1. THE CONTRACTOR SHALL HAVE SOLE AND COMPLETE RESPONSIBILITY FOR CONSTRUCTION, DESIGN, AND MAINTENANCE OF ALL PUBLIC UNDERGROUND UTILITIES. THE CONTRACTOR SHALL PROVIDE A MARK-OUT OF PRIVATE UTILITIES NOT LOCATED BY ANY ADEQUATELY LICENSED AND INSURED PROFESSIONAL BEFORE THE START OF CONSTRUCTION AND AS NEEDED DURING THE COURSE OF WORK.

2. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL PUBLIC UNDERGROUND UTILITIES TO MEET THE SPECIFICATIONS OUTLINED IN THE PROJECT SPECIFICATION AND ENGINEERING DRAWINGS. THE CONTRACTOR SHALL PROVIDE A MARK-OUT OF ALL PUBLIC UNDERGROUND UTILITIES TO MEET THE REQUIREMENTS OUTLINED IN THE PROJECT SPECIFICATION AND ENGINEERING DRAWINGS.

3. THE CONTRACTOR SHALL KEEP ACCURATE AND LEGIBLE RECORDS OF ALL WORK PERFORMED AND MATERIALS USED. THE CONTRACTOR SHALL MAINTAIN RESOURCES TO DOCUMENT ALL CHANGES AND AS-BUILT INFORMATION.
REFER TO RIVER RESTORATION PLAN SHEETS FOR WORK PERTAINING TO RIVER CHANNEL AND FLOODPLAIN RESTORATION, EXCAVATION, AND ENGINEERED RIFFLE AND POOL DESIGNS.

GENERAL NOTE:
SURVEY BY BENCHMARKS (DATUM NAVD 88)
BM# 1      FOUND RAILROAD SPIKE IN POWER POLE APPROXIMATELY 70’ EAST OF THE EAST EDGE OF THE SPILLWAY
BM# 2   SET SPIKE IN POWER POLE APPROXIMATELY 125’ WEST OF THE POWERHOUSE AND SOUTH OF ACCESS DRIVE

SURVEY BY DESCRIPTION

SURVEY BY DESCRIPTION
LIDAR DATA WAS COLLECTED WITHIN GRAND TRAVERSE COUNTY BY THE COUNTY. 2’ CONTOUR INTERVALS ARE SHOWN ON THIS DRAWING.
1. THE CONTRACTOR SHALL COMPLY WITH GRAND TRAVERSE COUNTY RULES & REGULATIONS FOR SOIL EROSION CONTROL & SUBMIT A SCHEDULE OF SOIL EROSION ACTIVITIES TO THE LOCAL ENFORCING AGENCY PRIOR TO ANY EARTH CHANGE AND AFTER RECEIVING A NOTICE OF COVERAGE AND COMPLIANCE. AT COMPLETION OF CONSTRUCTION ACTIVITIES OR UPON REQUEST FOR REVIEW, SUBMIT INSPECTION LOG BOOK TO THE COUNTY AND THE COR.


3. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE TEMPORARY SEEDING AS SPECIFIED IN SPECIFICATION SECTION 32 90 00.

4. CONTRACTOR SHALL FENCE OFF AND PROTECT TREES/AREAS DESIGNATED BY COR.

5. THE LOCATION OF ANY STOCKPILES SHALL BE DESIGNATED BY THE COR PRIOR TO CONSTRUCTION. THE AREA SHALL BE ENCLOSED BY SILT FENCE AND PROTECTED WITH SILT FENCE AND PROTECTION OF PREVIOUSLY PLACED INITIAL OR INTERIM MEASURES.

6. A CRUSHED STONE, STABILIZED CONSTRUCTION ACCESS PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ACCESS ROAD INTERSECTS A PAVED ROADWAY. PAD PAD WILL MEET THE REQUIREMENTS OF THE TEMPORARY CONSTRUCTION ENTRANCE DETAIL ON SHEET B-1.3.

7. SLOPES STEEPER THAN 1V:4H (25%) LOCATED WITHIN THE DAM BREACHING AREA ARE TO BE STABILIZED WITH EROSION CONTROL BLANKETS PER SECTION 31 40 00.

8. ALL WETLANDS NOT LOCATED WITHIN UNITS OF DISTURBANCE SHALL BE PROTECTED WITH SILT FENCE AND SHALL NOT BE DISTURBED.

9. CONCRETE RUBBLE MAY BE SALVAGED AND USED FOR TEMPORARY EROSION CONTROL, BUT ALL METAL SHALL BE CUT Flush AND DISPOSED OF OFF SITE.
DAM BREACHING PLAN VIEW - STAGE 1 & STAGE 2

**B-2.1**

1. **REMOVE SPILLWAY CONCRETE STRUCTURE DOWN TO WSE AT TIME OF CONSTRUCTION [WSE = ~609'], LEAVING SPILLWAY WALLS AT ELEVATION 615. LOWER GRADES BEHIND SPILLWAY SIDEWALLS TO NO HIGHER THAN EL. 614.5 PRIOR TO BEGINNING STAGE 2 WORK. EXCAVATE SEDIMENT OUT FROM IN FRONT OF SPILLWAY INLET TO FACILITATE RIVER FLOW. INSTALL SEDIMENT TRAP UPSTREAM OF SPILLWAY. [STAGE 1]

