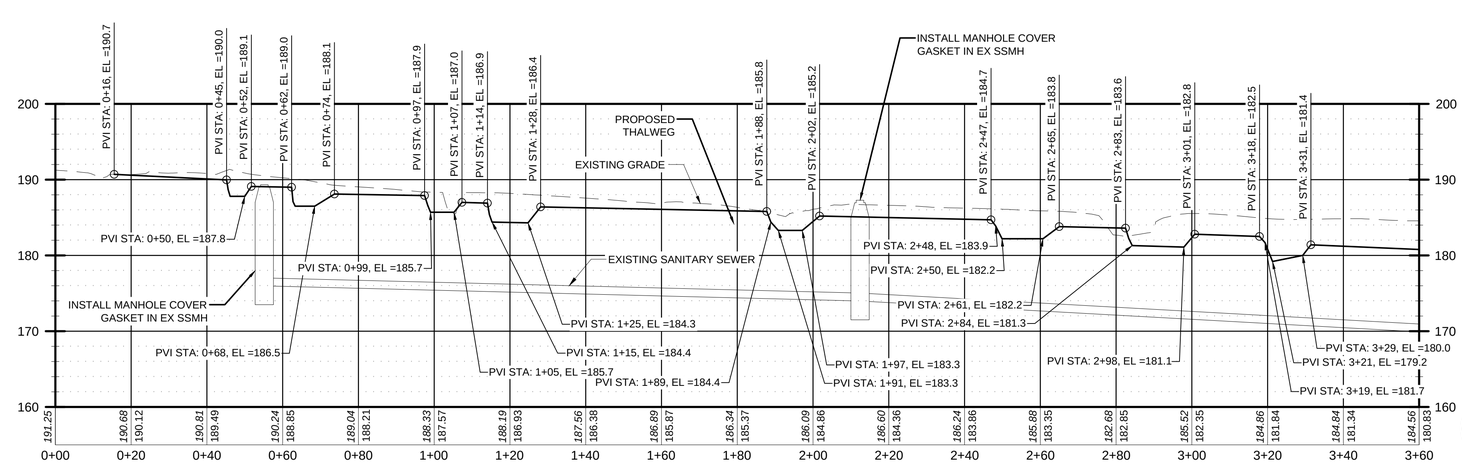
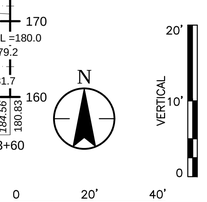


NOTES

1. SEE SHEETS P-1 THROUGH P-6 FOR PLANTING PLAN AND SCHEDULE.
2. SEE CHANNEL ALIGNMENT PLAN SHEETS.
3. SEE SECTION SHEETS.
4. SEE SHEET STRM 1.1 FOR ELEVATIONS.
5. SEE SPECS FOR MATERIAL AND INSTALLATION REQUIREMENTS FOR SSMH GASKETS.
6. PROVIDE DRAINAGE TO MAIN CHANNEL IN THE FORM OF POOLS. PLACE WOODY MATERIAL TO EDGE OF LEFT BANK DOWNSTREAM OF LOG VANE. MAX EXPOSED LOG FACE IS 1 FOOT.







PLOTTING DATE: 3/11/2020 10:36 AM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\104513TRM-002.1.dwg

Revision	By	Appd	YYYY.MM.DD

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104513TRM-002.1	LAH			2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
UPSTREAM PLAN AND PROFILE

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 17 of 33
Drawing No. STRM-2.1

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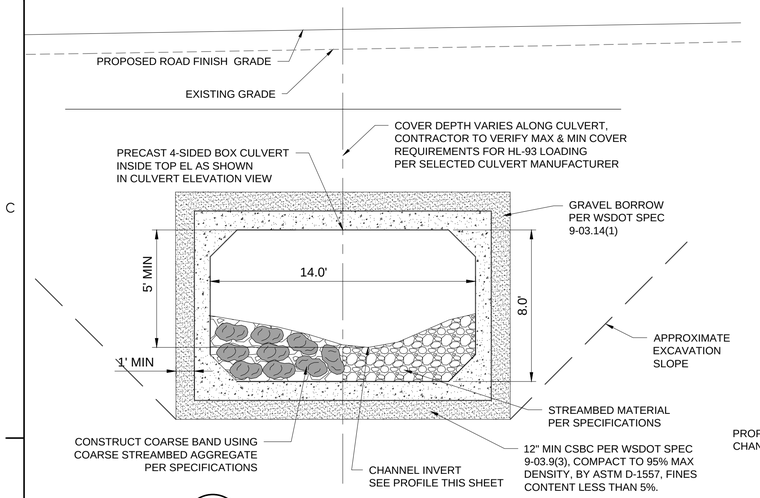
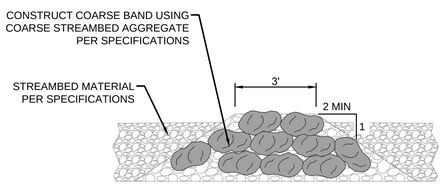


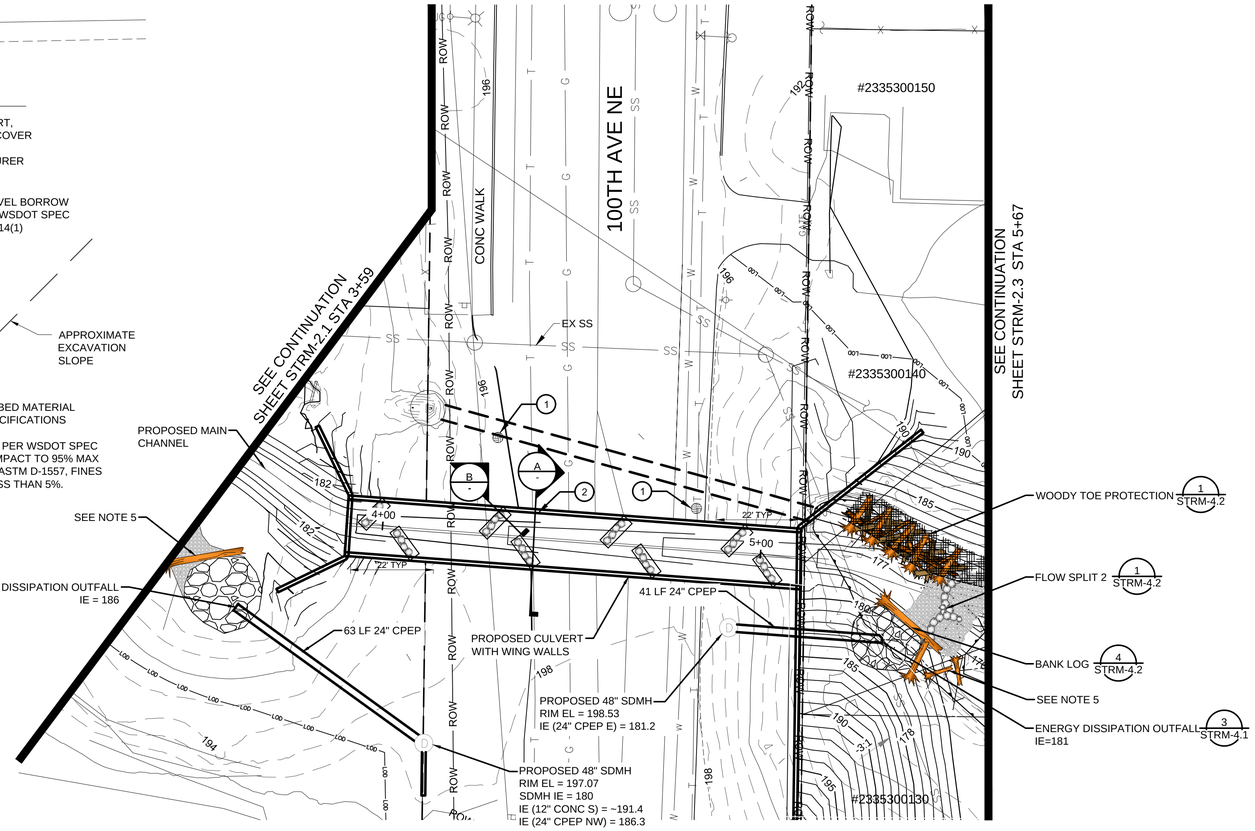
A / - TYPICAL CULVERT SECTION VIEW

SCALE: 1"=4'



B / - COARSE BAND SECTION VIEW

SCALE: NOT TO SCALE

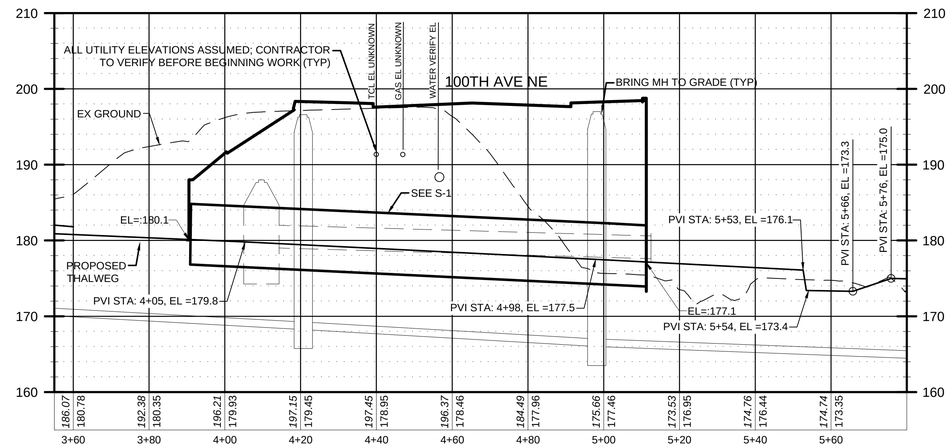


SHEET KEY NOTES

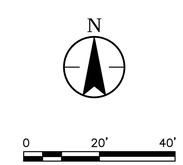
1. MONITORING WELL TO BE ABANDONED
2. COARSE BAND (TYP). SEE SECTION DETAILS, THIS SHEET.

GENERAL NOTES:

1. COARSE BANDS SHALL BE ORIENTED IN AN UPSTREAM DIRECTION AT 45° ANGLE FROM CULVERT WALL AS SHOWN.
2. COARSE BAND LENGTH SHALL BE A MIN OF 6 FEET MEASURED ALONG ITS CENTERLINE, BUT SHALL NOT EXTEND BEYOND THE CULVERT'S CENTERLINE.
3. COARSE BAND PROFILE TO BE NO GREATER THAN 6" BELOW DESIGN CHANNEL SECTION IN HEIGHT AND SHALL NOT EXTEND HIGHER THAN THE CHANNEL PROFILE.
4. COARSE BANDS SHALL BE CONSTRUCTED USING COARSE STREAMBED AGGREGATE AS DEFINED BY THE SPECIFICATIONS. ENGINEER TO VISUALLY INSPECT AND APPROVE MATERIAL USED FOR COARSE BANDS PRIOR TO INSTALLATION.
5. LOGS OUTSIDE OF STREAM CHANNEL SHALL BE INSTALLED PERPENDICULAR TO STORMWATER FLOW DIRECTION AS DIRECTED BY ENGINEER.



MAIN CHANNEL PROFILE



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CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-002.2 | LAH Dwn. | LAH Dsgn. | DJE Chkd. | 2020.03.11 YYYY.MM.DD

Title
STREAM PLAN AND PROFILE AT CULVERT

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 19 of 33
Drawing No. STRM-2.2

PLOTTING DATE: 3/11/2020 10:17 AM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\104515TRM-002.2.dwg
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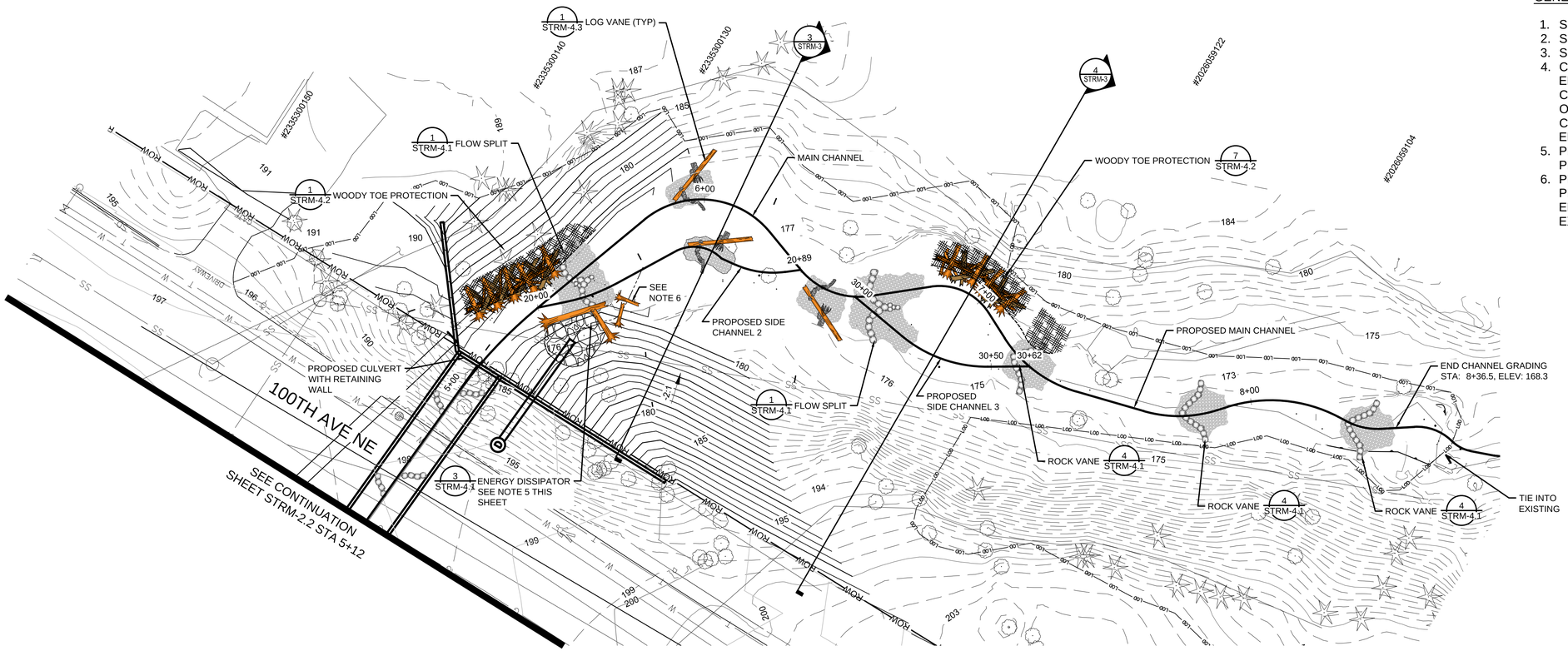
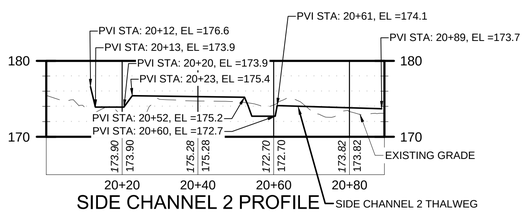
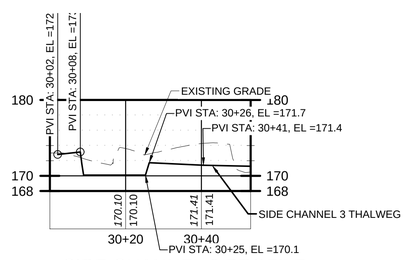


GENERAL NOTES

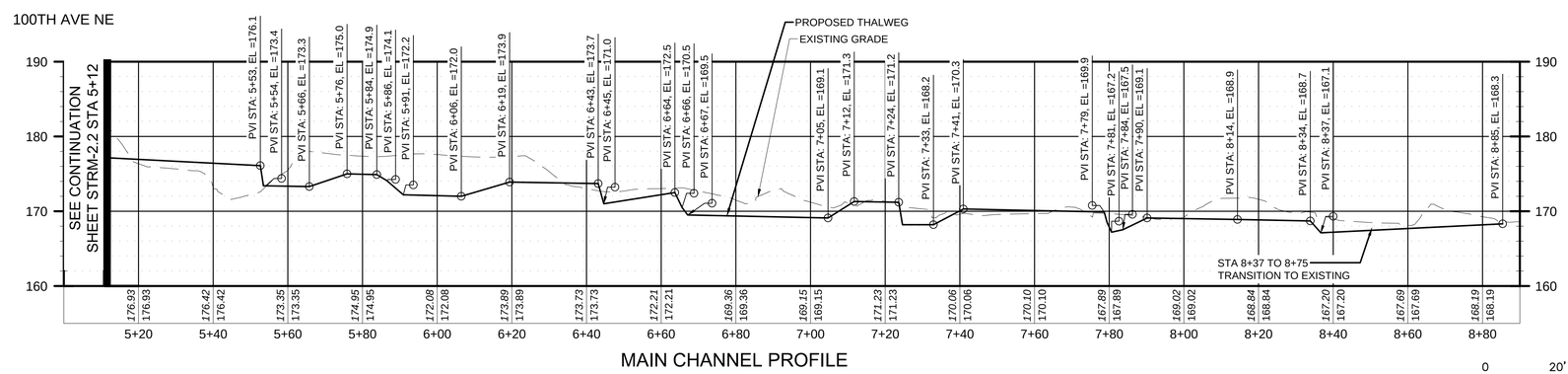
1. SEE STRUCTURAL SHEETS FOR CULVERT AND WING WALLS.
2. SEE CHANNEL ALIGNMENT PLAN SHEETS.
3. SEE SHEETS P-1 THROUGH P-6 FOR PLANTING PLAN AND SCHEDULE.
4. CONTRACTOR SHALL VERIFY ACCURACY OF EXISTING THALWEG ELEVATION AT DOWNSTREAM GRADING LIMIT PRIOR TO CONSTRUCTION OF IN-STREAM STRUCTURES. IF ELEVATION SHOWN ON PROFILE IS INACCURATE BY GREATER THAN 0.2 FEET, CONTRACTOR SHALL COORDINATE GRADE ADJUSTMENTS WITH ENGINEER.
5. PLACE RIPRAP AROUND OUTLET. CONTRACTOR SHALL CONFIRM PLACEMENT WITH ENGINEER.
6. PROVIDE DRAINAGE TO MAIN CHANNEL IN THE FORM OF POOLS. PLACE COARSE STREAMBED MATERIAL AND WOODY MATERIAL TO EDGE OF RIGHT BANK DOWNSTREAM OF FLOW SPLIT POOL. MAX EXPOSED LOG FACE IS 1 FOOT.



