# Countyline Levee Setback

White River, River Mile 5.00-6.33

**King County**
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section

Christie True, Director
Department of Natural Resources and Parks

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**CALL 2 WORKING DAYS BEFORE YOU DIG**
1-800-424-5555
(UNDERGROUND UTILITY LOCATIONS ARE APPROVED)

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**APPENDIX/REVIVALS**: 5-15-2013
**REVISION**: 5-15-2013
**DRAINED**: 5-15-2013
**DESIGNED**: 5-15-2013
**DRAWN**: 5-15-2013
**DRAWN FOR**: 5-15-2013
**PROJECT NO.** 1112049
**PROJECT MANAGER**: Chris Brumner, PE
**REVISIONS** 1

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**COUNTYLINE LEVEE SETBACK**
**WHITE RIVER, RIVER MILE 5.00-6.33**
**LEVEE MODIFICATION**
**COVER SHEET**

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**King County**
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section

Christie True, Director
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**Sheet 1**
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CONSTRUCTION SEQUENCE NOTES:
1. CONSTRUCTION WILL BE DIVIDED INTO TWO CONSTRUCTION YEARS. THIS PLAN SET DESCRIBES THE PROJECT AS CONSTRUCTED AT THE END OF CONSTRUCTION YEAR 2. THE CONSTRUCTION SEQUENCING DESCRIBED HERE WILL BE REFINED FOR THE FINAL CONSTRUCTION DRAWINGS TO MEET PERMIT REQUIREMENTS, FLOOD PROTECTION NEEDS, AND CONSTRUCTABILITY GOALS. THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SEQUENCING PLAN MEETING PERMIT, FLOOD PROTECTION, AND CONSTRUCTABILITY REQUIREMENTS.

2. WATER MANAGEMENT SYSTEMS SHALL BE USED TO DISTRIBUTE FLOW, ISOLATE WORK AREAS, PUMP CONSTRUCTION WATER, ESTABLISH INFLATION AREAS, MANAGE CONSTRUCTION WATER STORAGE AND DISCHARGE, AND AVOID IMPACT TO WATER QUALITY. WATER PUMPED FROM EXCAVATIONS SHALL BE PUMPED TO APPROVED INFILLATION AREAS OR ON-SITE STORAGE TANKS, AT NO TIME SHALL CONSTRUCTION WATER BE DISCHARGED TO THE WHITE RIVER, METCALF, OR OTHER WATER BODIES. WATER MANAGEMENT SYSTEM PLAN ADDRESSING SITE-SPECIFIC TECHNIQUES AND METHODS FOR EACH PHASE OF WORK THAT IS CONSISTENT WITH THE CONSTRUCTION SEQUENCING PLAN.

3. THE EXISTING LEVEE SHALL REMAIN INTACT DURING THE WINTER SEASON BETWEEN CONSTRUCTION YEARS 1 AND 2 IN ORDER TO MAINTAIN THE EXISTING LEVEL OF FLOOD PROTECTION.

4. CONSTRUCTION YEAR 1 WILL INCLUDE CONSTRUCTION OF MOST INTERIOR PROJECT ELEMENTS, INCLUDING: ACCESS ROADS, SETBACK LEVEE, BIOEVEGETATION, BANK ROUGHENING STRUCTURES, EELA, REVEGETATION OF THE WETLAND BUFFER AND RELOCATION OF UTILITIES. WORK IN YEAR 1 MAY ALSO INCLUDE LIMITED EXCAVATION OF THE LANDWARD EDGE OF THE EXISTING LEVEE PROTOS (FOR RE-USE AS BACKFILL). CONSTRUCTION OF POTENTIAL FLOODPLAIN ROUGHENING STRUCTURES, REMOVAL OF THE EXISTING CLAY-LERT, AND DEMOLITION CONSTRUCTION OF EELA MAY SPAN TWO CONSTRUCTION SEASONS DUE TO IN-WATER CONSTRUCTION WORK PERMIT REQUIREMENTS.