2. **CONTINUE DEMOLITION OF SPILLWAY CONCRETE AT 1' INCREMENTS TO DRAW DOWN POND. CONSTRUCT DOWNSTREAM RIVER ACCESS TO THE WEST OF THE POWERHOUSE. [STAGE 2] WORK ON UPSTREAM CHANNEL RESTORATION CAN BEGIN AT THIS STAGE SEE RIVER RESTORATION SHEETS FOR GRADES AND DETAILS.**

3. **ONCE IMPOUNDMENT IS DRAWN DOWN BELOW POWERHOUSE INTAKE SILL, INSTALL STOP LOGS AT INTAKE GATES TO ISOLATE FLOW TO THE SPILLWAY. INSTALL FLOW DIVERSION BERM DOWNSTREAM BETWEEN THE POWERHOUSE AND SPILLWAY OUTLET TO ISOLATE DOWNSTREAM FLOW TO THE EAST SIDE OF THE RIVER CHANNEL. BEGIN CONSTRUCTION OF RESTORED RIVER CHANNEL DOWNSTREAM OF THE POWERHOUSE. [STAGE 3]**

4. **DURING THE TIME FLOW WILL BE EXCLUSIVELY PASSING THROUGH THE SPILLWAY. UPON REACHING ELEVATION 598.5' AT THE SPILLWAY, STOP DEMOLITION AT THE SPILLWAY. GRADE BEHIND THE SPILLWAY SIDEWALLS SHALL BE MAINTAINED AT 6 FEET ABOVE THE CURRENT ELEVATION OF THE SPILLWAY [NO HIGHER OR LOWER]. PRIOR TO BEGINNING STAGE 4 WORK, INSTALL SEDIMENT TRAP UPSTREAM OF THE POWERHOUSE. DEMOLISH POWERHOUSE 6 FEET BELOW PROPOSED RIVER CHANNEL GRADES AND INSTALL RESTORED RIVER CHANNEL THROUGH AND UPSTREAM OF FORMER POWERHOUSE. [STAGE 4]**

5. **ONCE RESTORED RIVER CHANNEL HAS BEEN FULLY CONSTRUCTED THROUGH THE POWERHOUSE, BEGIN FINAL DRAW DOWN BY INCREMENTALLY LOWERING THE BULK BAG COFFERDAM UPSTREAM OF THE POWERHOUSE. [STAGE 5]**

6. **ONCE FLOW IS FULLY DIVERTED TO RESTORED RIVER CHANNEL, DEMOLISH ANY REMAINING SPILLWAY STRUCTURE AT LEAST 2 FEET BELOW FINAL GRADE AND FILL TO MATCH THE DESIGN PLANS AND COMPLETE SITE RESTORATION ACTIVITIES. [STAGE 6]**

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**LEGEND**

- **Pavement Boundary**
- **Overview Electric Overhead Line**
- **Existing Minor Contour Line**
- **Existing Major Contour Line**
- **Fence Line**
- **Edge of Tree Area**
- **Wetland Boundary**
- **Water Surface Elevation**
- **Contour Line**
- **Levels of Discontinuity**
- **Sediment Trap**
- **Cofferdam Staging Area**
- **Cofferdam**
- **FEMA 500 Floodplain Boundary**
- **BIRMLEY RD**
- **HAMMOND RD W**
- **N KEYSTONE RD**
- **CASS RD**
- **DRACKA RD**
- **LA FRANIER RD**
- **N GARFIELD RD**
- **US 31**
- **N RUSCH RD**
- **HARTMAN RD**
- **BOARDMAN IMPOUNDMENT**
- **SABIN POND**
- **BOARDMAN RIVER**
- **BROAD RD**
- **DIPLEY RD**
- **BLAIR TWP.**
- **GARFIELD TWP.**

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**CONTRACTOR TO NOTIFY AND COORDINATE WITH UTILITY COMPANIES AS DESIGNATED IN SPECIFICATIONS**

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**REFERENCE SHEETS**

- SHEET B-2.2 FOR SECTION A-A
- SHEET B-2.2 FOR SECTION B-B
ONCE IMPOUNDMENT IS DRAWN DOWN BELOW POWERHOUSE INTAKE ELEVATION, DRAWDOWN IS OCCURRING IN 1 FOOT INCREMENTS DURING STAGE 3.

CHANNEL TOP OF BANK.

CHANNEL ALIGNMENT

EQUIPMENT STAGING

CHANNEL BOTTOM. [STAGE 3]

RESTORED RIVER [STAGE 3]

RESTORED RIVER

INTAKE GATE TO ISOLATE FLOW TO THE SPILLWAY.

STOPLOGS AVAILABLE ONSITE.