SIDE CHANNEL 2 PROFILE



SIDE CHANNEL 3 PROFILE



MAIN CHANNEL PROFILE

0 20' 40'

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CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-002.3 | LAH Dwn. | Dsgn. | Chkd. | 2020.03.11 YYYY.MM.DD

Title
DOWNSTREAM GRADING PLAN AND PROFILE

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 20 of 33
Drawing No. STRM-2.3

PLOTTING DATE: 3/11/2020 12:58 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\104515TRM-002.3.dwg

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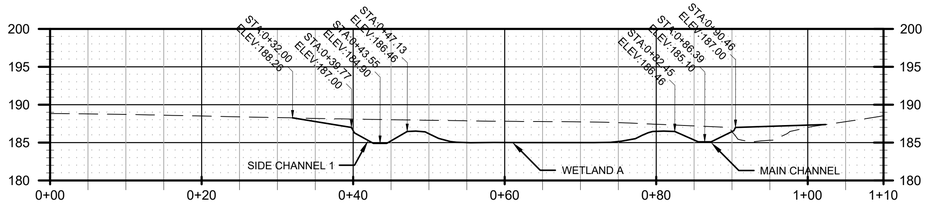

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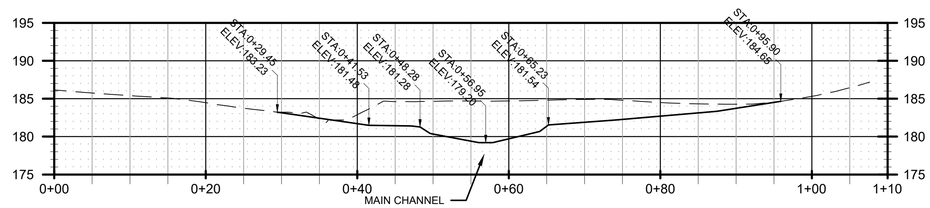
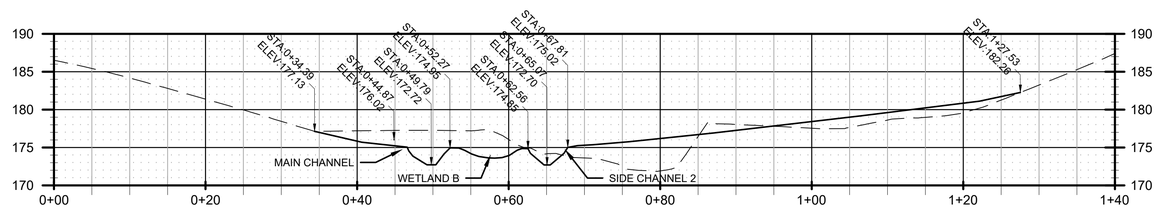
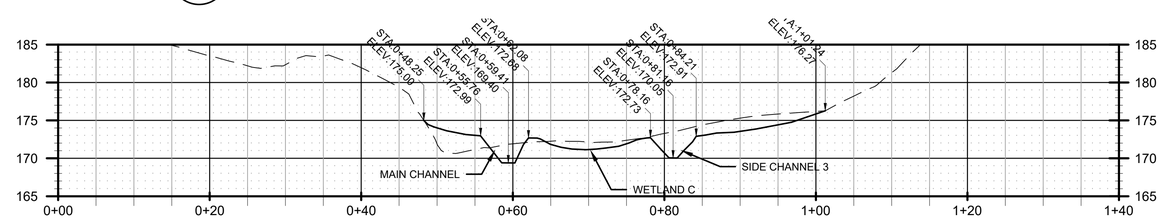


2 STRM-2.1 UPSTREAM CULVERT SECTION



3 STRM-2.3 DOWNSTREAM SITE SECTION A



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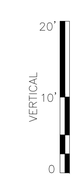

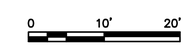

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CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-003

WMM	LAH	DJE	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CHARACTERISTIC STREAM SECTIONS

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 20 of 33
Drawing No. STRM-3

PLOTTING DATE: 3/11/2020 12:57 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\v0526390\104515TRM-003.dwg
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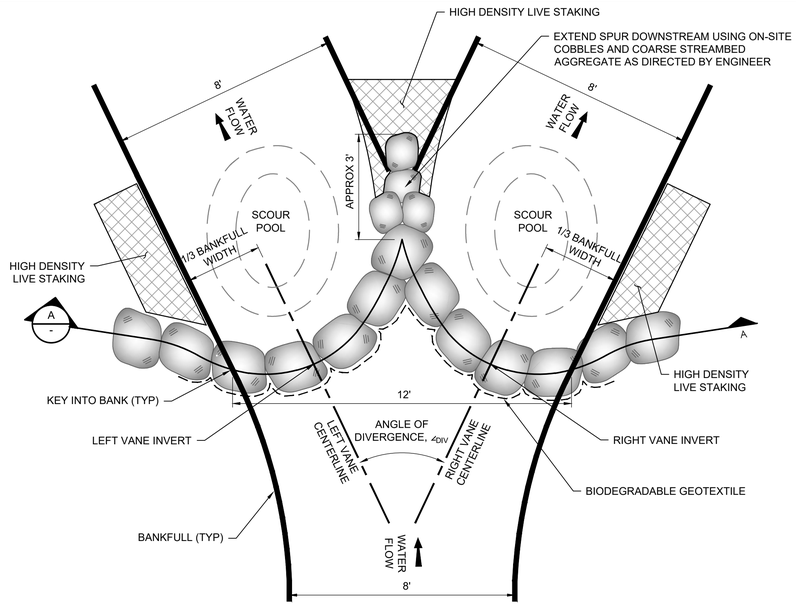
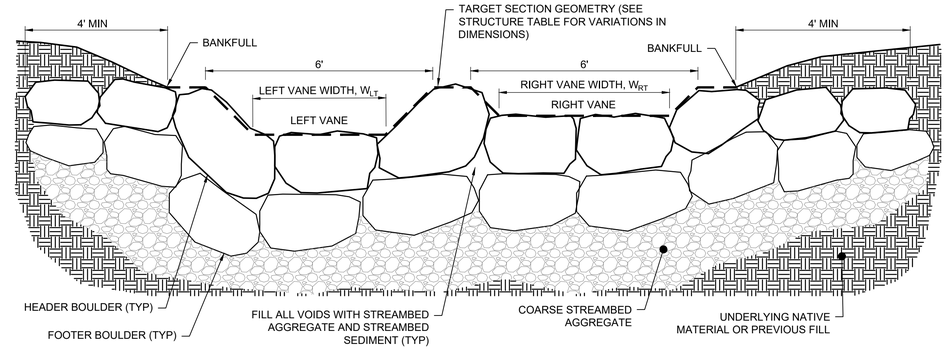


PLAN VIEW

FLOW SPLIT STRUCTURE TABLE

FLOW SPLIT NUMBER	MAIN CHANNEL STATION	LEFT VANE IE	RIGHT VANE IE	DOWNSTREAM CONTROL POINT	$\angle_{DIV}$	W_{LT}	W_{RT}
1	0+45	190.5	190.0	001	50°	5'-0"	3'-6"
2	5+53	176.1	176.6	020	34°	3'-6"	5'-0"
3	6+64	172.5	173.0	027	68°	3'-6"	5'-0"

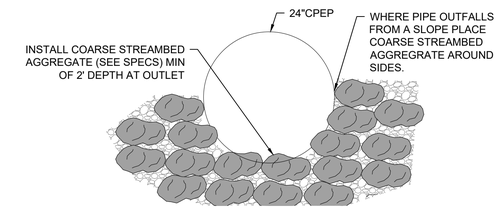


SECTION A-A

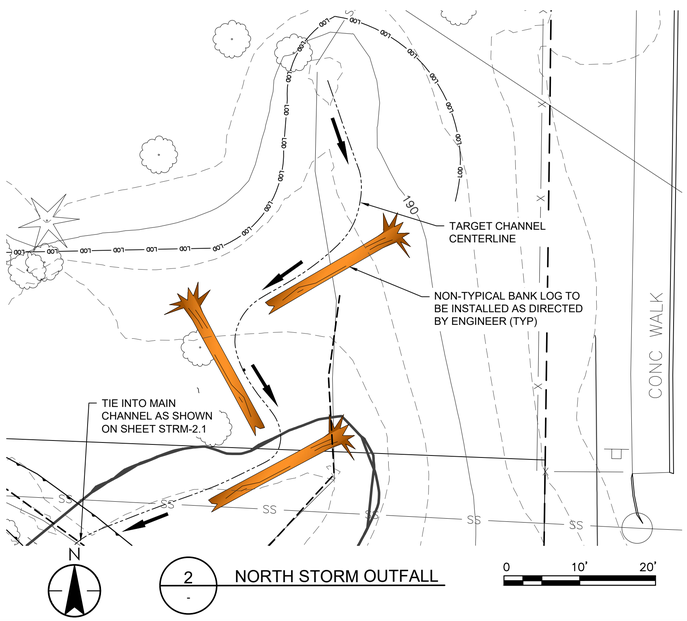
1 - FLOW SPLIT
NOT TO SCALE

NOTES:

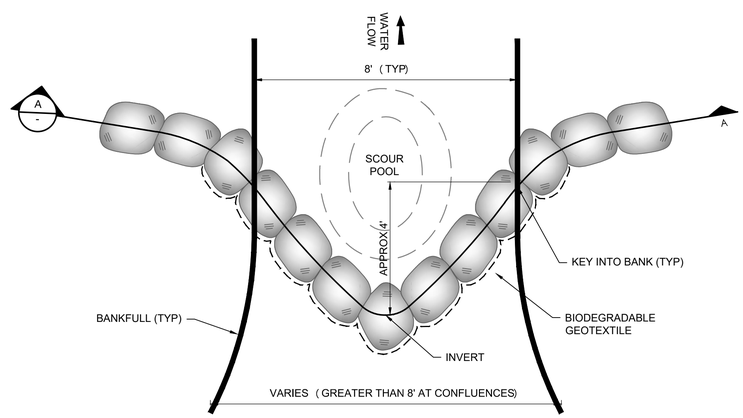
1. VANE BOULDERS SHALL HAVE A MINIMUM AVERAGE DIAMETER OF 19 INCHES CONFORM TO THE SPECIFICATIONS.
2. ON THE UPSTREAM SIDE OF THE VANE BOULDERS, A LAYER OF BIODEGRADABLE GEOTEXTILE FABRIC SHALL BE PLACED AS SHOWN. BIODEGRADABLE GEOTEXTILE SHALL CONFORM TO THE SPECIFICATIONS.
3. VANE BOULDERS SHALL PROTRUDE 0.1 FOOT ABOVE THE SPECIFIED INVERT ELEVATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, HEADER BOULDERS SHALL BE UNDERLAIN BY FOOTER BOULDERS AS SHOWN.
5. CARE WILL BE TAKEN DURING PLACEMENT TO MINIMIZE GAPS BETWEEN HEADER BOULDERS. CONTRACTOR TO CHINK BIODEGRADABLE GEOTEXTILE INTO UPSTREAM CREVICES BETWEEN BOULDERS AND BACKFILL WITH STREAMBED SEDIMENT.
6. VOIDS BEHIND AND BENEATH FLOW SPLITS AND ROCK VANES SHALL BE FILLED WITH STREAMBED SEDIMENT (INCLUDING FINES) TO THE GREATEST EXTENT FEASIBLE.
7. CONTRACTOR TO MINIMIZE DEVIATION FROM TARGET SECTION GEOMETRIES TO THE EXTENT FEASIBLE. NOTE THAT FOR FLOW SPLITS, WHICH OF THE TWO VANES IS LOWER VARIES AS DESCRIBED IN THE STRUCTURE TABLE.
8. SEE THE PLANTING PLANS (SHEETS P-1 THROUGH P-6) FOR DETAILS ON HIGH DENSITY LIVE STAKING.



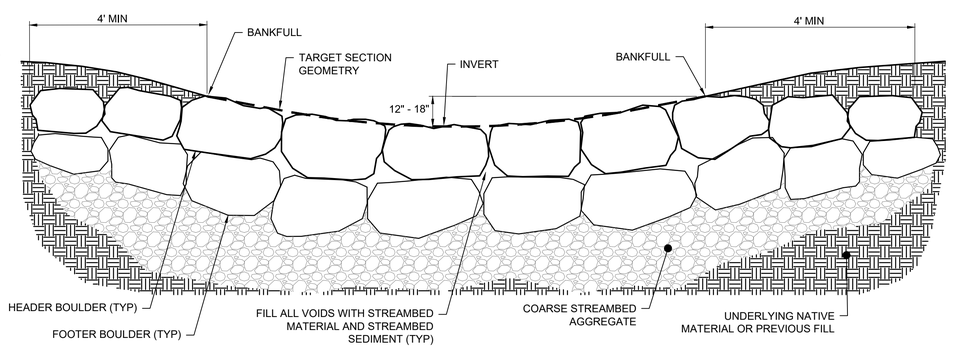
3 - ENERGY DISSIPATION OUTFALL
NOT TO SCALE



2 - NORTH STORM OUTFALL



PLAN VIEW



SECTION A-A

4 - ROCK VANE
NOT TO SCALE

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Issued	By	Appd	YYYY.MM.DD

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-004.1	WMM	WMM	DJE	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
STREAM DETAILS
SPLITS AND OUTFALLS

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 24 of 33
Drawing No. STRM-4.1

PLOTTING DATE: 3/11/2020 2:07 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\v0526390\104515TRM-004.1.dwg
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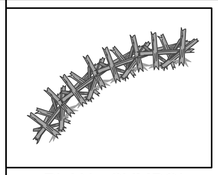
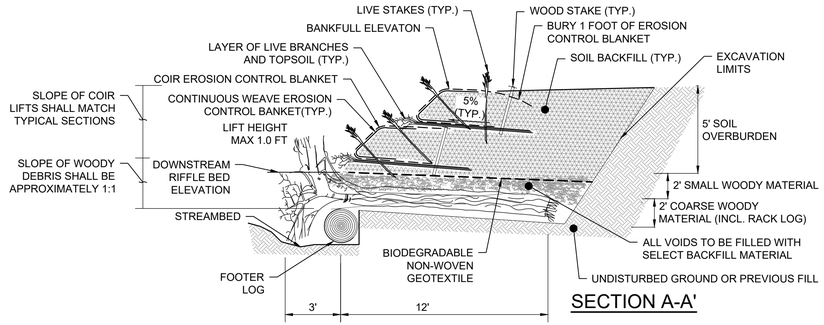
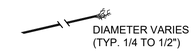


PLAN - SYMBOL



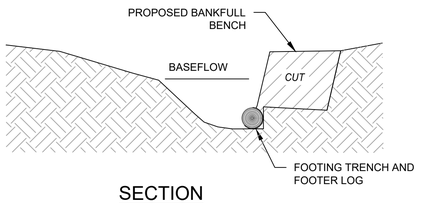
SECTION A-A'



LIVE BRANCH

STEP 1.