5. YEAR 2 CONSTRUCTION WILL INCLUDE THE COMPLETION OF EELA AND SETBACK LEVEE CONSTRUCTION NOT COMPLETED IN YEAR 1, THE REMOVAL OF THE EXISTING LEVEE AND RIPRAP REVETMENT, OLDER LEVEE REMOVAL, AND CONSTRUCTION OF THE OUTLET CHANNEL, ADDITIONAL REVEGETATION OF THE WETLAND BUFFER, AND RESTORATION ACTIVITIES NEEDED TO COMPLETE THE WORK.

EROSION AND SEDIMENTATION CONTROL NOTES:
1. THE BOUNDARIES OF WORK AREA LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY MARKED BY SURFACE TAPE OR FENCING PRIOR TO CONSTRUCTION. TREES TO BE LEFT UNDISTURBED OR SALVAGED SHALL BE TAGGED AND MARKED PRIOR TO CONSTRUCTION DURING THE CONSTRUCTION PERIOD. NO DISTURBANCES BEYOND THE WORK AREA LIMITS SHALL BE PERMITTED. THE WORK AREA LIMITS SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION, INCLUDING PERIODS OF WORK STOPPAGE BETWEEN CONSTRUCTION YEARS 1 AND 2.

2. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASHPADS, MAY BE REQUIRED TO ENSURE THAT ALL WORK AREAS ARE KEPT CLEAN AND TRACK OUT TO ROAD RIGHT OF WAY AT TIMES DURING THE CONSTRUCTION PROJECT. BOUNDARY MARKERS SHALL BE INSTALLED AT THE CONSTRUCTION ENTRY POINTS TO IDENTIFY THE PROJECT LINES.

3. EROSION AND SEDIMENTATION CONTROL FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTIPORTED SITE CONDITION CONTROL REQUIREMENTS. IN-WATER WAVE EROSION CONTROL AND DRAINAGE CHANNELS FOR EXISTING WAVE EROSION ARE SHOWN, EXISTING WAVE EROSION CONTROL, BREEZEWALL, FLOODPLAIN ROUGHENING, AND EELA WILL BE REINFORCED FOR THE FINAL CONSTRUCTION DRAWINGS. THESE FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED WAVE EVENTS AND MODIFIED TO ACCOUNT FOR CORRESPONDING SITE CONDITIONS (E.G., ADDITIONAL COFFERDAMS, RELOCATION OF DITCHES AND SILT FENCES, PERMEN PROTECTION, ETC.) AS DIRECTED BY THE PROJECT REPRESENTATIVE.

4. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON OR SEVEN (7) DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESD METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).

5. ANY AREA NECESSARY ESD MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.

6. THE ESD FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH DURING THE DRY SEASON, BI-MONTHLY DURING THE WET SEASON, OR WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.

7. COVER MEASURES WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE KING COUNTY SURFACE WATER DESIGN MANUAL.

8. PRIOR TO THE BEGINNING OF THE WET SEASON OCT. 1) ALL DISTURBED AREAS SHALL BE REVISED TO IDENTIFY WHICH ONE CAN BE SEEDED IN PREPARATION FOR WINTER RAINS. DISTURBED AREAS SHALL BE SEENED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEENED AND THOSE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED BY THE CONTRACTOR.
DEWATERING NOTES:

1. The dewatering plan and notes will be developed for the final construction plans to meet local, state, and federal permit requirements.
NOTES:

1. FOR ELI PILE INSTALLATION CONSTRUCT WORK PLATFORM IN LOCATION SHOWN TO ALLOW PILE INSTALLATION TO OCCUR IN THE DRY. USE ALLUVIUM EXCAVATED FROM EXISTING DEW AND PLACE SOILS BY END-SPREADING AND COMPACT BY ROLLING EQUIPMENT OVER SOILS. SOILS MAY BE RECLAIMED FROM PILE INSTALLATION ZONE AT MATERIALS ANGLE OF REPPOSE FOR BOTTOM OF WETLAND EXCAVATION ABOVE THE BSL AT THE TIME OF CONSTRUCTION.

2. ISOLATE ELI FROM STANDING WATER IN WETLAND WITH A SILT CURTAIN OR APPROVED OTHER TO CONTAIN TURBID WATER WHILE CONSTRUCTING STRUCTURES.