120+00.00

119+50.00

120+50.00

121+00.00

119+00.00

FLOW

DIVERSION BERM

INSTALL FLOW DIVERSION BERM DOWNSTREAM BETWEEN THE POWERHOUSE AND SPILLWAY OUTLET TO ISOLATE DOWNSTREAM RIVER FLOW TO THE EAST SIDE OF THE RIVER CHANNEL. BEGIN CONSTRUCTION OF RESTORED RIVER CHANNEL DOWNSTREAM OF THE POWERHOUSE [STAGE 5].

THROUGH THE DOWNSTREAM FLOW DIVERSION BERM

HTO = 4:2

SECTION D-D

SIDEWALLS SHALL BE MAINTAINED AT 6 FEET ABOVE THE CURRENT SILL, INSTALL STOP LOGS AT INTAKE GATES TO ISOLATE FLOW TO THE SPILLWAY. INSTALL FLOW DIVERSION BERM DOWNSTREAM BETWEEN THE POWERHOUSE AND SPILLWAY OUTLET TO ISOLATE DOWNSTREAM RIVER FLOW TO THE EAST SIDE OF THE RIVER CHANNEL. BEGIN CONSTRUCTION OF RESTORED RIVER CHANNEL DOWNSTREAM OF THE POWERHOUSE [STAGE 5].

DURING THIS TIME FLOW WILL BE EXCLUSIVELY PASSING THROUGH THE SPILLWAY. UPON REACHING ELEVATION EL. 598.5 AT THE SPILLWAY, STOP EXCAVATION AND INSTALL STOPLOGS AT INTAKE GATES TO ISOLATE FLOW TO THE POWERHOUSE [STAGE 4].

ONCE RESTORED RIVER CHANNEL HAS BEEN FULLY CONSTRUCTED THROUGH THE POWERHOUSE, BEGIN FINAL DRAWDOWN BY INCREMENTALLY LOWERING THE BULK BAG COFFERDAM UPSTREAM OF THE POWERHOUSE. DEMOLISH POWERHOUSE 6 FEET BELOW PROPOSED ELEVATION OF THE SPILLWAY (NO HIGHER OR LOWER) AT ALL TIMES DURING STAGE 2 ACTIVITIES.

1. REMOVE SPILLWAY CONCRETE STRUCTURE DOWN TO WSE AT TIME OF REMOVAL, INSTALL TEMPORARY BULK BAG COFFERDAM UPSTREAM OF THE POWERHOUSE. [STAGE 5]

2. CONTINUE DEMOLITION OF SPILLWAY CONCRETE AT 1' INCREMENTS TO ELEVATION 600'. COORDINATE WITH THE OGEE SPILLWAY AT A RATE OF 1.5 FT THICK DURING STAGE 3 ACTIVITIES. 2 TIMES THE D50, OR 1.5 FT THICK MDO PLAIN RIP RAP ARMORING FOR FLOW DIVERSION STRUCTURE.

3. INSTALL FLOW DIVERSION BERM DOWNSTREAM BETWEEN THE POWERHOUSE AND SPILLWAY OUTLET TO ISOLATE DOWNSTREAM RIVER FLOW TO THE EAST SIDE OF THE RIVER CHANNEL. BEGIN CONSTRUCTION OF RESTORED RIVER CHANNEL DOWNSTREAM OF THE POWERHOUSE [STAGE 6].

4. DURING THIS TIME FLOW WILL BE EXCLUSIVELY PASSING THROUGH THE SPILLWAY. UPON REACHING ELEVATION EL. 598.5 AT THE SPILLWAY, STOP EXCAVATION AND INSTALL STOPLOGS AT INTAKE GATES TO ISOLATE FLOW TO THE POWERHOUSE [STAGE 4].

5. ONCE RESTORED RIVER CHANNEL HAS BEEN FULLY CONSTRUCTED THROUGH THE POWERHOUSE, BEGIN FINAL DRAWDOWN BY INCREMENTALLY LOWERING THE BULK BAG COFFERDAM UPSTREAM OF THE POWERHOUSE. DEMOLISH POWERHOUSE 6 FEET BELOW PROPOSED ELEVATION OF THE SPILLWAY (NO HIGHER OR LOWER) AT ALL TIMES DURING STAGE 2 ACTIVITIES.
DAM BREACHING SEQUENCE

1. REMOVE SPILLWAY CONCRETE STRUCTURE DOWN TO WSE AT TIME OF CONSTRUCTION SHOULD BE 30 FEET AT TAILGATE WATER LEVEL. LOWER GRADES BEHIND SPILLWAY BERM TO NO HIGHER THAN EL. 614.5 PRIOR TO REMOVAL. ONCE REMOVED, INSTALL TEMPORARY BULK BAG COFFERDAM IN SPILLWAY INLET TO FACILITATE RIVER FLOW. INSTALL SEDIMENT TRAP UPSTREAM OF SPILLWAY. [STAGE 1]

2. CONTINUE DEMOLITION OF SPILLWAY CONCRETE AT 2 FEET PER DAY TO DRAW DOWN FLOOD WATER AND CONSTRUCT DOWNSTREAM RIVER ACCESS TO THE WEST OF THE POWERHOUSE. [STAGE 2] WORK ON UPSTREAM CHANNEL RESTORATION CAN BEGIN AT THIS TIME. SEE SHEET B-4.1 FOR GRADING DETAILS.