EXCAVATE LOW BENCH FOR WOOD TOE MATERIAL.
EXCAVATE FOOTING TRENCH IN LOWER BENCH AND PLACE FOOTER LOGS.



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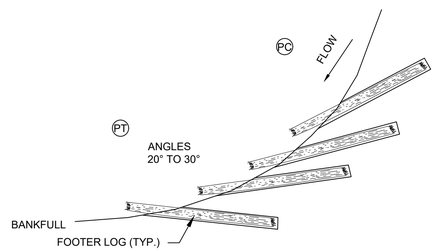
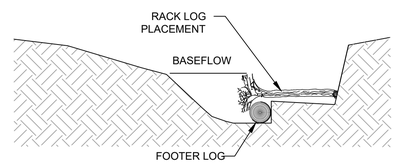


PLANVIEW

STEP 2.

PLACE RACK LOGS WITH ROOT WADS CANTILEVERED OVER FOOTER LOGS.



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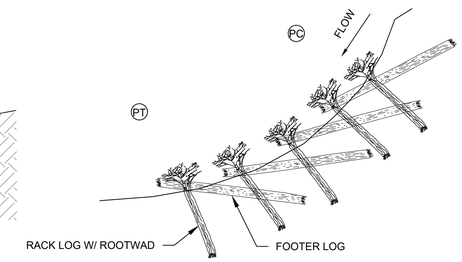
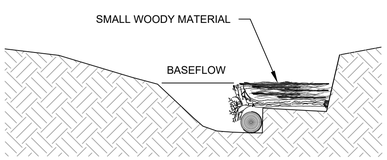


PLANVIEW

STEP 3.

PLACE SMALL WOODY MATERIAL (SMALL LOGS, LIMBS, TREE TOPS AND BRUSH) TO FILL AREAS BETWEEN AND ON TOP OF THE RACK LOGS.



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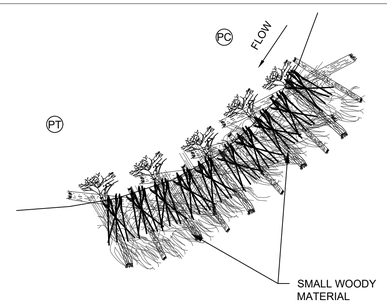
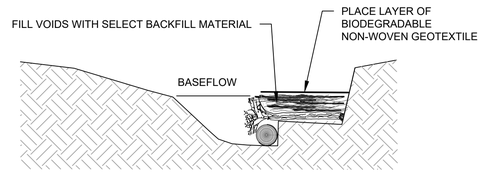


PLANVIEW

STEP 4.

PLACE SELECT BACKFILL MATERIAL AND GEOTEXTILE.



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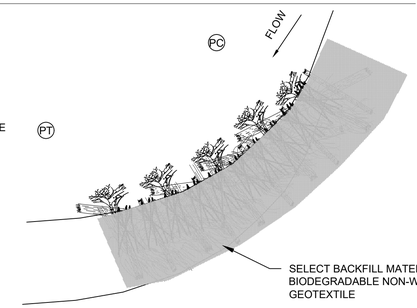
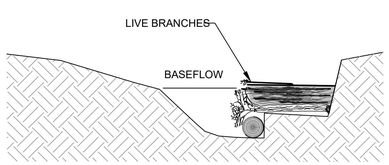


PLANVIEW

STEP 5.

PLACE LIVE BRANCHES.



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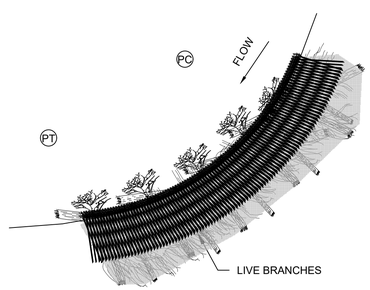
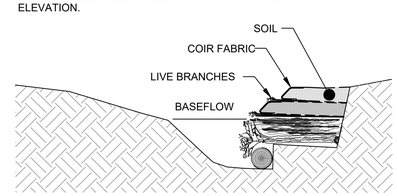


PLANVIEW

STEP 6.

INSTALL WRAPPED SOIL LIFTS AND LAYERS OF LIVE BRANCHES BETWEEN SOIL LIFTS UP TO BANKFULL ELEVATION.



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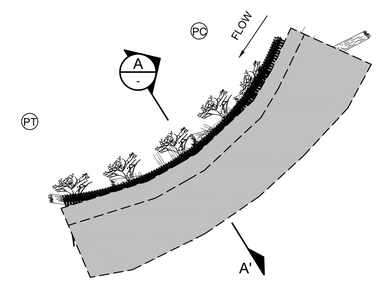

PLANVIEW

1 – WOODY TOE PROTECTION WITH LIVE BRUSH LAYERING
NOT TO SCALE

NOTES:

1. RACK LOGS USED FOR WOODY TOE PROTECTION SHALL HAVE BOLE DIAMETERS NO LESS THAN 18 INCHES AND NO GREATER THAN 27 INCHES.
2. FOOTER LOGS USED FOR WOODY TOE PROTECTION SHALL HAVE DIAMETERS NO LESS THAN 15 INCHES AND NO GREATER THAN 24 INCHES.
3. COARSE WOODY MATERIAL SHALL CONSIST OF LOGS, ROOTWADS, AND LARGE BRANCHES NOT SUITABLE FOR CONSTRUCTION OF LOG STRUCTURES THAT ARE 4 INCHES IN DIAMETER OR LARGER. ALL MATERIALS ARE TO BE APPROVED BY ENGINEER.
4. COARSE WOODY MATERIAL SHALL BE CONSTRUCTED WITH THE LARGEST MATERIAL PLACED FIRST. NO LOGS SHALL BE PLACED PARALLEL TO THE FLOW OF WATER, UNLESS DIRECTED BY ENGINEER. LOGS SHALL BE PLACED IN A CROSSING PATTERN OR WEAVE SUCH THAT EACH LOG IS ANCHORED BY ANOTHER LOG OR SMALL WOODY DEBRIS.
5. SMALL WOODY MATERIAL SHALL CONSIST OF MEDIUM TO SMALL LIMBS AND CAN BE BRANCHES, BUSHES, AND/OR LOGS. INVASIVE SPECIES SHALL NOT BE USED.
6. SMALL WOODY MATERIAL SHALL BE PLACED ABOVE AND BETWEEN THE COARSE WOODY DEBRIS WITH THE LARGEST MATERIAL BEING PLACED FIRST AND THE SMALLEST MATERIAL PLACED LAST.
7. ALL WOODY MATERIAL SHALL BE COMPACTED WITH THE EXCAVATOR BUCKET IN ORDER TO REDUCE THE PRESENCE OF VOIDS IN THE COARSE AND SMALL WOODY DEBRIS LAYERS.
8. SELECT BACKFILL MATERIAL SHALL BE PLACED DIRECTLY ABOVE THE SMALL WOODY DEBRIS AND COMPACTED AT A THICKNESS SUFFICIENT ENOUGH TO FILL ALL REMAINING VOIDS AND PROVIDE A UNIFORM BASE FOR PLACEMENT OF LIVE BRUSH LAYERING.
9. SELECT BACKFILL MATERIAL SHALL BE EITHER STREAMBED SEDIMENT OR APPROVED NATIVE MATERIAL, AT DISCRETION OF ENGINEER.
10. BIODEGRADABLE NON-WOVEN GEOTEXTILE SHALL BE INSTALLED ABOVE THE HIGHEST ELEVATION OF THE WOODY DEBRIS BEFORE THE SOIL LIFTS ARE INSTALLED.
11. BIODEGRADABLE NON-WOVEN GEOTEXTILE SHALL BE COIR FIBER BEDS NO LESS THAN 2 INCHES IN THICKNESS.
12. THE SOIL BACKFILL USED FOR LIFTS AND TOPSOIL USED FOR LAYERING WITH THE LIVE BRANCHES SHALL BE FREE OF ANY LARGE ROOTS OR WOODY DEBRIS AND SHALL GENERALLY BE FREE FROM ANY COBBLE MATERIAL.
13. SOIL BACKFILL SHALL BE COMPACTED SUCH THAT FUTURE SETTLING WILL BE KEPT TO A MINIMUM; BUT NOT SUCH THAT THE UNDERLYING BRUSH IS DISPLACED OR DAMAGED.
14. TOP OF WOOD SHALL BE APPROXIMATELY EQUAL TO THE ELEVATION OF THE NEXT DOWNSTREAM RIFFLE, BUT NO HIGHER THAN 2" ABOVE.
15. THE TOP OF THE BACKFILL FOR THE FIRST LIFT SHALL BE SLOPED AT APPROXIMATELY 5 PERCENT AWAY FROM THE STREAM.
16. PLACE A LAYER OF TOPSOIL AND LIVE BRANCHES ON TOP OF EACH SOIL LIFT SUCH THAT APPROXIMATELY 6 INCHES TO 1 FOOT OF EACH LIVE BRANCH WILL BE EXPOSED AND THE REMAINDER (2 TO 4 FEET) OF EACH LIVE BRANCH WILL BE COVERED BY THE NEXT SOIL LIFT.
17. LIVE BRANCHES SHALL BE OF THE SPECIES SPECIFIED FOR LIVE STAKES.
18. PLACE A LAYER of 6.7 FEET WIDE EROSION CONTROL BLANKET ON TOP OF THE TOPSOIL AND LIVE BRANCHES SUCH THAT 2 FEET OF THE BLANKET WILL BE BURIED BELOW THE NEXT SOIL LIFT. ALLOW THE REMAINING 4.5 FEET OF BLANKET TO HANG OVER THE PRECEDING SOIL LIFT OR FOOTING LOGS.
19. PLACE A LAYER OF 4 FEET WIDE NON-WOVEN COIR MATTING OVER THE EROSION CONTROL BLANKET WITH THE 4 FEET IN THE CENTER OF THE 6.7 FEET.
20. PLACE SOIL BACKFILL UP TO THE LIFT HEIGHT SPECIFIED OF NO GREATER THAN 1.0 FOOT BEING CAREFUL NOT TO PUSH/PULL OR TEAR THE FABRIC PREVIOUSLY PLACED.
21. THE TOP OF THE SOIL BACKFILL SHALL BE FLAT WITHIN THE LIFT SETBACK DISTANCE SPECIFIED IN THE STRUCTURE TABLE. BEYOND THE LIFT SETBACK DISTANCE, THE SOIL BACKFILL SHALL BE SLOPED AT AN APPROXIMATE 5% SLOPE AWAY FROM THE STREAM.
22. TOP DRESS THE SOIL LIFT WITH TOPSOIL FROM THE FACE OF THE SOIL LIFT BACK INTO THE FLOODPLAIN AT LEAST 4FT.
23. SPRINKLE SEED MIX ON SOIL WHERE IT WILL BE EXPOSED.
24. WRAP THE FACE AND TOP OF THE SOIL LIFT USING THE WOVEN AND NON-WOVEN COIR MATTING HANGING OVER THE PREVIOUS LIFT/FOOTING LOGS.
25. THE EROSION CONTROL FABRIC SHALL BE PULLED AS TIGHT AS POSSIBLE WITHOUT TEARING OR EXCESSIVELY DISTORTING THE FABRIC.
26. SECURE THE EROSION CONTROL FABRIC IN PLACE BY STAKING THE ENDS WITH WOOD STAKES ON 1.5-FOOT CENTERS. SEE WOOD STAKE DETAIL FOR SPECIFICATIONS.
27. BEGIN CONSTRUCTION OF THE NEXT SOIL LIFT BY REPEATING THE PREVIOUS NOTES STARTING WITH NOTE 12.
28. THE OVERALL SLOPE CREATED BY THE LIVE BRUSH LAYERING SHALL MATCH THE PROPOSED CROSS SECTION SHAPE FOR THE OUTER BANK OF THE THE TYPICAL POOL CROSS-SECTION FOR EACH REACH.
29. THE COIR BLANKETS USED FOR THE UPPER MOST SOIL LIFT WILL BE SECURED BY STAKING THE END OF THE BLANKET APPROXIMATELY 4 INCHES BELOW FINISH GRADE ELEVATION AS SHOWN IN THE DETAIL AND BACKFILLING OVER THE END OF THE BLANKET AND STAKE DURING FINISH GRADING OPERATIONS.
30. THE SURFACE OF THIS STRUCTURE SHALL BE FINISHED TO A SMOOTH AND COMPACT SURFACE IN ACCORDANCE WITH THE LINES, GRADES, AND CROSS-SECTIONS OR ELEVATIONS SHOWN ON THE DRAWINGS. THE DEGREE OF FINISH FOR ELEVATIONS SHALL BE WITHIN 0.1 FT OF THE GRADES AND ELEVATIONS INDICATED.
31. RE-DRESSING OF CHANNEL AND BANKFULL BENCH/FLOODPLAIN WILL LIKELY BE REQUIRED FOLLOWING INSTALLATION OF IN-STREAM STRUCTURES AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
32. SOD MAT MAY BE USED IN PLACE OF COIR LIFTS ABOVE THE WOOD TOE IF AVAILABLE AND APPROVED BY ENGINEER.
33. IF LIVE BRANCHES ARE NOT INSTALLED OR DO NOT SURVIVE, LIVE STAKES SHALL BE INSTALLED ALONG THE STRUCTURE BETWEEN BASEFLOW AND BANKFULL AT A DENSITY OF 2 PER SQUARE YARD.
34. LIVE STAKES ARE INSTALLED DURING DORMANCY ONCE SOIL LIFTS (AND/OR SOD MATS) HAVE BEEN CONSTRUCTED.
35. THE HORIZONTAL LOCATIONS OF ALL WOODY DEBRIS ARE LOCATED ON THE PLAN/PROFILE SHEETS. NO LOCATIONS OF WOODY DEBRIS TOE PROTECTION WITH LIVE BRUSH LAYERING SHALL VARY FROM THE PLAN LOCATIONS WITHOUT DIRECTION FROM THE ENGINEER.