3. FOLLOWING PILE INSTALLATION, EXCAVATE THROUGH WORK PLATFORM AS NEEDED TO COMPLETE STRUCTURE CONSTRUCTION. WORK PLATFORM MATERIAL MAY BE REUSED AS STRUCTURE BACKFILL MATERIAL.

4. IF NECESSARY TO COMPLETE CONSTRUCTION OF ELI, PUMP WATER FROM EXCAVATION AND DISCHARGE TO INfiltrATION AREA OUTSIDE OF WETLAND BOUNDARY OR TO PORTABLE WETLAND TREATMENT SYSTEM PER PROJECT PERMIT REQUIREMENTS.

5. WORK AREA LIMITS SHOWN AROUND ELI WORK AREAS REPRESENT THE MAXIMUM ALLOWABLE CLEARING LIMITS. THE CONTRACTOR SHALL MANAGE CLEARING WHERE POSSIBLE TO PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND NOT DAMAGE OR DISTURB VEGETATION. SPECIAL ATTENTION SHALL BE GIVEN TO THE PRESERVATION OF SAVANNAH PLANTS OR THERMAL TOLERANT PLANTS. AT THE DISCRETION OF THE CONTRACTOR, THE REPRESENTATIVE CLEARING LIMITS MAY BE USED AS SLEAZE IN THE ELI EXCLUDING NON-NATIVE, INVASIVE AND NOXIOUS VEGETATION.

LEGEND:

- LEVEE AND REVETMENT EXCAVATION
- TEMPORARY ACCESS ROAD AND ELI WORK PLATFORM
- WORK AREA LIMITS
- CLEARING LIMITS
- SILT FENCE
- EDGE OF OPEN WATER
- ELI FOOTPRINT
- ELI PILE INSTALLATION ZONE
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)
NOTE:
1. FOR ELJ PILE INSTALLATION CONSTRUCT WORK PLATFORM IN LOCATION SHOWN TO ALLOW PILE INSTALLATION TO OCCUR IN THE DRY. USE ALUMINUM EXCAVATED FROM EXISTING LEVEL AND PLACE SPILLS BY END-DUMPING AND COMPACT BY ROUTINE EQUIPMENT OVER SPILLS. CLEAR MATERIAL FROM TOWARDS BASE OF ELJ PILE TO PROVIDE FLOOR AT ELJ PILE INSTALLATION ZONE. WORK PREPARATION MATERIALS CAN BE USED AS WORK OR TURF MATERIALS DEPOSITED ON SITE.
2. ISOLATE ELJ FROM STANDING WATER IN WETLAND WITH A SILT CURTAIN OR APPROVED OTHER TO CONTAIN TURF MATERIALS WHILE CONSTRUCTING STRUCTURES.
3. FOLLOWING PILE INSTALLATION, EXCAVATE THROUGH WORK PLATFORMS AS NEEDED TO COMPLETE STRUCTURE CONSTRUCTION. WORK PLATFORM MATERIAL MAY BE USED AS STRUCTURE BACKFILL MATERIAL.
4. IF NECESSARY TO COMPLETE CONSTRUCTION OF ELJ, PUMP WATER FROM EXCAVATION AND DISCARD TO INFILTRATION AND REDUCTION OF WETLANDS. WATER IS PUMPED TO PORTABLE WATER TREATMENT SYSTEM PRIOR PROJECT COMPLETION.
5. WORK AREA LIMITS SHOWN AROUND ELJ WORK AREAS REPRESENT THE MAXIMUM ALLOWABLE CLEARING LIMITS. ALL ELJ WORK AREAS REPRESENT THE MAXIMUM ALLOWABLE CLEARING LIMITS. THE CONTRACTOR SHALL MAINTAIN CLEARING WHERE POSSIBLE TO PRESERVE AS MUCH EXISTING VETATION AS POSSIBLE AND NOT DAMAGE OR DISTURB VEGETATION NEEDED FOR PRESERVATION. AT THE DISCRETION OF THE PROJECT REPRESENTATIVE, CLEARING LIMITS MAY BE USED AS SLASH IN THE ELJ EXCLUDING NON-NATIVE, INVASIVE AND NOxious VEGETATION.