3. ONCE IMPOUNDMENT IS DRAWN DOWN BELOW POWERHOUSE INTAKE SILL, INSTALL DIVERSION BERM DOWNSTREAM BETWEEN THE POWERHOUSE AND SPILLWAY. INSTALL SEDIMENT TRAP UPSTREAM OF SPILLWAY TO ISOLATE FLOW TO THE EAST SIDE OF THE RIVER. POWERHOUSE CONSTRUCTION (~609') LEAVING SPILLWAY WALLS AT ELEVATION 615. LOWER GRADES BEHIND SPILLWAY SIDEWALLS TO NO HIGHER THAN EL. 614.5 PRIOR TO COMPLETION OF POWERHOUSE. [STAGE 3]

4. DURING THIS TIME FLOW WILL BE EXCLUSIVELY PASSING THROUGH THE SPILLWAY. UNTIL REACHING SEDIMENT TRAP AT THE SPILLWAY, STOP DEMOLITION. ONCE IMPOUNDMENT IS DRAWN DOWN TO EL. 604.00, INSTALL SEDIMENT TRAP UPSTREAM OF POWERHOUSE. REMOVE POWERHOUSE STRUCTURE DOWN TO WSE TO MATCH THE DESIGN PLANS AND COMPLETE SITE RESTORATION ACTIVITIES. THIS WILL BE STRICTLY ENFORCED. INSTALL TEMPORARY BULK BAG COFFERDAM UPSTREAM OF THE POWERHOUSE. [STAGE 4]

5. ONCE RESTORED RIVER CHANNEL HAS BEEN FULLY CONSTRUCTED THROUGH THE POWERHOUSE, BEGIN EXCAVATING DOWN TO EL. 596.00 TO MATCH THE PROPOSED RIVER GRADE. REMOVE TEMORARY BULK BAG COFFERDAM AND PLACE BOTTOM OF BULK BAGS 1 FOOT BELOW PROPOSED CHAINAGE CHANNEL. CONSTRUCT RESTORED RIVER CHANNEL THROUGH AND UNDER RIP RAP MATERIAL. [STAGE 5]

6. ONCE FLOW IS FULLY DIVERTED TO RESTORED RIVER CHANNEL, CONSTRUCT UPSTREAM EXCAVATION OUT FROM IN FRONT OF POWERHOUSE, BEGIN FINAL DRAW DOWN BY INCREMENTALLY LOWERING THE SPILLWAY TO ISOLATE DOWNSTREAM RIVER FLOW TO THE EAST SIDE OF THE RIVER. POWERHOUSE 6 FEET BELOW PROPOSED RIVER GRADE BEHIND SPILLWAY SIDEWALLS TO NO HIGHER OR LOWER THAN EL. 615. LOWER GRADES BEHIND SPILLWAY SIDEWALLS TO NO HIGHER THAN EL. 614.5 PRIOR TO BEGINNING STAGE 2 WORK. EXCAVATE INTO EXISTING SEDIMENTS TO ALLOW FOR DEMOLITION OF RESTORED RIVER CHANNEL IN SUPERSTRUCTURE AND APPURTENANCES. [STAGE 4]

7. ONCE RESTORED RIVER CHANNEL HAS BEEN FULLY CONSTRUCTED THROUGH THE POWERHOUSE, BEGIN EXCAVATING DOWN TO EL. 596.00 TO MATCH THE PROPOSED RIVER GRADE. REMOVE TEMPORARY BULK BAG COFFERDAM AND PLACE BOTTOM OF BULK BAGS 1 FOOT BELOW PROPOSED CHAINAGE CHANNEL. CONSTRUCT RESTORED RIVER CHANNEL THROUGH AND UNDER RIP RAP MATERIAL. [STAGE 5]

8. ONCE FLOW IS FULLY DIVERTED TO RESTORED RIVER CHANNEL, CONSTRUCT UPSTREAM EXCAVATION TO MATCH THE PROPOSED RIVER GRADE. COMPLETE EXCAVATION OUT FROM IN FRONT OF POWERHOUSE. BEGIN FINAL DRAW DOWN BY INCREMENTALLY LOWERING THE SPILLWAY TO ISOLATE DOWNSTREAM RIVER FLOW TO THE EAST SIDE OF THE RIVER. POWERHOUSE 6 FEET BELOW PROPOSED RIVER GRADE BEHIND SPILLWAY SIDEWALLS TO NO HIGHER OR LOWER THAN EL. 615. LOWER GRADES BEHIND SPILLWAY SIDEWALLS TO NO HIGHER THAN EL. 614.5 PRIOR TO BEGINNING STAGE 2 WORK. EXCAVATE INTO EXISTING SEDIMENTS TO ALLOW FOR DEMOLITION OF RESTORED RIVER CHANNEL IN SUPERSTRUCTURE AND APPURTENANCES. [STAGE 4]
Know what's at stake

EXISTING POWERHOUSE INLET
ELEVATION APPROX. 606’

PROFILE THROUGH POWERHOUSE
(REFER TO B-4.1 FOR PLAN VIEW)

H/V RATIO = 4:1

LEGEND
EXISTING GROUND SURFACE
CONCRETE BOUNDARIES

CONSTRUCT BULK BAGS TO MINIMUM ELEVATION 604’ IN STAGE 4. INCREMENTALLY LOWER IN STAGE 5.