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SECTION OR DETAIL NO.
TARGET DRAWING NO.
REFERENCE KEY

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

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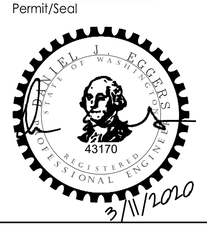

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-004.2	LAH	WMM	DJE	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
STREAM DETAILS - WOODY TOE PROTECTION PLAN & SECTION

Project No.	Scale
CSD0124	N/A

Revision	Sheet	Drawing No.
	22 of 33	STRM-4.2

PLOTTING DATE: 3/11/2020, 1:27 PM, LAYOUT: STRM-004.2 USER: Mcdonald, Will
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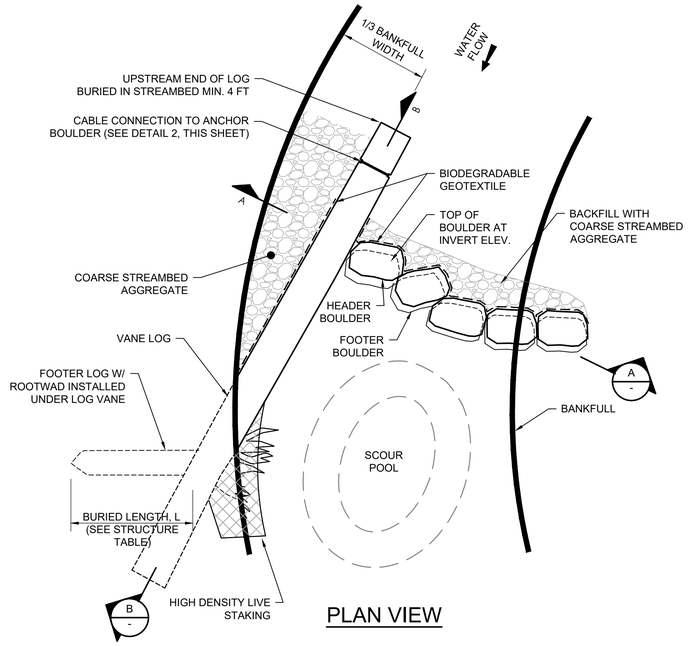
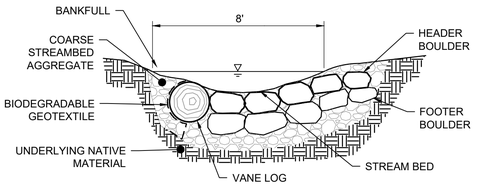


PLAN VIEW

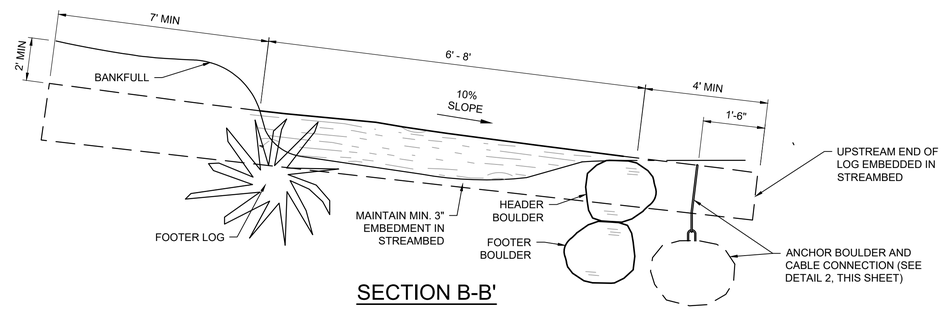


SECTION A-A

STRUCTURE TABLE

STATION	L (FT.)
0+70	8
1+00	5
1+20	8
1+90	5
3+20	8
5+80	8
6+40	8
10+55*	8
11+40*	8
20+55*	8

*SIDE CHANNEL STATION

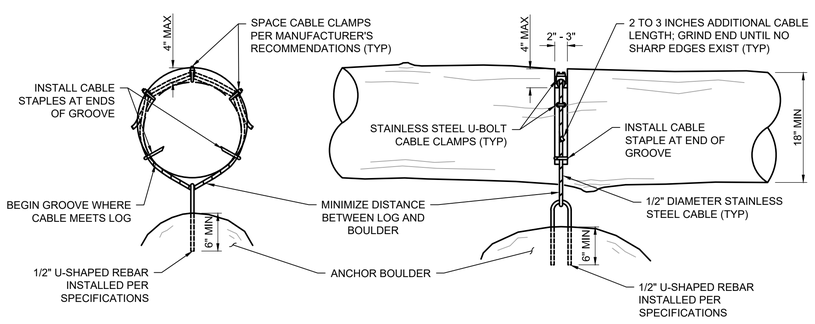


SECTION B-B'

1 - LOG VANE WITH BOULDER SILL
NOT TO SCALE

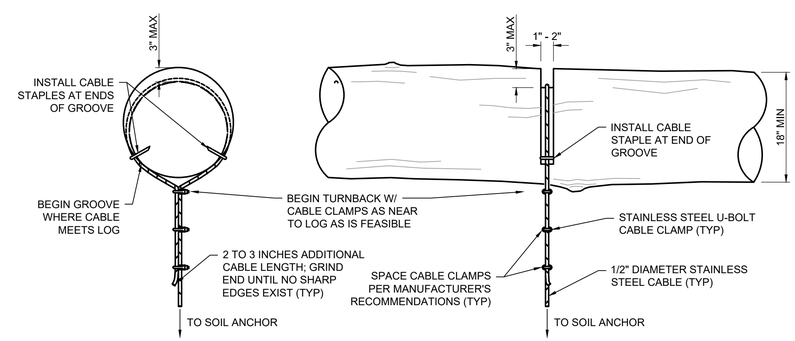
NOTES:

1. SILL BOULDERS SHALL CONFORM TO THE SPECIFICATIONS.
2. LOGS FOR LOG VANES AND BANK LOGS SHALL HAVE BOLE DIAMETERS NO LESS THAN 18 INCHES AND NO GREATER THAN 27 INCHES.
3. ALL LOGS SHALL BE RELATIVELY STRAIGHT AND LIMBS SHALL BE TRIMMED FLUSH.
4. FOOTER LOG SHALL BE PLACED PERPENDICULAR TO THE BANKFULL FLOW DIRECTION.
5. VANE LOG SHALL BE PLACED PARALLEL TO THE UPSTREAM DIRECTION OF FLOW AS SHOWN.
6. SET INVERT AT ELEVATION SHOWN IN REACH PROFILE.
7. VANE LOG CROWN SHALL TIE INTO THE STREAM BANK AT A MINIMUM ELEVATION OF 1/2 BANKFULL DEPTH AS MEASURED AT THE NEXT DOWNSTREAM RIFFLE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
8. THE FOOTER LOG ROOTWAD SHALL NOT PROTRUDE ABOVE THE BANKFULL ELEVATION, WHICH MAY REQUIRE TRIMMING THE UNDERSIDE OF THE ROOTWAD.
9. ON THE UPSTREAM SIDE OF THE LOGS AND SILL BOULDERS AND ALONG THE ENTIRE LENGTH OF THE LOG, A LAYER OF BIODEGRADABLE GEOTEXTILE FABRIC SHALL BE PLACED AS SHOWN. NAIL BIODEGRADABLE GEOTEXTILE TO EDGE OF LOG A MINIMUM OF EVERY TWO FEET ON CENTER.
10. BIODEGRADABLE GEOTEXTILE SHALL CONFORM TO THE SPECIFICATIONS.
11. SILL BOULDERS SHALL EXTEND FROM THE VANE LOG TO BEYOND BANKFULL WIDTH AS SHOWN.
12. SILL BOULDERS SHALL PROTRUDE 0.1 FOOT ABOVE THE INVERT ELEVATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
13. SILL BOULDERS SHALL HAVE A MINIMUM AVERAGE DIAMETER OF 20 INCHES AND SHALL CONFORM TO THE SPECIFICATIONS.
14. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, HEADER BOULDERS SHALL BE UNDERLAIN BY FOOTING BOULDERS AS SHOWN.
15. CARE WILL BE TAKEN DURING PLACEMENT TO MINIMIZE GAPS BETWEEN HEADER BOULDERS.
16. SEE THE PLANTING PLANS (SHEETS P-1 THROUGH P-6) FOR DETAILS ON HIGH DENSITY LIVE STAKING.
17. ANCHOR BOULDER SHALL BE A NON-ANGULAR TWO-MAN ROCK WITH A MINIMUM AVERAGE DIAMETER OF 1.75 FEET AND MINIMUM WEIGHT OF 470 POUNDS.
18. SOIL ANCHORS SHALL CONFORM TO THE SPECIFICATIONS AND SHALL BE INSTALLED AS SPECIFIED AND PER MANUFACTURER'S RECOMMENDATIONS.
19. CONSTRUCT LOG CABLE CONNECTIONS SUCH THAT CABLE IS IN CONTACT WITH WOOD ONLY, NOT BARK.
20. CONSTRUCT BANK LOG CABLE CONNECTIONS SUCH THAT SLACK BETWEEN LOG AND SOIL ANCHOR IS MINIMIZED TO THE EXTENT FEASIBLE.



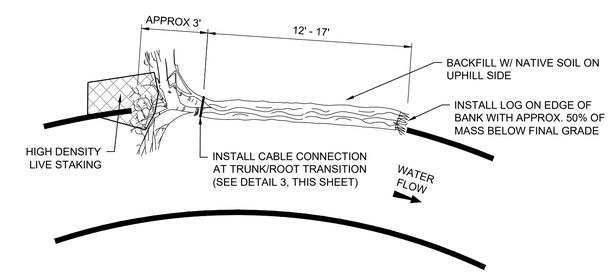
SECTION PROFILE

2 - LOG VANE CABLE CONNECTION
NOT TO SCALE



SECTION PROFILE

3 - BANK LOG CABLE CONNECTION
NOT TO SCALE



4 - TYPICAL BANK LOG
NOT TO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

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DANIEL J. EGGERS — STATE OF WASHINGTON — 43170 — REGISTERED PROFESSIONAL ENGINEER
3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515TRM-004.3

WMM	WMM	DJE	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
STREAM DETAILS - LOG VANE, BANK LOG, CABLE CONNECTIONS

Project No. CSD0124
Scale N/A
Revision
Sheet 23 of 33
Drawing No. STRM-4.3

PLOTTING DATE: 3/11/2020 1:42 PM USER: McDonald, Will FILE NAME: C:\pwworkdir\d0526390\104515TRM-004.3.dwg
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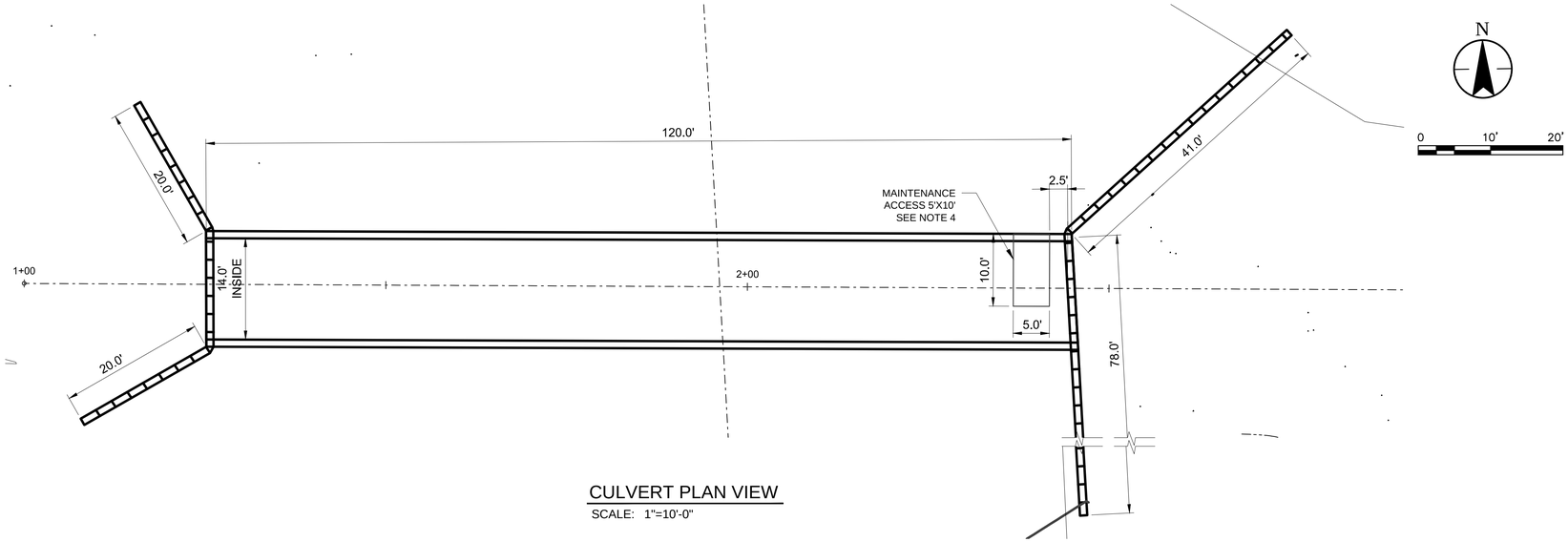
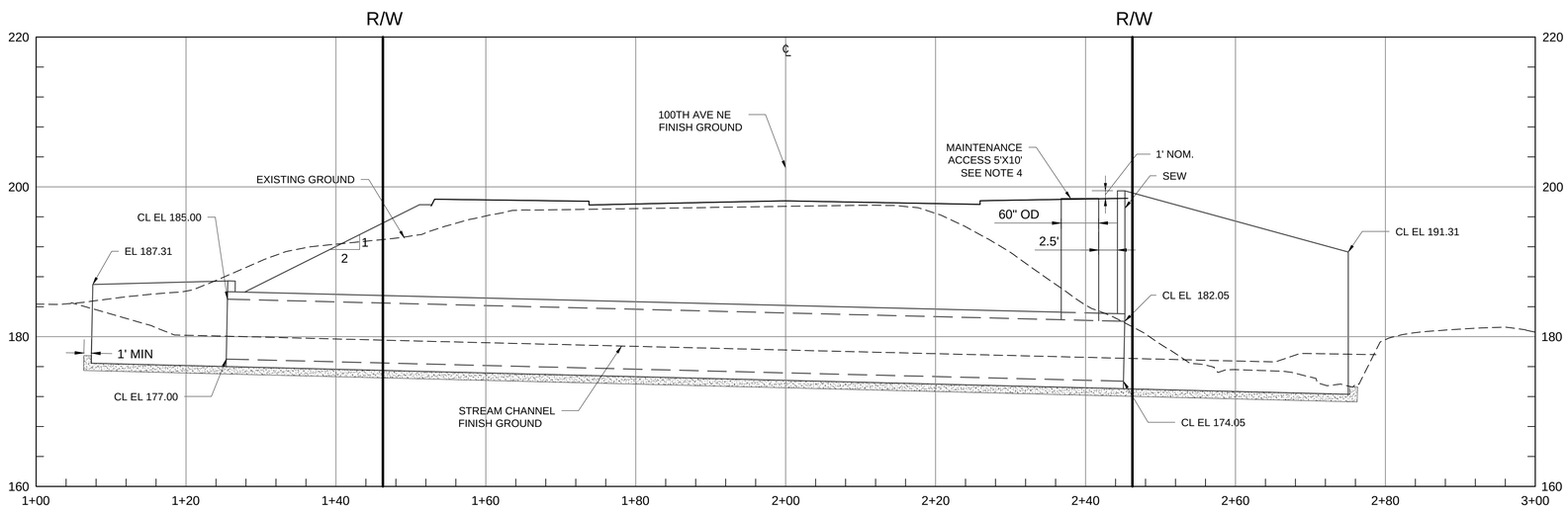


CULVERT PLAN VIEW

SCALE: 1"=10'-0"

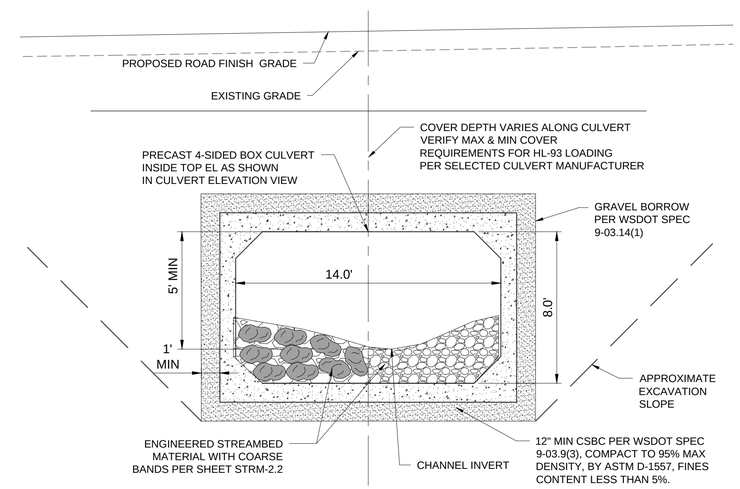
NOTES:

1. MAXIMUM EXCAVATION SLOPES TO BE EVALUATED BY GEOTECHNICAL ENGINEER DURING CONSTRUCTION.
2. CONCRETE WING WALLS AND CULVERT ARE SHOWN FOR GUIDANCE ONLY. PRECASTER SHALL PROVIDE DETAILED DRAWING AND SPECIFICATION AS PER SPEC 7.02.
3. PRECASTER SHALL INCORPORATE MAINTENANCE ACCESS LOAD IN THE CULVERT DESIGN.
4. PRECASTER SHALL USE 5'x10' ACCESS HATCH LW PRODUCTS COMPANY MODEL HHD4 OR APPROVED EQUAL. PRECASTER SHALL DESIGN THE MAINTENANCE ACCESS. ACCESS SHALL HAVE NO LADDER RUNGS. ACCESS HATCH SHALL BE COATED WITH NON-SKID COATING COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT (SEE ADA SECTION 4.5.1).
5. PRECASTER SHALL INCORPORATE HEAD WALL LOAD IN THE CULVERT DESIGN. HEADWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH WSDOT SPEC 7-02.3(3) AND 6.02.
6. CONTRACTOR SHALL PROVIDE ALL SUBMITTALS FOR STRUCTURAL CONNECTIONS OF BOX CULVERT AND WING WALLS IN ACCORDANCE WITH THE ORDER OF WORK IN THE SPECIFICATIONS.