LEGEND:
- WORK AREA LIMITS
- SILT CURTAIN
- EDGE OF OPEN WATER
- ELJ FOOTPRINT
- ELJ PILE INSTALLATION ZONE
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)
NOTES:
1. SEE STRUCTURE LAYING PLAN ON DWG W/ A FOR LOCATION OF CONTROL POINTS ON EACH STRUCTURE.
2. TEMPORARY ACCESS PATH FROM EXISTING LEVEE THROUGH WETLAND TO ELJ 1, 2 AND 3 SHOWN ON DWG E01. ADJUST ELEVATION OF PATH AS NEEDED TO ALLOW EQUIPMENT EGRESS THROUGH WETLAND ABOVE ALLOCATED SURFACE WATER. REMOVE PATH FOLLOWING COMPLETION OF ELJ CONSTRUCTION. ADJUST SLOPE OF ACCESS PATH FROM EXISTING LEVEE TO WETLAND AS NEEDED TO ALLOW SAFE EQUIPMENT EGRESS.
3. PLACE VEGETATION THAT IS CLEARED FOR ELJ AND TEMPORARY ACCESS PATH CONSTRUCTION WITHIN LIMITS OF DISTURBED AREAS AND AS DIRECTED BY THE PROJECT REPRESENTATIVE.
4. WORK PLATFORMS FOR ELJ 1, 2 AND 3 SHOWN ON DWG E02. ISOLATE ELJ WORK AREA TO CONTAIN TREATED SURFACE WATER USING A TARP, FENCE OR INFLATABLE CUMBER. WORK PLATFORMS AND TUNNELS NOT SHOWN FOR CLARITY. REMOVE WORK PLATFORMS OUTSIDE OF FOOTPRINT OF ELJ FOLLOWING COMPLETION OF ELJ CONSTRUCTION.

SMALL APEX ELJ CONTROL POINT TABLE:

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NOTE: TABLE TO BE COMPLETED FOR FINAL DESIGN.

LEGEND:
- LEVEE AND RETENTION EXCAVATION
- WORK AREA LIMITS
- EDGE OF OPEN WATER
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
ELJ SITE PLAN (SHEET 1 OF 2)
NOTES:
1. SEE STRUCTURE LAYERS PLANS ON SHEETS 2, 3, 4, AND 5 FOR LOCATION OF CONTROL POINTS ON EACH STRUCTURE.
2. SEE SHEETS 3, 4, 5, AND 6 FOR DESIGN RELATED INFORMATION FOR THE IRRIGATION.
3. TEMPORARY ACCESS PATH FOR ELJ 4 SHOWN ON SHEET 3. ADJUST ELEVATION OF PATH AS NEEDED TO ALLOW EQUIPMENT TO CROSS THROUGH WETLAND AVOID ADJACENT SURFACE WATERS. REMOVE PATH FOLLOWING COMPLETION OF ELJ CONSTRUCTION.
4. WORK PLATFORM FOR ELJ 6, 7, 8, 9, AND 10 SHOWN ON SHEETS 3, 4, 5, AND 6. ELJ WORK MUST BE CONTAINED SURFACE WATER USING A SILT FENCE OR BARRIER SHOWN ON SHEET 3. ADJUST ELJ 6, 7, 8, 9, AND 10 SILT FENCE/CURTAIN NOT SHOWN FOR CLARITY. REMOVE WORK PLATFORM OUTSIDE OF FOOTPRINT OF EACH ELJ FOLLOWING COMPLETION OF ELJ CONSTRUCTION.
5. FINAL GRADE OVERBACK BETWEEN ELJ 5, 6, 7, AND 8 TO 7.

LARGE APEX AND BANK DEFLECTOR ELJ CONTROL POINT TABLE:

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NOTE: TABLE TO BE COMPLETED FOR FINAL DESIGN.