APPROXIMATE 10-YEAR DESIGN FLOOD WSE = 603.5’

PLACE GEOTEXTILE LAYER UNDER AGGREGATE BASE AND RIPRAP LET DOWN GEOTEXTILE LAYER BULK BAG COFFERDAM 1.5:1

PLACE IMPERMEABLE LAYER INLET TO EXISTING SPILLWAY

PLACE 12” MDOT 6 AAA AGGREGATE LAYER UNDER BULK BAGS AS SPECIFIED IN THE SPECIFICATIONS.

SECTION F-F
PROPOSED TEMPORARY BULK BAG COFFERDAM
(REFER TO B-4.1 FOR PLAN VIEW)
H/V RATIO = 4:1

SECTION E-E
PROFILE THROUGH POWERHOUSE
(REFER TO B-4.1 FOR PLAN VIEW)
H/V RATIO = 4:1

FINAL RESTORED RIVER CHANNEL
SEE SHEET R-1.2 FOR DETAILS

BASEFLOW WSE = 600’

PLACE MDOT HEAVY RIP RAP LET DOWN APRON DOWNSTREAM OF BULK BAGS WITHIN CHANNEL.

PROFILE PROPOSED TEMPORARY
(REFER TO B-4.1 FOR PLAN VIEW)
H/V RATIO = 4:1

TOP OF BULK BAGS AT 604’

PROPOSED RIVER CHANNEL INVERT AT 596’

EXISTING GROUND SURFACE
EXISTING 10YR DESIGN FLOOD ELEVATION WSE = APPROX 603.5’

SECTION OF BULK BAGS AT 610’

MOST LAM AGGREGATE BASE LAYER UNDER BULK BAGS

PROPOSED BULK BAG DESIGN FLOOD ELEVATION WSE = APPROX 610’

PROPOSED BULK BAG DESIGN FLOOD ELEVATION
1. REMOVE SPILLWAY CONCRETE STRUCTURE DOWN TO WSE AT TIME OF CONSTRUCTION. STAGE 1: DRAW DOWN POND TO EL 614.5. LOWER 4 FEET BEHIND SPILLWAY SIDEWALLS TO NO HIGHER THAN 615’. SEND SPILLWAY INLET TRENCHES IN FRONT OF SPILLWAY INTO SABIN POND TO FACILITATE RIVER FLOW. INSTALL SEDIMENT TRAP UPSTREAM OF SPILLWAY. STAGE 1

2. CONTINUE DEMOLITION OF SPILLWAY CONCRETE AT 1’ INCREMENTS TO DRAW DOWN POND. CONSTRUCT DOWNSTREAM RIVER ACCESS TO THE WEST OF THE POWERHOUSE. STAGE 2 WORK ON UPSTREAM CHANNEL RESTORATION CAN BEGIN AT THIS STAGE SEE RIVER RESTORATION SHEETS FOR GRADES AND DETAILS.

3. ONCE IMPOUNDMENT IS DRAWN DOWN BELOW POWERHOUSE INTAKE SILL, INSTALL STOP LOGS AT INTAKE GATES TO ISOLATE FLOW TO THE SPILLWAY. INSTALL FLOW DIVERSION BERM DOWNSTREAM BETWEEN THE POWERHOUSE AND SPILLWAY OUTLET TO ISOLATE DOWNSTREAM FLOW TO THE EAST SIDE OF THE RIVER CHANNEL. BEGIN CONSTRUCTION OF RESTORED RIVER CHANNEL DOWNSTREAM OF THE POWERHOUSE. STAGE 3

4. DURING THIS TIME FLOW WILL BE EXCLUSIVELY PASSING THROUGH THE SPILLWAY. UPON REACHING EL 598.5’ AT THE SPILLWAY, STOP DEMOLITION AT THE SPILLWAY. GRADE BEHIND THE SPILLWAY SIDEWALLS SHALL BE MAINTAINED AT 6 FEET ABOVE THE CURRENT ELEVATION OF THE SPILLWAY’ SIDEWALLS AND LOWER AT ALL TIMES DURING STAGE 4 AND 5. THIS WILL BE STRICTLY ENFORCED. REFER TO TEMPORARY RIVER AND OR CHANNEL UPSTREAM OF THE POWERHOUSE FOR GRADES AND DETAILS.