CULVERT ELEVATION VIEW

SCALE: V : 1" = 10'
H : 1" = 10'



TYPICAL CULVERT SECTION VIEW

SCALE: V : 1" = 4'
H : 1" = 4'

Revision	By	Appd	YYYY.MM.DD

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JAMES E. McPHERSON, STATE OF WASHINGTON, 28287, REGISTERED PROFESSIONAL ENGINEER
3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515-001	ES	CBJ	BDC	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CULVERT PLAN, ELEVATION AND SECTION

Project No. CSD0124
Scale
Revision
Sheet 24 of 33
Drawing No. S-1

PLOTTING DATE: 3/9/2020 8:18 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526414\104515-001.dwg
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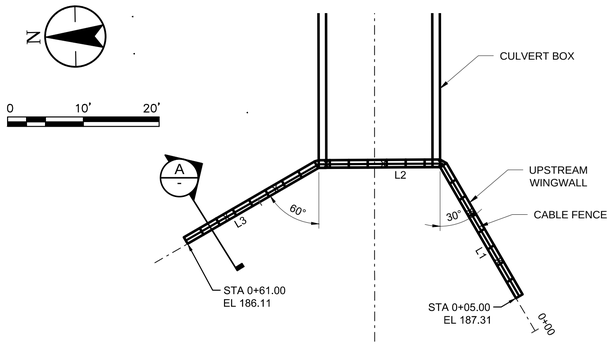


UPSTREAM WINGWALL PLAN

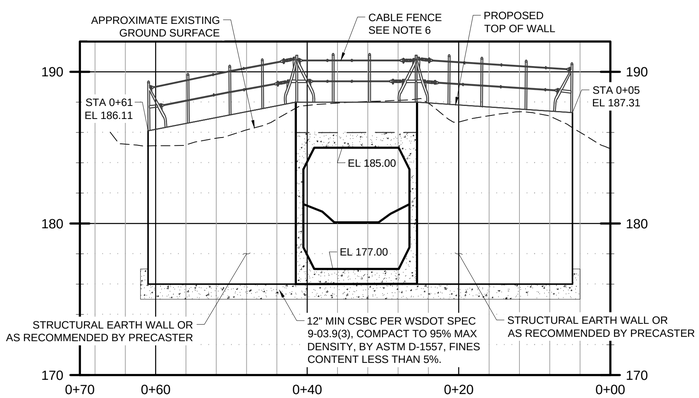
SCALE: 1"=10'

NOTES:

1. THE SEWS SHALL BE DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (2002).
2. A LEVELING PAD CONSISTING OF CRUSHED ROCK BACKFILL SHALL BE PLACED BELOW THE OVER THE SUBGRADE AS A LEVELING COURSE FOR SUPPORT OF THE SEWS. THIS LEVELING COURSE SHALL BE AT LEAST 12 INCHES THICK AND SHALL CONSIST OF MATERIALS MEETING THE REQUIREMENTS FOR CRUSHED SURFACING BASE COURSE, AS DESCRIBED IN SECTION 9-03.9(3) OF THE STANDARD SPEC (WSDOT, 2018). IT SHALL BE COMPACTED TO A DENSE CONDITION, AND TO AT LEAST 95 PERCENT OF ITS MODIFIED PROCTOR MAXIMUM DENSITY (ASTM D-1557).
3. DRAINAGE SHALL BE PROVIDED BEHIND ALL SEWS AND SHALL CONSIST OF 6-INCH DIAMETER, PERFORATED, RIGID PLASTIC PIPES, BEDDED AND BACKFILLED WITH GRAVEL BACKFILL FOR DRAINS, AS SPECIFIED IN SECTION 9-03.12(4) OF THE STANDARD SPEC (WSDOT, 2018). THE PIPE SHALL SLOPE TO DRAIN TO A SUITABLE OUTLET.
4. GRAVEL BACKFILL FOR SEWS PROVIDED AS PER WSDOT SPEC 9-03.4(4).
5. BACKFILL WITHIN THE REINFORCED ZONE OF SEWS SHALL CONSIST OF GRAVEL BORROW AS PER WSDOT SPEC 9-03.14(4).
6. SEE WSDOT STANDARD PLAN 8.1-A.6-2 FOR CABLE FENCE DETAILS WIRE ROPE SHALL NOT BE COATED WITH ZINC OR ALUMINIUM.
7. CONTRACTOR SHALL PROVIDE ALL SUBMITTALS FOR STRUCTURAL CONNECTIONS OF BOX CULVERT AND WING WALLS IN ACCORDANCE WITH THE ORDER OF WORK IN THE SPECIFICATIONS.

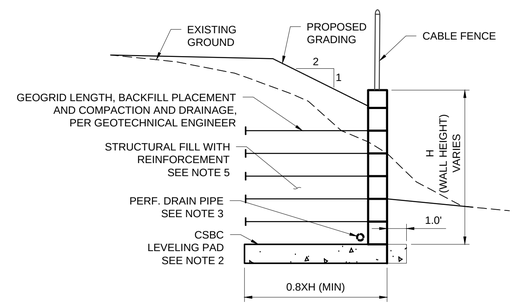
UPSTREAM WINGWALL ALIGNMENT

LINE NO	LENGTH	DIRECTION	STATION (PT)	START NORTHING	START EASTING
L1	25.00'	N 64°11'55" E	0+00.00	597348.11	1630213.21
L2	16.00	N 03°54'37" E	0+25.00	597358.99	1630235.72
L3	25.00	N 25°48'05" W	0+41.00	597374.96	1630236.81



UPSTREAM WING WALL PROFILE

SCALE: HORISONTAL 1"=10'
VERTICAL 1"=5'



A SECTION

SCALE: 1"=4'

Revision | By | Appd | YYYY.MM.DD

Issued | By | Appd | YYYY.MM.DD

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515-001 | ES Dwn. | CBJ Dsgn. | BDC Chkd. | 2020.03.11 YYYY.MM.DD

Title
UPSTREAM WINGWALL PLAN, PROFILE AND SECTIONS

Project No. CSD0124
Scale
Revision
Sheet 25 of 33
Drawing No. S-2

PLOTTING DATE: 3/9/2020 8:18 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526414\104515-001.dwg

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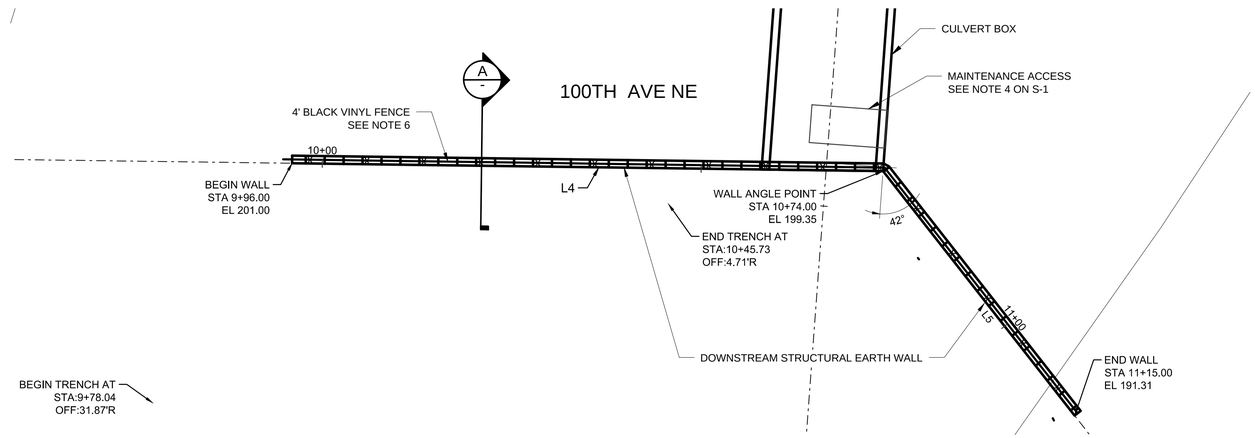
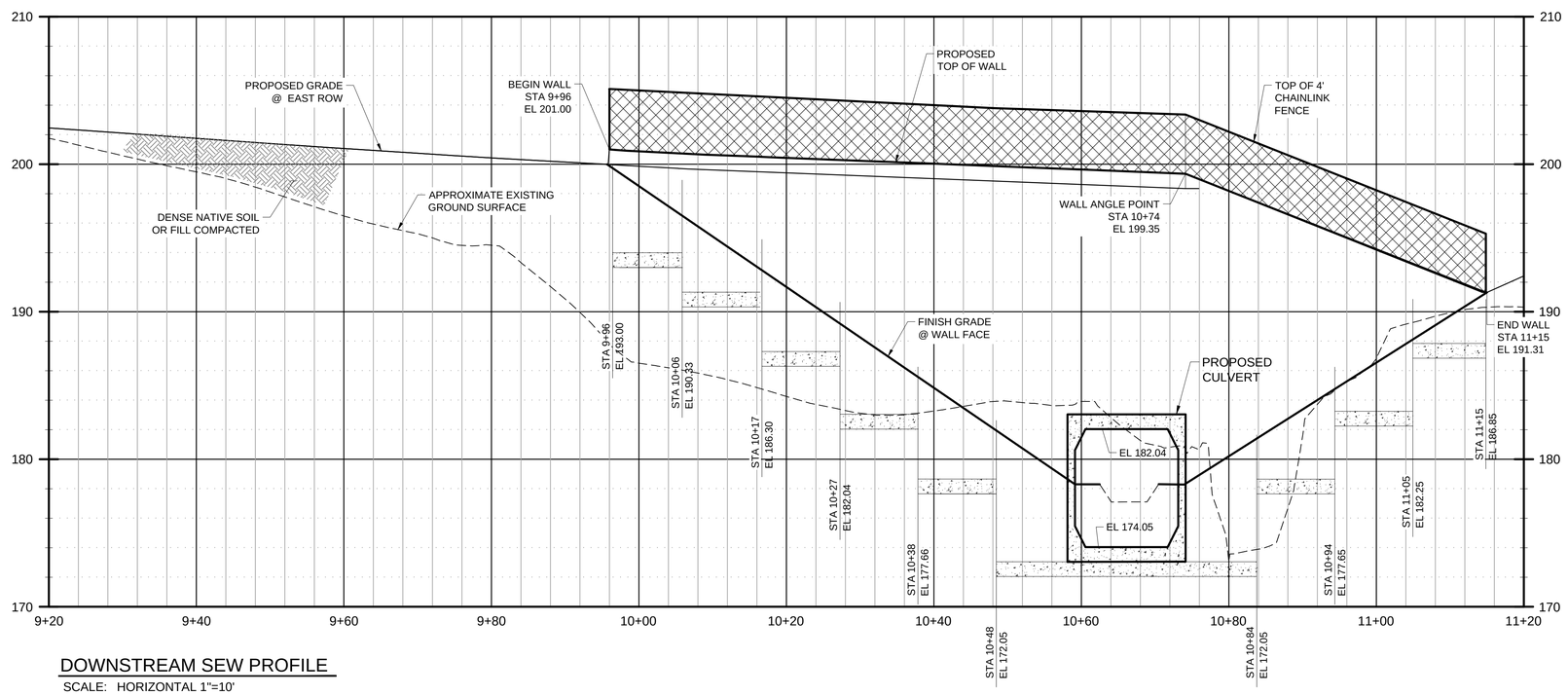


DOWNSTREAM SEW STRUCTURAL PLAN

SCALE: 1"=10'



DOWNSTREAM SEW PROFILE

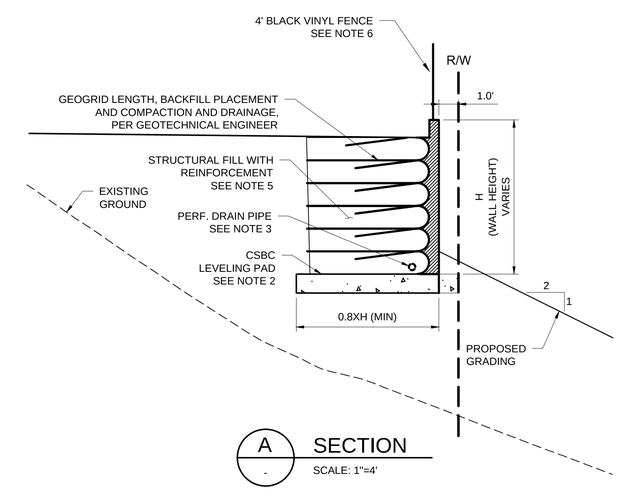
SCALE: HORIZONTAL 1"=10'
VERTICAL 1"=5'

NOTES:

1. THE SEWS SHALL BE DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (2002).
2. A LEVELING PAD CONSISTING OF CRUSHED ROCK BACKFILL SHALL BE PLACED BELOW THE OVER THE SUBGRADE AS A LEVELING COURSE FOR SUPPORT OF THE SEWS. THIS LEVELING COURSE SHALL BE AT LEAST 12 INCHES THICK AND SHALL CONSIST OF MATERIALS MEETING THE REQUIREMENTS FOR CRUSHED SURFACING BASE COURSE, AS DESCRIBED IN SECTION 9-03.9(3) OF THE STANDARD SPEC (WSDOT, 2018). IT SHALL BE COMPACTED TO A DENSE CONDITION, AND TO AT LEAST 95 PERCENT OF ITS MODIFIED PROCTOR MAXIMUM DENSITY (ASTM D-1557).
3. DRAINAGE SHALL BE PROVIDED BEHIND ALL SEWS AND SHALL CONSIST OF 6-INCH DIAMETER, PERFORATED, RIGID PLASTIC PIPES, BEDDED AND BACKFILLED WITH GRAVEL BACKFILL FOR DRAINS, AS SPECIFIED IN SECTION 9-03.12(4) OF THE STANDARD SPECIFICATIONS (WSDOT, 2018). THE PIPE SHALL SLOPE TO DRAIN TO A SUITABLE OUTLET.
4. GRAVEL BACKFILL FOR SEWS PROVIDED AS PER WSDOT SPEC 9-03.4(4).
5. BACKFILL WITHIN THE REINFORCED ZONE OF SEWS SHALL CONSIST OF GRAVEL BORROW AS PER WSDOT SPEC 9-03.14(4).
6. 4' BLACK VINYL COATED CHAIN LINK FENCE PER DETAIL, SHEET S-4.
7. CONTRACTOR SHALL PROVIDE ALL SUBMITTALS FOR STRUCTURAL CONNECTIONS OF BOX CULVERT AND WING WALLS IN ACCORDANCE WITH THE ORDER OF WORK IN THE SPECIFICATIONS.