LEGEND:
- LEVEE AND REMOVAL EXCAVATION
- WORK AREA LIMITS
- EDGE OF OPEN WATER
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
ELJ SITE PLAN (SHEET 2 OF 2)
NOTES:
1. DRILL EXPLORATORY BORING TO CONFIRM DEPTH TO COMPETENT MATERIAL.
2. REMOVE EXISTING ROCK BALLAST FROM RAILROAD BERM WITHIN WORK AREA LIMITS AND EXPOSE COMPETENT MATERIAL.
3. SCAFFOLDED EXPOSED SURFACE OF RAILROAD BERM AND PLACE SOLIDS FOR SETBACK LEVEE TO FINISHED GRADES AS SHOWN ON THE PLANS.
4. REPLACE ROCK BALLAST ON RAILROAD BERM AND PLACE ADDITIONAL BALLAST OVER SETBACK LEVEE SLOPE AS SHOWN ON THE PLANS.
NOTES:
1. EXTENTS OF BACKFILL SHOWN ARE APPROXIMATE AND WILL VARY FOR EACH ELJ.
2. EXCAVATION LIMITS SHOWN ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION MESS AND METHODS. SUBSURFACE CONDITIONS AND LOCATION OF STRUCTURE CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION.
3. PLACE ONLY DRY LEVEE REMOVAL SLOPS WITHIN INTERIOR OPENING AND OUTSIDE LIMITS OF STRUCTURE AND OVER FINAL LAYER OF LOGS IN 2 FOOT LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET SATURATED BACKFILL MATERIAL THAT CANNOT BE PROPERLY COMPACTED MUST NOT BE ALLOWED.
4. SEE SCHEDULE ON STRUCTURE LAYERING PLAN FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.
5. PLACEMENT OF RACKING LOG SHOWN IS APPROXIMATE. PLACE RACKING LOGS ALONG UPSTREAM FACE OF STRUCTURE. APPROXIMATE 1/3 OF RACKING LOGS SHALL BE PLACED ACROSS PILE ROWS OR PARALLEL TO FLOW AND 1/3 OF THE RACKING LOGS PERPENDICULAR TO FLOW AND 1/3 OF THE RACKING LOGS PERPENDICULAR TO FLOW. PLACEMENT OF RACKING LOGS IS TO BE DETERMINED BY CONTRACTOR. RACKING LOGS SHALL BE PLACED WITH EACH LAYER OF KEY LOGS SHALL BE HANDLED UP AND DOWN FROM THE HORIZONTAL AND SHALL BE PLACED TO CREATE AN INTERLOCKING MORTIS OF LOGS SECURED BETWEEN VERTICAL PILE LOGS AND HORIZONTAL KEY LOGS. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACE RACKING LOGS. SLASH AND BACKFILLING.
6. SEE STRUCTURE LAYERING PLAN FOR SLASH PLACEMENT. SLASH NOT SHOWN HERE FOR CLARITY. PLACE SLASH AS SHOWN ON LAYERING PLAN TO FILL HOLES BETWEEN RACKING LOGS.
7. SEE PLANNING PLAN FOR RECOMMENDED STRUCTURE PLANTING INFORMATION AND DETAILS.
8. CONSTRUCT TEMPORARY ACCESS PATH TO ELJ AND WORK PLATFORM AS NECESSARY USING ALUMINUM EXCAVATED FROM THE EXISTING LEVEE AS SHOWN ON DKG E22. ADJUST EXTENTS AND ELEVATION OF ACCESS PATH AND WORK PLATFORM AS NECESSARY TO COMPLETE CONSTRUCTION. ACCESS PATH AND WORK PLATFORM NOT SHOWN HERE FOR CLARITY. SEE DKG E25 FOR ADDITIONAL TSC AND WORK AREA ISOLATION MEASURES NEEDED TO COMPLETE STRUCTURE CONSTRUCTION.
9. PLACE 18" OF NATIVE TOPSOIL OVER STRUCTURE BACKFILL MATERIAL, THEN CORT WITH 3'-3" OF MULCH, TO EXTENTS SHOWN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.
1. STRUCTURE GENERAL LOCATION AND ORIENTATION SHALL BE STAKED BY THE CONTRACTOR. FINIAL STRUCTURE LOCATION AND ORIENTATION TO BE FIELD IDENTIFIED BY THE PROJECT REPRESENTATIVE FOLLOWING CONTRACTOR STAKING.