5. ONCE RESTORED RIVER CHANNEL HAS BEEN FULLY CONSTRUCTED THROUGH THE POWERHOUSE, MAIN FLOW WILL BE DIVERTED TO THE RESTORED RIVER CHANNEL THROUGH AND UPSTREAM OF FORMER POWERHOUSE. STAGE 4

6. ONCE FLOW IS FULLY DIVERTED TO RESTORED RIVER CHANNEL, BEGIN DEMOLITION OF SPILLWAY STRUCTURE AT LEAST 2 FEET BELOW FINAL GRADE AND FILL TO MATCH THE DESIGN PLANS AND COMPLETE SITE RESTORATION ACTIVITIES. STAGE 6
**STATION EXCAVATION QUANTITY GENERAL DISTRIBUTION TABLE**

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**NOTES:**

1. VOLUME ESTIMATES IN THE TABLE TO THE LEFT ARE BASED ON A COMPARISON BETWEEN THE EXISTING AND FINISH GRADES CALCULATED USING THE AVERAGE END AREA METHOD AT 20 FT INTERVALS. THE INTENT OF THIS TABLE IS TO SHOW THE DISTRIBUTION OF EXCAVATION AND TO ESTABLISH A BASIS FOR MEASUREMENT AND PAYMENT. ESTIMATED QUANTITY OF UNLOADMENT EXCAVATION LISTED IN SECTION II (MEASUREMENT AND PAYMENT) BASED ON COMPARISON OF EXISTING AND DESIGN SURFACE. ADJUSTED FOR VOLUME OF CONCRETE TO BE REMOVED.

2. EXCAVATION QUANTITIES ARE APPROXIMATE. VOLUME DISTRIBUTION MAY VARY BASED ON CONDITIONS AT TIME OF CONSTRUCTION AND EFFECT OF DAMMAGED.

3. FINE GRADING OF CHANNEL BED THROUGH DIG AND PITCH ACTIVITY ESTIMATED TO RESULT IN BALANCED CUT AND FILL AFTER EXCAVATION OF CHANNEL AND FLOODPLAIN TO LINES AND GRADES SHOWN ON DRAWINGS. MODIFIED AS REQUIRED. PRE-INDICATORS OF PROPOSED CHANNELS WITH ASSISTANCE OF GOVERNMENT REPRESENTATIVE. ALSO SEE SPECIFICATIONS.
1. Excavation quantities are approximate. Volume distribution may vary based on conditions at time of construction and effect of drawdown.

2. Finishing grade of channel bed through dig and pitch activity estimated to result in balanced cut and fill after excavation of channel and floodplain to lines and grades shown on drawings. Modified as required per indications of free sway channel with assistance of government representative. Also see Specifications.

3. Detailed grading of the channel bed is not reflected in the design contours and is to be constructed with the assistance of the government representative by dig and pitch activity.

4. Minimum required sediment trap locations shown. Contractor to add additional sediment trap locations if site conditions dictate to control downstream transport of sediment.

5. No streambank construction treatments are included in the base project in areas where none are shown on the drawings.
NOTE:

GRADING OF THE TRIBUTARY IS NOT INCLUDED IN THE BASE PROJECT. CONDITION AND EVOLUTION OF THE TRIBUTARY CHANNEL WILL BE MONITORED AND ASSESSED DURING DRAWDOWN AND IMPOUNDMENT EXCAVATION. COR WILL DETERMINE WHETHER SUPPLEMENTAL GRADING OF THE TRIBUTARY CHANNEL WILL BE REQUIRED.
IF TESTING YIELDS VALUES THAT EXCEED ASSUMED VALUES, BASED ON EVALUATION OF REPRESENTATIVE WILL DETERMINE WHETHER THE NUMBER OF PILES MAY BE REDUCED.

REQUIRED TO BE DRIVEN UP TO 5 FT DEEPER THAN INDICATED. GOVERNMENT PULLOUT RESISTANCE OF 15,000 POUNDS. IF TESTING REVEALS FIELD PULLOUT PILE EMBEDMENT DEPTH SPECIFIED IN THESE DRAWINGS MAY BE INCREASED, AT NO PILINGS SHALL BE PROOF TESTED. UP TO 10% OF PRODUCTION PILINGS SHALL BE PROOF TESTED. IF RESULTS VARY MORE PULL OUT RESISTANCE READING SHALL BE COMPARED AGAINST EXCAVATOR MAX LIFT EXCAVATOR SHALL BE NO CLOSER THAN THAT REQUIRED TO GENERATE DESIRED EMBEDMENT DEPTH OF PILE, IF POSSIBLE. IF A CLOSER POSITIONING IS REQUIRED, EXCAVATOR CONDUCTING PULL OUT LOADING SHALL BE POSITIONED NO CLOSER THAN PULLOUT RESISTANCE. SEE NOTE BELOW.

DEPTHS MAY INCLUDE 8 FT, 10 FT, 12 FT, AND 14 FT. TESTS AT 12 FT AND 14 FT WILL ONLY DEPTHS SHALL BE DETERMINED IN THE FIELD. AS A GUIDELINE, TEST EMBEDMENT PROOF TESTS SHALL BE MADE AT UP TO FOUR EMBEDMENT DEPTHS FOR EACH PILE. DIFFERENT INSTALLED DEPTH.