DOWNSTREAM SEW ALIGNMENT

LINE NO	LENGTH	DIRECTION	STATION (PT)	START NORTHING	START EASTING
L4	286.64'	N 00°45'38" E	8+05.36	597097.57	1630352.61
L5	46.00'	N 51°54'25" E	10+74.00	597366.19	1630356.18



A SECTION

SCALE: 1"=4'

Revision | By | Appd | YYYY.MM.DD

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3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515-001 | ES Dwn. | CBJ Dsgn. | BDC Chkd. | 2020.03.11 YYYY.MM.DD

Title
DOWNSTREAM WALL PLAN, PROFILE AND SECTIONS

Project No. CSD0124
Scale
Revision
Sheet 26 of 33
Drawing No. S-3

PLOTTING DATE: 3/9/2020 8:18 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526414\104515-001.dwg
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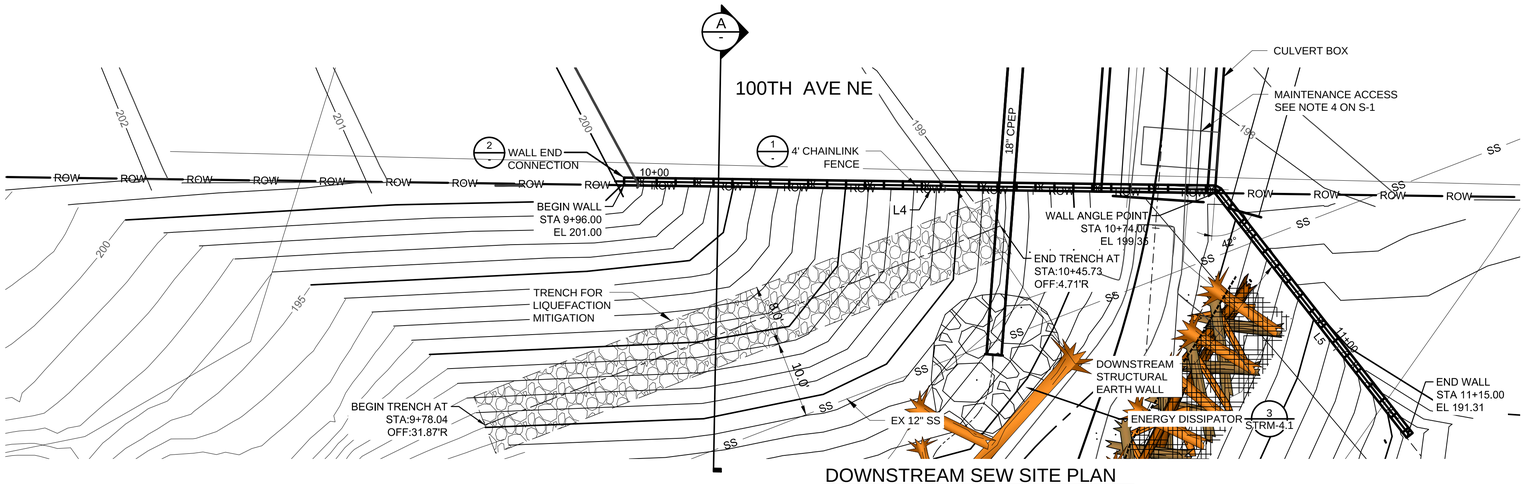
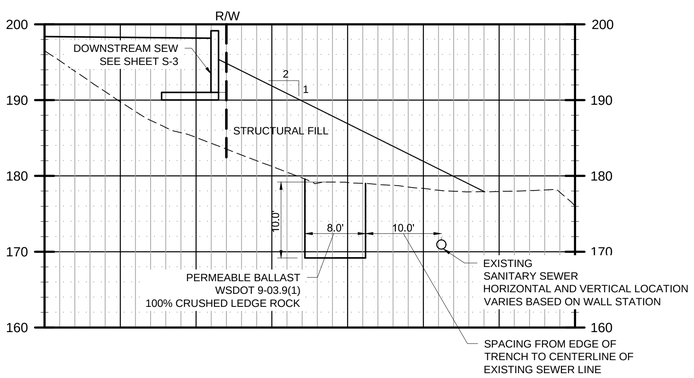


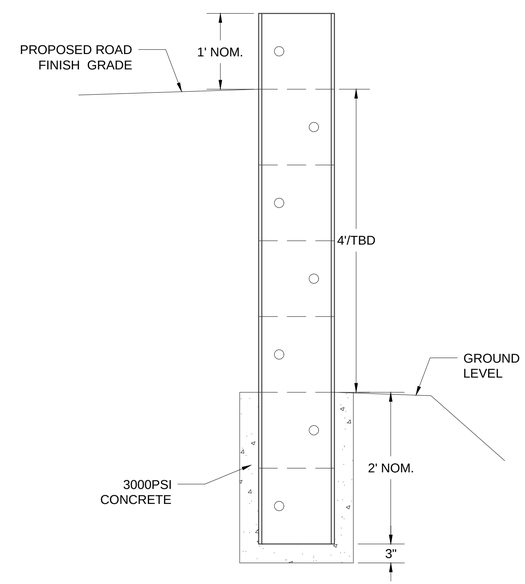
DOWNSTREAM SEW SITE PLAN

SCALE: 1"=10'



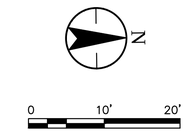
A TRENCH FOR LIQUEFACTION MITIGATION SECTION

HORISONTAL: 1"=10'
VERTICAL: 1"=10'



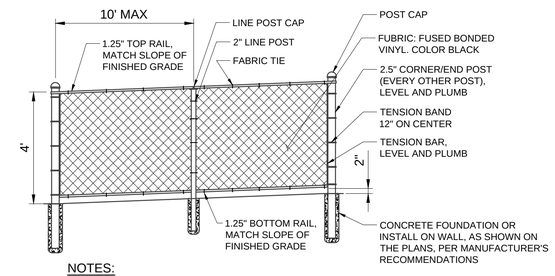
WALL END ELEVATION VIEW

SCALE: 1"=1'



NOTES

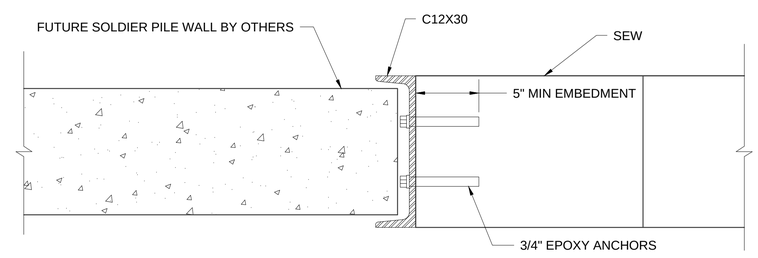
1. EXCAVATE EXISTING GRANULAR MATERIAL FOR TRENCH 8 FEET WIDE.
2. EXCAVATION TO EXTEND BELOW WATER TABLE. PROVIDE SUPPORT FOR THE SIDES OF EXCAVATION TO MAINTAIN 8-FOOT WIDE TRENCH AND MAINTAIN STABILITY OF 100TH AVE NE.
3. AFTER PLACING 2 FEET OF PERMEABLE BALLAST AT BASE OF EXCAVATION, ENGINEER TO CONFIRM STABLE AND SUITABLE BASE TO ALLOW COMPACTION OF PERMEABLE BALLAST IN REMAINING LIFTS.
4. PLACE PERMEABLE BALLAST IN 12- TO 18-INCH THICK LIFTS.
5. COMPACT PERMEABLE BALLAST TO DENSE CONDITION, AS DETERMINED BY THE ENGINEERING IN THE FIELD.
6. EXCAVATION AND REPLACEMENT OF POTENTIALLY LIQUEFIABLE SOILS WITH PERMEABLE BALLAST (FROM CRUSHED LEDGE ROCK). REPLACEMENT AREA TO CONSIST OF 8-FT WIDE TRENCH FROM ELEV. 170 TO 180 FEET, AT THE LOCATION SHOWN ON THE PLAN
7. MINIMUM SPACING OF ANCHORS SHOULD BE GREATER THAN 10 DIA.
8. DISTANCE OF ANCHORS FROM AN UNSUPPORTED EDGE SHOULD BE GREATER THAN 5 DIA.
9. MINIMUM EMBEDMENT LENGTH OF AN ANCHOR IS 4 DIA.



NOTES:
ALL FENCE COMPONENTS TO BE BLACK VINYL COATED
ALL POST AND RAIL DIAMETERS ARE INSIDE DIAMETERS

1 BLACK VINYL COATED CHAIN LINK FENCE

NOT TO SCALE



2 WALL END CONNECTION DETAIL

SCALE: 2"=1'

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STATE OF WASHINGTON
28287
REGISTERED PROFESSIONAL ENGINEER
3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 104515-001

ES	CBJ	BDC	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
MISCELLANEOUS DETAILS

Project No. CSD0124
Scale
Revision
Sheet 27 of 33
Drawing No. S-4

Revision	By	Appd	YYYY.MM.DD

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PLOTTING DATE: 3/9/2020 8:18 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0528414\104515-001.dwg

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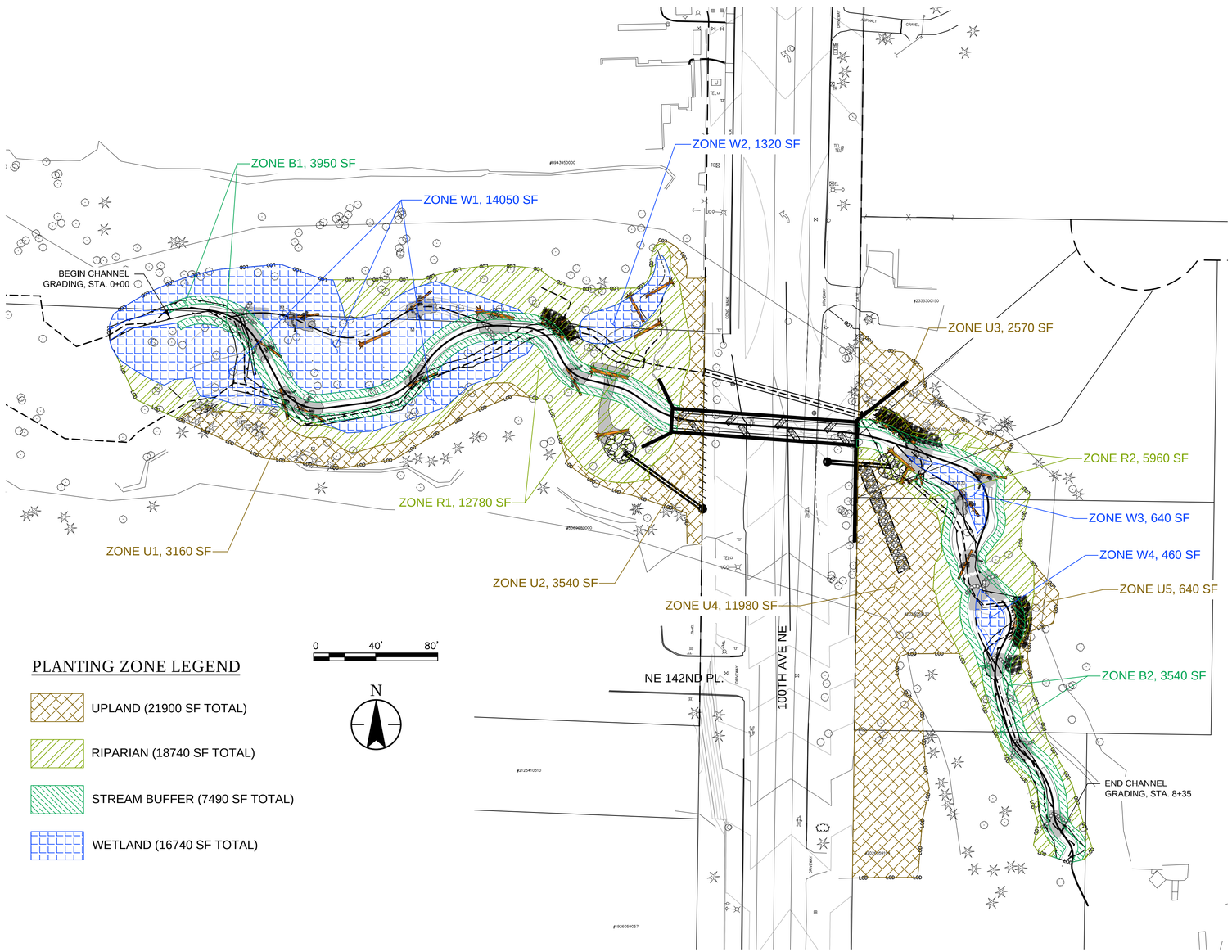

PLANTING ZONE LEGEND

- UPLAND (21900 SF TOTAL)
- RIPARIAN (18740 SF TOTAL)
- STREAM BUFFER (7490 SF TOTAL)
- WETLAND (16740 SF TOTAL)

PLANTING SEQUENCE:

1. PLANT STREAM BUFFER ZONES IN THE FOLLOWING ORDER: SHRUB, SEED.
2. PLANT WETLAND ZONES IN THE FOLLOWING ORDER: TREE, SHRUB, GROUNDCOVER, SEED.
3. PLANT RIPARIAN ZONES IN THE FOLLOWING ORDER: TREE, SHRUB, SEED.
4. HYDROSEED UPLAND ZONES; SUBSEQUENTLY INSTALL BIODEGRADABLE EROSION CONTROL BLANKET AS NOTED BELOW.
5. PLANT UPLAND ZONES IN THE FOLLOWING ORDER: TREE, SHRUB.

GENERAL RESTORATION NOTES:

1. PROTECT, OR SALVAGE AND REUSE, EXISTING ON-SITE NATIVE PLANTS TO THE GREATEST EXTENT FEASIBLE.
2. ON-SITE TREES REMOVED MAY BE USED FOR IN-STREAM LARGE WOOD AS DIRECTED BY THE ENGINEER. REMAINING REMOVED TREES MAY BE LEFT WHERE FELLED AS EXTRA WILDLIFE HABITAT FEATURES.
3. REMOVE QUARRY SPALLS ONCE GRADING IS COMPLETE AND RESTORE AREA TO PROPOSED GRADE WITH NATIVE MATERIAL TO CREATE SUITABLE CONDITIONS FOR SEEDING AND PLANTING.
4. IN UPLAND ZONES AND WHERE SLOPES OF NATIVE MATERIAL EXCEED 5:1, INSTALL BIODEGRADABLE EROSION CONTROL BLANKET AS SHOWN ON SHEET 6 AND IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SEC. 9-14.5(2).
5. PLANTS SHALL BE INSTALLED THROUGH EROSION CONTROL BLANKETS BY CUTTING AN "X" IN THE EROSION CONTROL BLANKETS AND PLANTING WITHIN THE OPENING.

REVEGETATION NOTES:

1. COMPACTED SOIL AREAS TO BE PLANTED AND SEEDED SHALL RECEIVE SURFACE ROUGHENING AND TILLING AS REQUIRED TO PREPARE FOR PLANTING.
2. TREE AND SHRUB PIT BACKFILLING SOIL SHALL CONSIST OF 4 PARTS TOPSOIL AND ONE PART COMPOST BY VOLUME. BACKFILL SHALL INCLUDE WATER ABSORBING POLYMER MIXED INTO BACKFILL AT MANUFACTURER'S RECOMMENDED RATES. DECIDUOUS AND EVERGREEN TREES AND SHRUBS SHALL BE MULCHED TO A 2-INCH DEPTH WITH COMPOST.
3. FERTILIZE PLANTS WITH 21-GRAM PLANTING TABLETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. SEED MIXTURES SHALL BE AS INDICATED ON THE PLANTING SCHEDULE OR AN APPROVED EQUAL.
5. APPLY SEED UNIFORMALLY BY HYDROSEED METHOD AT A RATE OF 2-4 LBS PER 1000 SQ FT. ALL SEEDING OPERATIONS SHALL INCLUDE MULCHING AT A RATE OF 1500 LBS PER 1000 SQ.FT, AND 16-16-16 ORGANIC FERTILIZER APPLIED AT THE RATE RECOMENDED BY THE MANUFACTURER.
6. INITIAL SEEDING AND PLANTING SHALL TAKE PLACE BETWEEN SEPTEMBER 15 AND NOVEMBER 30. MAINTENANCE SEEDING AND PLANTING MAY TAKE PLACE BETWEEN MARCH 21 AND MAY 15, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, MAINTENANCE AND REPLACEMENT OF ALL LANDSCAPING MATERIALS SHOWN OR INDICATED ON THE APPROVED PLANS.

MAINTENANCE OF LANDSCAPING PLANTING PRIOR TO ACCEPTANCE OF PROJECT NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, WATERING, AND MAINTAINING ALL PLANTINGS UNTIL FINAL ACCEPTANCE OF ALL WORK UNDER THE CONTRACT.
2. TREES AND SHRUBS SHALL BE THOROUGHLY SOAKED AFTER PLANTING AND PROVIDED WITH ADDITIONAL WATER AT INTERVALS AS NECESSARY TO PROVIDE FOR GOOD HEALTH AND GROWTH OF THE PLANTING.
3. THE CONTRACTOR SHALL REPLACE ANY MATERIALS OR EQUIPMENT THAT ITS EMPLOYEES OR SUBCONTRACTORS HAVE DAMAGED.
4. PARTIAL UTILIZATION OF THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF THE REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS.
5. PLANTS SHALL BE MAINTAINED IN A VIGOROUS, THRIVING CONDITION BY WATERING, CULTIVATING, AND WEEDING, PRUNING, AND OTHER OPERATIONS AS NECESSARY. NO TREES OR SHRUBS WILL BE ACCEPTED UNLESS THEY ARE HEALTHY AND SHOW SATISFACTORY FOLIAGE CONDITIONS.
6. MAINTENANCE SHALL INCLUDE, IN ADDITION TO THE FOREGOING, REPAIRS TO STAKES, WIRE, AND WRAPPINGS, THE REPAIR OF EROSION, AND ALL OTHER WORK NECESSARY TO ENSURE SITE STABILIZATION.