2. ALL PILE LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE PROJECT REPRESENTATIVE PRIOR TO PILE INSTALLATION.

3. ALL PILE LOCATIONS SHALL BE BASED ON THE LOCATION OF THE STRUCTURE CONTROL POINTS AND SHALL BE WITHIN 4' OF THE LOCATION SHOWN ON THE DRAWINGS.

4. PILE DIAMETERS SHALL BE MEASURED AT THE BUTT (CUTTER) ENDS. PILES SHALL BE UNTREATED DOUGLAS FOR MEETING ASTM D2042 REQUIREMENTS.

5. LOG MATERIALS SHALL BE PLACED AT THE LOCATIONS AND ORIENTATIONS SPECIFIED ON THE DRAWINGS AS DIRECTED BY THE PROJECT REPRESENTATIVE, THEN CUT ENDS OF HORIZONTAL KEY LOGS TO FIT AS REQUIRED.

6. PLACE SLASH OVER AND BETWEEN KEY LOGS AND PILES AS SHOWN FOR EACH LAYER SPECIFIED FOLLOWING PLACEMENT OF KEY LOGS AND REACHING LOGS. PLACE APPROXIMATELY 2" TO 3" OF NATIVE ALUMINUM OVER 1/2 THE WIDTH OF SLASH TO SECURE IN PLACE SUCH THAT SLASH IS VISIBLE FOLLOWING CONSTRUCTION. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING PACKING AND SLASH.

7. BACKFILL EACH LAYER WITH DRY COARSE ALUMINUM EXCAVATED FROM THE EXISTING LEVEE FLUSH TO TOP OF CURRENT LAYER PRIOR TO CONSTRUCTING SUBSEQUENT LAYER. COMPACT ALUMINUM BACKFILL WITH EXCAVATOR BUCKET. PULL ALL WOODS BETWEEN BOULDERS (ROCKS GREATER THAN 12" DIAMETER) WITH Finer ALUMINUM TO ACHIEVE A WELL GRADED AND COMPACTED MASS.

8. SEE DING 001 FOR COORDINATES OF STRUCTURE CONTROL POINTS.

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**LOG SCHEDULE:**

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**RACKING:** 6-18 15-30 OPTIONAL 100

**SLASH:** 80 0.07

---

**NOTES:**

**LEGEND:**

- CURRENT LAYER KEY LOG
- PREVIOUS LAYER KEY LOG
- AFTER BACKFILLING
- VERTICAL PILE LOG
- SLASH PLACEMENT ZONE
- KEY LOG TYPE (LOG TYPE L1)
- STRUCTURE CONTROL POINT (O)

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**COUNTYLINE LEVEE SETBACK**

**WHITE RIVER, RIVER MILE 5.00-6.33**

**LEVEE MODIFICATION**

**SMALL APEX ELJ LAYERING PLAN**
NOTES:

1. EXTENTS OF BACKFILL SHOWN ARE APPROXIMATE AND WILL VARY FOR EACH STRUCTURE.

2. EXCAVATION LIMITS SHOWN ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION SEAMS AND METHODS. SUBSURFACE CONDITIONS AND LOCATION OF STRUCTURE, CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION.

3. FOR "SHINGLED" BIOREVETMENT STRUCTURES, BACKFILL MATERIAL WILL CONSIST OF DRY LEVEE EXCAVATION SpoILS CAPTED WITH A 12" DEEP LAYER OF NATIVE TOPSOIL. PLACE SPoILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOSS IN 2" LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE PROPERLY COMPACTED WILL NOT BE ALLOWED. SEE DRWS 05H-180 FOR LOCATION OF "SHINGLED" BIOREVETMENT STRUCTURES.

4. FOR NON-SHINGLED BIOREVETMENT STRUCTURES, PLACE ONLY DRY NATIVE EXCAVATION SpoILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOSS IN 2" LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE COMPACTED PROPERLY WILL NOT BE ALLOWED.