LAID ON THE GROUND TO DISTRIBUTE THE WEIGHT OVER A LARGER AREA. LOADING OF THE TRACKS ON THE GROUND BY DRIVING THE EXCAVATOR ONTO LOGS LOADING WITH DISTANCE FROM PILE NOTED IN THE TEST RECORD. LIMIT COMPRESSIVE LIMITATION OF BOLTED CONNECTION NOTES

PRE-DRILL 1 IN. DIA. HOLE, 1 IN. THREADS OR MUSHROOMING EXPOSED ARROWHEAD BOLT PIN LOGS TO LOGS

INSERT 1" DIA THREADED ROD.

FILE OR GRIND OFF SHARP EDGES

UP TO THREE CABLE CLAMPS OF CHANNEL BANK

2 CABLE CLAMPS

TYPICAL DETAIL

2.1 SIDE SLOPES

FRONT 10 FEET OF BACKFILL SHALL BE 2:1 SIDE SLOPES

3.0 FT TO 5 FT VARIES

3.5 FT AVG.

10 FT (MIN.)

1/4 L

20-40 FT

1/2 L

1 L

6 FT (MAX.)

4.5 FT (MAX.)

3/4 L

10 FT (MIN.)

2 CABLE CLAMPS

TYPICAL DETAIL

BOLTED CONNECTION, TYP.

BOLTED CONNECTION, TYP.

TYPICAL DETAIL

BOLTED CONNECTION, TYP.

BOLTED CONNECTION, TYP.

TYPICAL DETAIL

BOLTED CONNECTION, TYP.
NEW TOP OF BANK

PLACE SAND-FILLED BULK BAGS, AS NECESSARY, TO BACKWATER EXISTING POOL.

NEW TOE OF BANK

BULKBAG COFFERDAM HEIGHT AND WIDTH WILL VARY WITH CHANNEL CONDITIONS.

BOARDMAN RIVER BED: NO EXCAVATION BELOW PRE-DAM RIVER BED WITHOUT GOVERNMENT REPRESENTATIVE APPROVAL.

EXCAVATE VEGETATION ROOT SYSTEMS 18 IN. BELOW EXISTING GRADE

INSTALL SALVAGED VEGETATION MATS WITH 18 IN. THICK ROOT MASS AS INDICATED BY THE GOVERNMENT REPRESENTATIVE

FINISH GRADE

EXPOSED CHANNEL BED MATERIAL

SPOIL AREA FINISH GRADE

INSTALL SALVAGED VEGETATION MATS WITH 18 IN. THICK ROOT MASS AS INDICATED BY THE GOVERNMENT REPRESENTATIVE

EXISTING GRADE

TYPICAL SECTION - VEGETATION SALVAGE

NOT TO SCALE

ACCURATE ELEVATION

1 FT (MIN.)

FLOW WIDTH VARIES

TYPICAL SECTION - VEGETATION SALVAGE

NOT TO SCALE
STAKE AND STAPLE SPACING IS DEFINED IN SPECIFICATIONS FOR FES LIFT AND SURFACE FABRIC.

1. SECURE THE OUTER FABRIC (WOVEN, WHERE APPLICABLE), WITH A WOODEN STAKE THROUGH THE FABRIC ON 3 FT CENTERS (SEE DETAIL VIEW 2). END thefts SHALL BE BUTTED TOGETHER, NOT OVERLAPPED. OVERLAPS SHALL BE STAGGERED FROM LIFT TO LIFT.

2. PLACE FABRIC ON 3 FT CENTERS (TYPICAL). UNROLL THE INNER FABRIC OVER THE TOP OF THE WOVEN COIR FABRIC (FIG B) AND POSITION IT SO THAT AT LEAST 1 FOOT OF THE INNER FABRIC EXTENDS AS AN EMBEDMENT LENGTH ON THE BANK SIDE OF THE FORMS.

3. PLACE THE FORM PRIOR TO FABRIC CONSTRUCTION OF LIFT TO 45° RELATIVE COMPACTION (FIG C).

4. UNROLL THE INNER FABRIC OVER THE TOP OF THE WOVEN COIR FABRIC (FIG B) AND POSITION IT SO THAT AT LEAST 1 FOOT OF THE INNER FABRIC EXTENDS AS AN EMBEDMENT LENGTH ON THE BANK SIDE OF THE FORMS.

5. APPLY FLOODPLAIN SEED MIX TO INNER FABRIC ALONG VERTICAL EDGE OF LIFT (FIG C). PLACE SPECIFIED FILL DESIGNATED BETWEEN LIFTS.