REVEGETATION FINAL INSPECTION AND GUARANTEE NOTES:

1. INSPECTION OF PLANTING WILL BE PART OF FINAL INSPECTION UNDER THE CONTRACT.
2. WRITTEN NOTICE REQUESTING INSPECTION SHALL BE SUBMITTED TO THE ENGINEER AT LEAST 10 DAYS PRIOR TO THE ANTICIPATED INSPECTION DATE.
3. FINAL ACCEPTANCE PRIOR TO START OF THE GUARANTEE PERIOD OF THE CONTRACT WILL BE ON WRITTEN APPROVAL BY THE ENGINEER, ON THE SATISFACTORY COMPLETION OF ALL WORK, INCLUDING MAINTENANCE, BUT EXCLUSIVE OF THE REPLACEMENT OF PLANT MATERIAL.
4. ANY DELAY IN THE COMPLETION OF ANY ITEM OF WORK IN THE PLANTING OPERATION WHICH EXTENDS THE PLANTING INTO MORE THAN ONE SEASON SHALL EXTEND THE CORRECTION PERIOD IN ACCORDANCE WITH THE DATE OF COMPLETION GIVEN ABOVE.
5. THE CONTRACTOR SHALL REPLACE, AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION WHICH ARE NOTED AT THE END OF THE ONE-YEAR CORRECTION PERIOD.
6. PLANTS USED FOR REPLACEMENT SHALL BE OF THE SAME SIZE AND VARIETY ON THE PLANT LIST. REPLACEMENT PLANTS SHALL BE FURNISHED, PLANTED, STAKED, AND MULCHED AS INDICATED FOR NEW PLANTS.
7. ALL REVEGETATION WORK SHALL BE LEFT IN GOOD ORDER TO THE SATISFACTION OF THE ENGINEER, AND THE CONTRACTOR SHALL, WITHOUT ADDITIONAL EXPENSE TO THE OWNER, REPLACE ANY TREES, SHRUBS, ETC., WHICH DEVELOP DEFECTS OR DIE DURING THE ONE-YEAR CORRECTION PERIOD.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE OF THE WORK OF THIS SECTION FOR MAINTAINING ALL PLANTINGS, INCLUDING ALL NECESSARY PLANT OR TREE REPLACEMENTS, WEEDING, CULTIVATING, FERTILIZING, PRUNING, CONTROLLING INSECTS AND DISEASES, RE-GUYING, AND PERFORMING ALL OTHER OPERATIONS INCIDENT THERETO. THE CONTRACTOR SHALL OBTAIN A WRITTEN GUARANTEE FROM THE LANDSCAPING SUBCONTRACTOR EMBODYING THE PROVISIONS OF THIS PARAGRAPH.
9. ALL PLANT MATERIALS SHALL BE IN A CONDITION ACCEPTABLE TO THE OWNER OR ITS REPRESENTATIVE AT THE END OF THE MAINTENANCE GUARANTEE PERIOD.

MAINTENANCE DURING MAINTENANCE AND GUARANTEE PERIOD NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, WATERING, AND MAINTAINING SEEDED AND PLANTED AREAS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF WORK BY CONSTRUCTION MANAGER.
2. THE CONTRACTOR SHALL MAKE REGULAR BIMONTHLY VISITS TO THE PROJECT SITE AND SHALL PROVIDE DETAILED SITE VISIT AND MAINTENANCE REPORT VIA EMAIL TO THE ENGINEER DETAILING CLIMATIC CONDITIONS AT THE TIME OF VISIT, SOIL MOISTURE CONDITIONS, GENERAL HEALTH OF PLANT MATERIAL AND INDICATE ANY CORRECTIVE MEASURES PERFORMED.
3. THE CONTRACTOR SHALL REPLACE ANY DEAD OR DISEASED PLANTS DURING THE MAINTENANCE AND CORRECTION PERIOD.
4. THE CONTRACTOR SHALL CLEAN-UP AND REMOVE UNUSED OR WASTE MATERIALS FROM THE SITE AND LEAVE THE AREA IN A NEAT CONDITION SATISFACTORY TO THE CITY WHENEVER IT PERFORMS WORK DURING THE MAINTENANCE PERIOD.
5. AFTER 11 MONTHS, PRIOR TO FINAL INSPECTION, REMOVE ALL REINFORCED RUBBER HOSE, 10-GUAGE STEEL WIRE AND STAKES FROM CONIFER PLANTINGS.
6. FINAL INSPECTION: THE OWNER AND CONTRACTOR SHALL MAKE A FINAL INSPECTION AT THE END OF THE ONE-YEAR CORRECTION PERIOD. ANY PLANTS AND MATERIALS FOUND DEFECTIVE AT TIME OF FINAL INSPECTION SHALL BE REPLACED WITHIN A TIME AGREED UPON BY BOTH PARTIES. IF IT IS TOO LATE IN THE PLANTING SEASON FOR REPLANTING, THE REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING SEASON EVEN THOUGH SUCH PLANTING MAY RUN BEYOND THE MAINTENANCE AND CORRECTION PERIOD.

Revision	By	Appd	YYYY.MM.DD

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451P-001

WMM	TN	LAH	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
MITIGATION PLANTING PLAN AND NOTES

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 28 of 33
Drawing No. P-1

PLOTTING DATE: 3/11/2020 2:25 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\10451P-001.dwg
ORIGINAL SHEET - ANSI D

Zone	Description	Total SF	Planting SF	Structural Community	Spp Name	Common Name	% Community Composition	Plant Quantity	Container	Spacing O.C. (ft)	Grouping	Planting Comments
W1	Upstream Side Large Wetland	14050	14050	Tree	Fraxinus latifolia	Oregon Ash	15	24	1 gallon	10		
				Tree	Salix lucida	Pacific Willow	20	33	1 gallon	10		Plant along streambanks
				Tree	Alnus rubra	Red Alder	15	24	2 gallon	10		
				Tree	Picea sitchensis	Sitka Spruce	15	24	1 gallon	10		
				Tree	Thuja plicata	Western Red Cedar	15	6	1 gallon	20		Along edge of wetland area in drier areas, in shaded area or surrounded by fast growing trees/shrubs
				Shrub	Cornus stolonifera	Red-Osier Dogwood	20	97	1 gallon	5	4-8	
				Shrub	Salix geyeriana	Geyer's Willow	10	406	live stake	2	4-8	Plant along streambanks
				Shrub	Lonicera involucrata	Black Twinberry	20	97	1 gallon	5	4-8	
				Shrub	Spiraea douglasii	Douglas Spirea	20	97	1 gallon	5	4-8	
				Shrub	Physocarpus capitatus	Pacific Ninebark	20	97	1 gallon	5	4-8	
				Groundcover	Lysichiton americanum	Skunk Cabbage	0.5	20	0.42 qt	2	4-8	Dancing Oaks Nursery $12 each
				Seed	PT 499 Clean Water Services Native Wet Area Mix	35% Slough Sedge 25% Small Fruited Bulrush 20% Dense Sedge 10% Creeping Spikerush 10% Spreading Rush	25	--	seed	--	--	4 oz per 1000 square feet or 5-10 lbs per acre
				Seed	PT 406 Native Mix for Wet Areas	45% American Sloughgrass, 45% Western Mannagrass, 5% Spreading Rush, 5% Slough Sedge	75	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
W2	Upstream Side Small Wetland	1320	1320	Tree						10	--	
				Tree						10	--	
				Shrub	Cornus stolonifera	Red-Osier Dogwood	35	21	1 gallon	5	4-8	
				Shrub	Salix sitchensis	Sitka Willow	30	18	1 gallon	5	4-8	
				Shrub	Salix geyeriana	Geyer's Willow	30	18	1 gallon	5	4-8	
				Groundcover	Lysichiton americanum	Skunk Cabbage	5	3	0.42 qt	1	4-8	Dancing Oaks Nursery $12 each
				Groundcover	Polygonum persicaria	Lady's Thumb/Smartweed	10	--	seed	--	--	
				Emergent	PT 406 Native Mix for Wet Areas	45% American Sloughgrass, 45% Western Mannagrass, 5% Spreading Rush, 5% Slough Sedge	90	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
W3	Downstream Side North Wetland Area	640	640	Shrub	Cornus stolonifera	Red-Osier Dogwood	20	7	1 gallon	5	4-8	
				Shrub	Rubus spectabilis	Salmonberry	20	7	1 gallon	5		
				Shrub	Salix geyeriana	Geyer's Willow	20	7	1 gallon	5		
				Groundcover	Lysichiton americanum	Skunk Cabbage	5	2	0.42 qt	1		Dancing Oaks Nursery $12 each https://dancingoaks.com/products/lysichiton-americanus?variant=35921819280
				Groundcover	Polygonum persicaria	Lady's Thumb/Smartweed	10	--	seed	--	--	
				Seed	PT 406 Native Mix for Wet Areas	45% American Sloughgrass, 45% Western Mannagrass, 5% Spreading Rush, 5% Slough Sedge	90	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
W4	Downstream Side South Wetland Area	460	460	Shrub	Cornus stolonifera	Red-Osier Dogwood	20	3	1 gallon	5	4-8	
				Shrub	Rubus spectabilis	Salmonberry	20	3	1 gallon	5	4-8	
				Shrub	Salix geyeriana	Geyer's Willow	20	3	1 gallon	5	4-8	
				Groundcover	Lysichiton americanum	Skunk Cabbage	5	1	0.42 qt	1	4-8	Dancing Oaks Nursery $12 each https://dancingoaks.com/products/lysichiton-americanus?variant=35921819280
				Groundcover	Polygonum persicaria	Lady's Thumb/Smartweed	10	--	seed	--	--	
				Seed	PT 406 Native Mix for Wet Areas	45% American Sloughgrass, 45% Western Mannagrass, 5% Spreading Rush, 5% Slough Sedge	100	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier

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JAMES E. McPHERSON STATE OF WASHINGTON 28287 REGISTERED PROFESSIONAL ENGINEER 3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451P-002.1 | WMM Dwn. | TN Dsgn. | LAH Chkd. | 2020.03.11 YYYY.MM.DD

Title
MITIGATION PLANTING SCHEDULE
1 OF 4

Project No. CSD0124
Scale
Revision
Sheet 29 of 33
Drawing No. P-2.1

PLOTTING DATE: 3/11/2020 2:32 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\10451P-002.1.dwg

ORIGINAL SHEET - ANSI D

Zone	Description	Total SF	Planting SF	Structural Community	Spp Name	Common Name	% Community Composition	Plant Quantity	Container	Spacing O.C. (ft)	Grouping	Planting Comments
R1	Upstream Side Riparian	12780	12780	Tree	Alnus rubra	Red Alder	25	37	2 gallon	10	--	Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer
				Tree	Pyrus fusca	Western Crabapple	10	15	1 gallon	10		
				Tree	Populus trichocarpa	Black Cottonwood	25	37	1 gallon	10		
				Tree	Salix lucida	Pacific Willow	25	37	1 gallon	10		
				Tree	Thuja plicata	Western Red Cedar	15	6	1 gallon	20		Planted in shaded area or next to alder and willows
				Shrub	Acer circinatum	Vine Maple	15	66	1 gallon	5	4-8	
				Shrub	Cornus stolonifera	Red-Osier Dogwood	15	66	1 gallon	5	4-8	
				Shrub	Oemleria cerasiformis	Indian Plum	15	66	1 gallon	5	4-8	Planted along outer edges of zone
				Shrub	Ribes sanguineum	Red-flowering currant	10	44	1 gallon	5	4-8	Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer
				Shrub	Rosa nutkana	Nootka Rose	10	44	1 gallon	5	4-8	In area closer to road
				Shrub	Rubus spectabilis	Salmonberry	20	89	1 gallon	5	4-8	Planted along stream
				Shrub	Sambucus racemosa	Red Elderberry	10	44	1 gallon	5	4-8	Planted along outer edges of zone
				Shrub	Vaccinium parvifolium	Red Huckleberry	5	22	1 gallon	5	4-8	In nurse logs, woody debris.
				Seed	PT 402 Native Mix for Wet Areas	60% Blue Wildrye 30% Meadow Barley 10% Tufted Hairgrass	100	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
R2	Downstream Side Riparian	5960	5960	Tree	Alnus rubra	Red Alder	25	17	2 gallon	10	--	Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer
				Tree	Pyrus fusca	Western Crabapple	10	7	1 gallon	10		
				Tree	Populus trichocarpa	Black Cottonwood	25	17	1 gallon	10		
				Tree	Salix lucida	Pacific Willow	25	17	1 gallon	10		
				Tree	Thuja plicata	Western Red Cedar	15	3	1 gallon	20		Planted in shaded area or next to alder and willows
				Shrub	Acer circinatum	Vine Maple	15	31	1 gallon	5	--	
				Shrub	Cornus stolonifera	Red-Osier Dogwood	15	31	1 gallon	5		
				Shrub	Oemleria cerasiformis	Indian Plum	15	31	1 gallon	5		Planted along outer edges of zone
				Shrub	Ribes sanguineum	Red-flowering currant	10	21	1 gallon	5		Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer
				Shrub	Rosa nutkana	Nootka Rose	10	21	1 gallon	5	4-8	In area closer to road
				Shrub	Rubus spectabilis	Salmonberry	20	41	1 gallon	5	4-8	Planted along stream
				Shrub	Sambucus racemosa	Red Elderberry	10	21	1 gallon	5	4-8	Planted along outer edges of zone
				Shrub	Vaccinium parvifolium	Red Huckleberry	5	10	1 gallon	5	4-8	In nurse logs, woody debris.
				Seed	PT 402 Native Mix for Wet Areas	60% Blue Wildrye 30% Meadow Barley 10% Tufted Hairgrass	100	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
U1	Upstream Side Upland Area South of Wetland 1	3160	3160	Tree	Acer macrophyllum	Bigleaf maple	50	19	1 gallon	10		
				Tree	Pseduotsuga menziesii	Douglas fir	25	9	1 gallon	10		
				Tree	Thuja plicata	Western Red Cedar	25	3	1 gallon	20		Plant along edge of riparian, in shaded area or surrounded by fast growing trees/shrubs
				Shrub	Mahonia aquifolium	Tall Oregon Grape	20	25	1 gallon	5	4-8	
				Shrub	Oemleria cerasiformis	Indian Plum	20	25	1 gallon	5	4-8	
				Shrub	Polystichum munitum	Western Sword Fern	20	25	1 gallon	5	4-8	
				Shrub	Symphoricarpos albus	Snowberry	20	25	1 gallon	5	4-8	
				Shrub	Vaccinium ovatum	Evergreen Huckleberry	20	13	1 gallon	5	4-8	
				Seed Mix	Pacific Northwest Native Erosion Control Mix	20% Mountain Brome 20% Slender Wheatgrass 20% Perennial Ryegrass 20% Annual Ryegrass 10% White Clover 10% Sterile Triticale Hybrid	100	--	seed	--	--	2 lb. per 1000 sq ft (40 lbs. per acre), hydroseed with tackifier, and then covered with jute blanket. Shrubs planted through holes in jute blanket.