5. SEE LOG SCHEDULE ON STRUCTURE LAYERING PLAN FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.

6. PLACEMENT OF RACKING LOG SHOWN IS APPROPRIATE. PLACE RACKING LOGS ALONG UPSTREAM FACE OF STRUCTURE. APPROXIMATELY 1/2 OF RACKING LOGS SHALL BE PLACED ACROSS PILE ROWS (PERPENDICULAR TO FLOW) AND 1/2 OF THE RACKING LOGS PARALLEL TO FLOW AND EXTENDING INTO THE CORN OF THE STRUCTURE BETWEEN HORIZONTAL KEYLOGS. RACKING SHALL BE PLACED WITH EACH LAYER OF KEYLOGS BEING ANGLED UP AND DOWN FROM THE HORIZONTAL AND SHAL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOSS SECURED BETWEEN VERTICAL PILE LOGS AND HORIZONTAL KEYLOGS. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING LOGS. SLASH AND BACKFILLING.

7. SEE STRUCTURE LAYERING PLAN FOR SLASH PLACEMENT. SLASH NOT SHOWN HERE FOR CLARITY. PLACE SLASH AS SHOWN ON LAYERING PLAN TO FILL VERTICAL BETWEEN RACKING LOGS.

8. SEE PLANTING PLAN FOR RECOMMENDED STRUCTURE PLANTING INFORMATION AND DETAILS.

9. BIOREVETMENT CONTROL POINT TABLE TO BE PROVIDED FOR FINAL DESIGN.

10. SEE DRWS W011 - W014 FOR APPROXIMATE DATE DURING CONSTRUCTION.
**FLOODPLAIN HUMMOCK PLAN**

- Live cottonwood boles 18" - 18" long, 6" - 9" dbh.
- Install approx. 1st apart with random rather than grid spacing (typ).
- Toe of setback levee,
- Top and centerline of hummock.

**FLOODPLAIN HUMMOCK SECTION, TYP A**

- Install live cottonwood boles with structure excavations and augered holes, typ.
- Existing grade of floodplain.
- Appro. excavation and backfill zone for log structures, not shown for clarity, typ.

**FLOODPLAIN HUMMOCK SECTION, TYP B**

- 4'-8' min, 8' max.
- 4'-8' min, 8'-12' max.
- Live cottonwood bole, typ.

**DETAIL - CABLE LASHING**

- Scale 1/8.
- Cable, see notes 1-4.
- Horizontal key log.
- Vertical timber pile.

**SECTION - CABLE LASHING**

- Scale 1/8.
- Cable, see notes 1-4.
- Horizontal key log.
- Vertical timber pile.

**NOTES:**

1. Lash horizontal key log to vertical timber piles with cable as shown on structure layering plan or as directed by the project representative. Cable lashing system shall be put in tension to 1/4 of the cable working load limit and be maintained during cable clamping.

2. Cable length needed per lashing will vary based on diameter of logs being lashed together.

3. Cable for lashing shall be 1/2 inch diameter galvanized wire rope, Class 6X19, with a minimum breaking strength of 10 tons. Steel grade shall be improved plain steel (IPS), internal core, shall be independent wire rope core (owc).

4. All hardware used for lashing shall be galvanized or stainless steel, and connections shall be of the type specified by the manufacturer with an equal or greater strength than the cable breaking strength or as approved by the project representative.

**COUNTYLINE Levee Setback**

WHITE RIVER, RIVER MILE 5.00 - 6.33

**Levee Modification**

**FLOODPLAIN ROUGHENING DETAILS**
NOTES:
1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:
○ EX TREE TO BE PROTECTED
× EX TREE TO BE REMOVED

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Chadrick Rice, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
PLANTING PLAN

SHEET 63
OF 69
LS2
NOTES:
1. See OWD LS7 for legend of plant types.

LEGEND:
○ EX TREE TO BE PROTECTED
× EX TREE TO BE REMOVED
NOTES:
1. See DWG LS7 for Legend of Plant Types.

LEGEND:
- EX. TREE TO BE PROTECTED
- EX. TREE TO BE REMOVED