6. APPLY SEED TO EXPOSED VERTICAL AREAS OF LIFT (FIG C).

7. APPLY SEED TO EXPOSED VERTICAL AREAS OF LIFT (FIG C).

8. APPLY SEED TO EXPOSED VERTICAL AREAS OF LIFT (FIG C).

9. APPLY SEED TO EXPOSED VERTICAL AREAS OF LIFT (FIG C).

10. WHERE THE TOP OF THE LIFT MEETS THE FINISH GROUND SURFACE, EXCAVATE A KEY TRENCH 1.5 FEET WIDE AND 2 FT MIN. DEEP. FORM PRIOR TO CONSTRUCTION FORMS

11. STABILIZED CHANNEL AND BANK TREATMENTS - RIFFLE - STA. 121+70 - 119+00 & 118+00 - 115+75 NOT TO SCALE

12. B0X STAKES THROUGH FES LIFTS (FIG F). TRAWNE THE MARGINS OF CURB RIGS TO FLATTEN STREAM SIDE AND BANK SIDE STREAM SIDE

13. INSTALLATION SEQUENCE AND INSTRUCTIONS FOR FABRIC ENCAPSULATED SOIL LIFTS (FES)

NOTE:

- NOTE THE PATH OF THE WOVEN COIR FABRIC THROUGH THE FORM PRIOR TO CONSTRUCTION FORMS
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INSTALLATION SEQUENCE AND INSTRUCTIONS FOR FABRIC ENCAPSULATED SOIL LIFTS (FES)

1. SECURE THE OUTER FABRIC (WOVEN, WHERE APPLICABLE), WITH A WOODEN STAKE THROUGH THE FABRIC ON 3 FT CENTERS (SEE DETAIL VIEW 2). END thefts SHALL BE BUTTED TOGETHER, NOT OVERLAPPED. OVERLAPS SHALL BE STAGGERED FROM LIFT TO LIFT.

2. PLACE A SERIES OF THREE OR MORE FORMS ON THE GROUND SO THAT THE FORMS FOLLOW THE PROPOSED

3. UNROLL THE INNER FABRIC OVER THE TOP OF THE WOVEN COIR FABRIC (FIG B) AND POSITION IT SO THAT AT LEAST 1 FOOT OF THE INNER FABRIC EXTENDS AS AN EMBEDMENT LENGTH ON THE BANK SIDE OF THE FORMS.

4. PLACE THE FORM PRIOR TO FABRIC CONSTRUCTION OF LIFT TO 45° RELATIVE COMPACTION (FIG C).

5. APPLY FLOODPLAIN SEED MIX TO INNER FABRIC ALONG VERTICAL EDGE OF LIFT (FIG C). PLACE SPECIFIED FILL DESIGNATED BETWEEN LIFTS.

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INSTALLATION SEQUENCE AND INSTRUCTIONS FOR FABRIC ENCAPSULATED SOIL LIFTS (FES)
NOTES:
1. SEE SPECIFICATIONS FOR VEGETATION DENSITY AND SPECIES COMPOSITION.
2. LIVE STAKES TO BE INSTALLED IN AREAS OF FES LIFT CONSTRUCTION.

UPLAND SEED MIX
FLOODPLAIN SEED AND BARE ROOT PLANTS
NEW CHANNEL ALIGNMENT
FLOODPLAIN SEED AND BARE ROOT PLANTS
NEW 1 FT CONTOUR
CONSTRUCTED CHANNEL BED
FIBER OPTIC CABLE - APPROX. UTILITY EASEMENT
LIMITS OF DISTURBANCE
PROJECT BOUNDARY
EXISTING 5 FT CONTOUR
EXISTING 1 FT CONTOUR
NEW CHANNEL ALIGNMENT
PROJECT BOUNDARY
EXISTING 1 FT CONTOUR
EXISTING 5 FT CONTOUR
CONSTRUCTION LIMITS
Floodplain seed and bare root plants
Upland seed mix

NOT TO SCALE
SCALE IN FEET
80 40 160

SHEET KEY
NOTES:
1. SEE SPECIFICATIONS FOR VEGETATION DENSITY AND SPECIES COMPOSITION.
2. LIVE STAKES TO BE INSTALLED IN AREAS OF FES LIFT CONSTRUCTION.
TURBINE FLOOR REMOVAL, POWERHOUSE REMOVAL, SEE SHEETS S-3.1 - S-3.4
SPILLWAY & TAINTER GATE REMOVAL
SEE SHEET S-2.1
RETAINING WALL REMOVAL
SEE SHEET S-2.1
REMOVE FENCE
CHAIN LINK
REMOVE FENCE
CHAIN LINK
REMOVE FENCE
CHAIN LINK
REMOVE FENCE
CHAIN LINK
LIMITS OF REMOVAL
FOR PAVEMENT,
CONCRETE, AND
APPURTENANCES
ASPHALT
CONCRETE WALKWAY
TETRAHEDRON
RIPRAPH
LIMITS OF DISTURBANCE
CONTRACTOR TO REMOVE
OR BURY TETRAHEDRONS
AFTER DEWATERING THROUGH
SPILLWAY IS COMPLETE.
REFER TO SHEET B-5.1 [STAGE 6].
PROTECT OHE POLE
PROTECT OHE POLE
SAWCUT EDGE
CONTRACTOR TO REMOVE
OR BURY TETRAHEDRONS
AFTER DEWATERING THROUGH
SPILLWAY IS COMPLETE.
REFER TO SHEET B-5.1 [STAGE 6].

Know what's DOWNSTREAM RETAINING WALL REMOVAL S-2.1