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JAMES E. McPHERSON — STATE OF WASHINGTON — 28287 — REGISTERED PROFESSIONAL ENGINEER

3/11/2020

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451P-002.2 | WMM Dwn. | TN Dsgn. | LAH Chkd. | 2020.03.11 YYYY.MM.DD

Title
MITIGATION PLANTING SCHEDULE
2 OF 4

Project No. CSD0124 | Scale

Revision | Sheet 30 of 33 | Drawing No. P-2.2

PLOTTING DATE: 3/11/2020 2:39 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\10451P-002.2.dwg

ORIGINAL SHEET - ANSI D

Zone	Description	Total SF	Planting SF	Structural Community	Spp Name	Common Name	% Community Composition	Plant Quantity	Container	Spacing O.C. (ft)	Grouping	Planting Comments
U2	Upstream Side Upland Area Adjacent to Roadway	3540	3540	Tree	Arbutus menziesii	Pacific madrone	25	10	1 gallon	10	4-8	
				Tree	Pinus contorta	Shore pine	50	21	1 gallon	10		
				Tree	Prunus emarginata	Bitter Cherry	25	10	1 gallon	10		
				Shrub	Mahonia aquifolium	Tall Oregon Grape	20	25	1 gallon	5	4-8	
				Shrub	Oemleria cerasiformis	Indian Plum	20	25	1 gallon	5	4-8	
				Shrub	Polystichum munitum	Western Sword Fern	20	25	1 gallon	5	4-8	
				Shrub	Rosa gymnocarpa	Wood Rose	20	25	1 gallon	5	4-8	Plant along road border
				Shrub	Symphoricarpos albus	Snowberry	20	25	1 gallon	5	4-8	
				Seed Mix	Pacific Northwest Native Erosion Control Mix	20% Mountain Brome 20% Slender Wheatgrass 20% Perennial Ryegrass 20% Annual Ryegrass 10% White Clover 10% Sterile Triticale Hybrid	100	--	seed	--	--	2 lb. per 1000 sq ft (40 lbs. per acre), hydroseed with tackifier, and then covered with jute blanket. Shrubs planted through holes in jute blanket.
U3	Downstream Side Upland Area North of Culvert	2570	2570	Tree	Arbutus menziesii	Pacific madrone	50	15	1 gallon	10		
				Tree	Pinus contorta	Shore pine	50	15	1 gallon	10		
				Shrub	Acer circinatum	Vine Maple	5	4	1 gallon	5		
				Shrub	Gaultheria shallon	Salal	20	18	1 gallon	5	4-8	
				Shrub	Mahonia nervosa	Low Oregon Grape	20	18	1 gallon	5	4-8	
				Shrub	Oemleria cerasiformis	Indian Plum	10	9	1 gallon	5	4-8	
				Shrub	Polystichum munitum	Western Sword Fern	20	18	1 gallon	5	4-8	
				Shrub	Vaccinium ovatum	Evergreen Huckleberry	15	13	1 gallon	5	4-8	
				Shrub	Vaccinium parvifolium	Red Huckleberry	10	9	1 gallon	5	4-8	In nurse logs, woody debris.
				Seed Mix	PT 404 Native Upland Mix with Color	55% California Brome 25% Blue Wildrye 15% Streambank Lupine 5% Western Yarrow	100	--	seed	--	--	2 lb. per 1000 sq ft (40 lbs. per acre), hydroseed with tackifier, and then covered with jute blanket. Shrubs planted through holes in jute blanket.
U4	Downstream Side Upland Area Staging and Access	11980	11980	Tree	Arbutus menziesii	Pacific madrone	20	28	1 gallon	10	4-8	
				Tree	Pinus contorta	Shore pine	20	28	1 gallon	10		
				Tree	Prunus emarginata	Bitter Cherry	20	28	1 gallon	10		
				Tree	Pseduotsuga menziesii	Douglas fir	20	28	1 gallon	10		
				Tree	Thuja plicata	Western Red Cedar	20	7	1 gallon	20		Plant along uphill edge of riparian zone, in shaded area or surrounded by fast growing trees/shrubs
				Shrub	Amelanchier alnfolia	Serviceberry	10	42	1 gallon	5	4-8	
				Shrub	Holodiscus discolor	Ocean Spray	10	42	1 gallon	5	4-8	Plant along road border
				Shrub	Mahonia aquifolium	Tall Oregon Grape	20	83	1 gallon	5	4-8	
				Shrub	Oemleria cerasiformis	Indian Plum	10	42	1 gallon	5	4-8	
				Shrub	Polystichum munitum	Western Sword Fern	10	42	1 gallon	5	4-8	
				Shrub	Rosa gymnocarpa	Wood Rose	20	83	1 gallon	5	4-8	Plant along road border
				Shrub	Symphoricarpos albus	Snowberry	10	42	1 gallon	5	4-8	
				Shrub	Vaccinium ovatum	Evergreen Huckleberry	10	42	1 gallon	5	4-8	
				Seed Mix	Native Erosion Control Mix	20% Mountain Brome 20% Slender Wheatgrass 20% Perennial Ryegrass 20% Annual Ryegrass 10% White Clover 10% Sterile Triticale Hybrid	100	--	seed	--	--	2 lb. per 1000 sq ft (40 lbs. per acre), hydroseed with tackifier, and then covered with jute blanket. Shrubs planted through holes in jute blanket.

PLOTTING DATE: 3/9/2020 1:51 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\10451P-002.3.dwg

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451P-002.3

WMM	TN	LAH	2020.03.11
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
MITIGATION PLANTING SCHEDULE
3 OF 4

Project No. CSD0124

Scale

Revision

Sheet 31 of 33

Drawing No. P-2.3

ORIGINAL SHEET - ANSI D

Zone	Description	Total SF	Planting SF	Structural Community	Spp Name	Common Name	% Community Composition	Plant Quantity	Container	Spacing O.C. (ft)	Grouping	Planting Comments
U5	Downstream Side Upland Area Eastern Portion	640	640	Tree	Alnus rubra	Red Alder	50	4	1 gallon	10	4-8	
				Tree	Thuja plicata	Western Red Cedar	50	1	1 gallon	20		Plant along edge of riparian, in shaded area or surrounded by fast growing trees/shrubs
				Shrub	Amelanchier alnfolia	Serviceberry	20	4	1 gallon	5	4-8	
				Shrub	Oemleria cerasiformis	Indian Plum	20	4	1 gallon	5	4-8	
				Shrub	Polystichum munitum	Western Sword Fern	50	11	1 gallon	5	4-8	
				Shrub	Vaccinium ovatum	Evergreen Huckleberry	10	2	1 gallon	5	4-8	
				Seed Mix	PT 404 Native Upland Mix with Color	55% California Brome 25% Blue Wildrye 15% Streambank Lupine 5% Western Yarrow	100	--	seed	--	--	2 lb. per 1000 sq ft (40 lbs. per acre), hydroseed with tackifier.
B1	Upstream Side Streambanks	3950	3950	Shrub	Salix sitchensis	Sitka Willow	60	685	live stakes	2	12-24	Planted along stream
				Shrub	Ribes bracteosum	Stink currant	10	18	1 gallon	5	4-8	Planted along stream
				Shrub	Rubus spectabilis	Salmonberry	30	55	1 gallon	5	4-8	Planted along stream
			5 ft stream bank, each side	Seed	PT 402 Native Mix for Wet Areas	60% Blue Wildrye 30% Meadow Barley 10% Tufted Hairgrass	100	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
B2	Downstream Side Streambanks	3540	3540	Shrub	Salix sitchensis	Sitka Willow	60	613	live stakes	2	12-24	Planted along stream
				Shrub	Ribes bracteosum	Stink currant	10	16	1 gallon	5	4-8	Planted along stream
				Shrub	Rubus spectabilis	Salmonberry	30	49	1 gallon	5	4-8	Planted along stream
			5 ft stream bank, each side	Seed	PT 402 Native Mix for Wet Areas	60% Blue Wildrye 30% Meadow Barley 10% Tufted Hairgrass	100	--	seed	--	--	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier

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Client/Project
CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

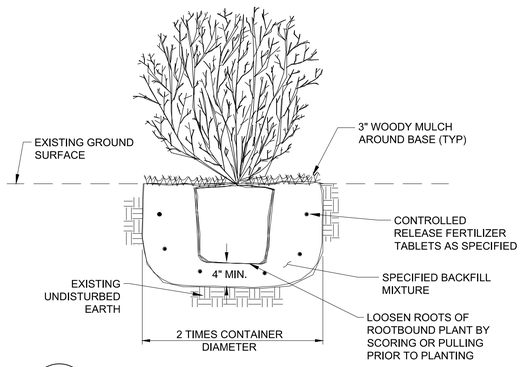
KIRKLAND, WA

File Name: 10451P-002.4 | WMM Dwn. | TN Dsgn. | LAH Chkd. | 2020.03.11 YYYY.MM.DD

Title
MITIGATION PLANTING SCHEDULE
4 OF 4

Project No. CSD0124
Scale
Revision
Sheet 32 of 33
Drawing No. P-2.4

PLOTTING DATE: 3/9/2020 1:53 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\10451P-002.4.dwg
ORIGINAL SHEET - ANSI D

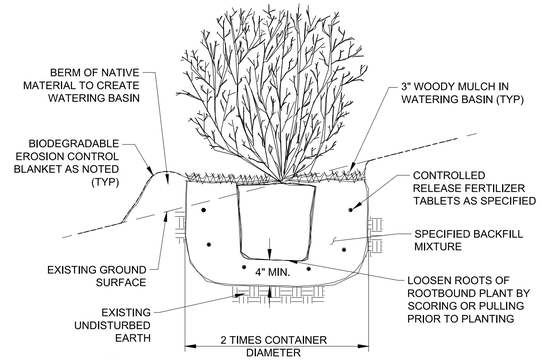


1 SHRUB INSTALLATION ON LEVEL GROUND

NOT TO SCALE

NOTES:

1. CAREFULLY REMOVE, EXCAVATE AND REPLANT NEW PLANTS AND SHRUBS THAT HAVE NOT BEEN INSTALLED AT A DEPTH BELOW SURROUNDING GROUND SURFACE OR PERMANENT SOIL BERM.

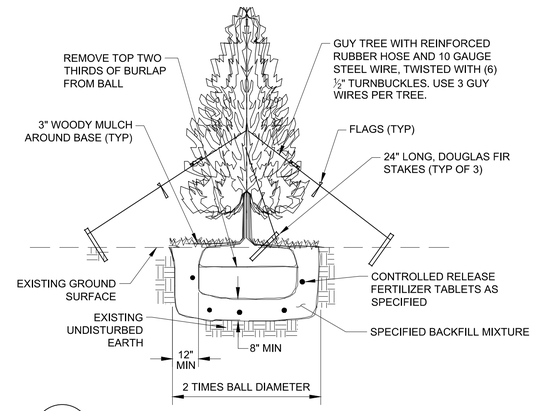


2 SHRUB INSTALLATION ON SLOPE

NOT TO SCALE

NOTES:

1. IN UPLAND ZONES AND WHERE SLOPES OF NATIVE MATERIAL EXCEED 5:1, INSTALL BIODEGRADABLE EROSION CONTROL BLANKET AS SHOWN ON SHEET GC-1 AND IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SEC. 9-14.5(2).
2. PLANTS AND SHRUBS SHALL HAVE BERMS OR WELLS TO COLLECT AND HOLD RAINWATER AND SURFACE RUNOFF (STRICTLY ENFORCED).
3. CAREFULLY REMOVE, EXCAVATE AND REPLANT NEW PLANTS AND SHRUBS THAT HAVE NOT BEEN INSTALLED AT A DEPTH BELOW SURROUNDING GROUND SURFACE OR PERMANENT SOIL BERM.

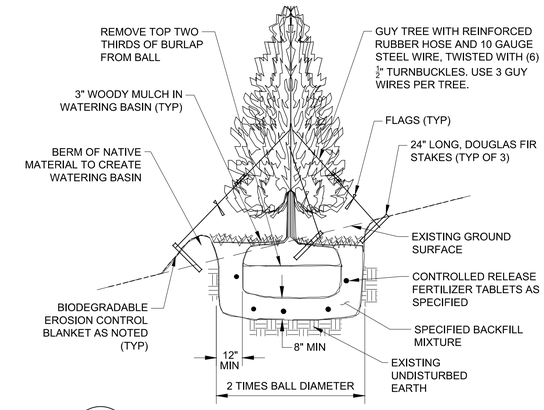


3 TREE INSTALLATION ON LEVEL GROUND

NOT TO SCALE

NOTES:

1. CAREFULLY REMOVE, EXCAVATE AND REPLANT NEW PLANTS AND SHRUBS THAT HAVE NOT BEEN INSTALLED AT A DEPTH BELOW SURROUNDING GROUND SURFACE OR PERMANENT SOIL BERM.

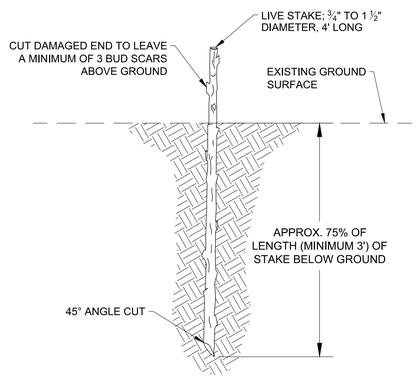


4 TREE INSTALLATION ON SLOPE

NOT TO SCALE

NOTES:

1. IN UPLAND ZONES AND WHERE SLOPES OF NATIVE MATERIAL EXCEED 5:1, INSTALL BIODEGRADABLE EROSION CONTROL BLANKET AS SHOWN ON SHEET GC-1 AND PER WSDOT STANDARD SPECIFICATIONS SEC. 9-14.5(2).
2. PLANTINGS SHALL HAVE BERMS OR WELLS TO COLLECT AND HOLD RAINWATER AND SURFACE RUNOFF (STRICTLY ENFORCED).
3. CAREFULLY REMOVE, EXCAVATE AND REPLANT NEW PLANTS AND SHRUBS THAT HAVE NOT BEEN INSTALLED AT A DEPTH BELOW SURROUNDING GROUND SURFACE OR PERMANENT SOIL BERM.

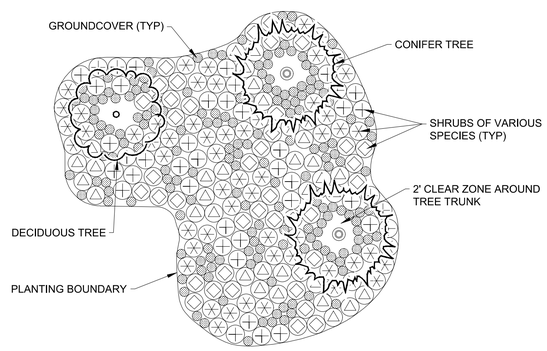


5 LIVE STAKE INSTALLATION

NOT TO SCALE

NOTES:

1. LIVE STAKES SHALL BE PLANTED WITHIN 8 HOURS OF CUTTING. STAKES WHICH DEVELOP ROOTS SHALL NOT BE USED.
2. CREATE PILOT HOLE WITH PLANTING BAR OR BY PRE-DRILLING TO DEPTH OF APPROXIMATELY 3'.
3. GENTLY INSTALL STAKES INTO PILOT HOLE WITH DIAGONALLY CUT END DOWN.
4. IF STAKES ARE POUNDED INTO PILOT HOLES, USE DEAD-BLOW HAMMER.
5. TAMP SOIL SURROUNDING INSTALLED STAKES UNTIL FIRM.

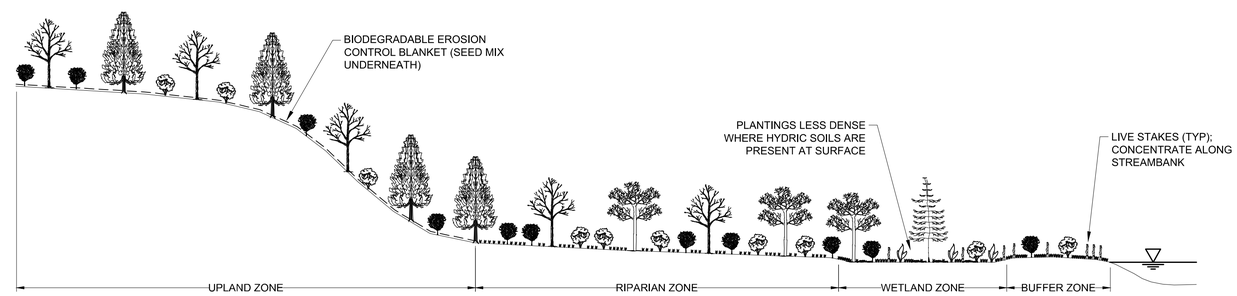


6 PLANT COMMUNITY DISTRIBUTION

NOT TO SCALE

NOTES:

1. PROTECT AND USE EXISTING NATIVE FLORA TO THE GREATEST EXTENT FEASIBLE.
2. MAINTAIN 2' CLEAR ZONE AROUND TREES.
3. SPACE SHRUBS TIGHTLY IN AREAS THAT EXPERIENCE FULL OR PARTIAL SUN. IN HEAVILY SHADED AREAS, SHRUBS MAY BE SPACED WIDER USING GROUNDCOVER SPECIES TO FILL IN GAPS.
4. PLANTING SCHEME MAY VARY WHERE HYDRIC SOILS ARE PRESENT AT SURFACE.



7 TYPICAL SECTION

NOT TO SCALE

Revision	By	Appd	YYYY.MM.DD

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Permit/Seal

JAMES E. McPHERSON — STATE OF WASHINGTON — 28287 — REGISTERED PROFESSIONAL ENGINEER — 3/11/2020

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CITY OF KIRKLAND

CEDAR CREEK CULVERT REPLACEMENT

KIRKLAND, WA

File Name: 10451P-003	WMM	WMM	TN	2020.03.11
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
MITIGATION PLANTING DETAILS

Project No. CSD0124
Scale AS NOTED
Revision
Sheet 33 of 33
Drawing No. P-3

PLOTTING DATE: 3/9/2020 1:59 PM USER: Hurley, Leslie FILE NAME: C:\pwworkdir\d0526390\10451P-003.dwg
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