



October 6, 2022

Attention: 401/CZM Federal Permit Manager, Shorelands and Environmental
Assistance Program
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008

RE: bp Cherry Point Advance Mitigation Project 4 – Grading Certification

Owner: bp Products North America Inc.

Project Manager: Jackie Bourgault, ph. 360-526-3346

Project Proponent: bp Cherry Point Refinery, Rebecca Hardie, ph 360-526-3384

Project Address: 4276 Grandview Rd, Blaine, WA 98230

DOE Order Number: 21088

USCOE Number: NWS-2021-838

Dear Chris Luerkens:

This letter shall confirm that the above referenced site has been graded in general conformance with the approved Advance Mitigation plans and specifications. Final grade elevations were determined by a drone topo survey and spot check elevations throughout the site. Grading work included minor modifications due to field conditions during construction and are documented on the attached as-built construction plans.

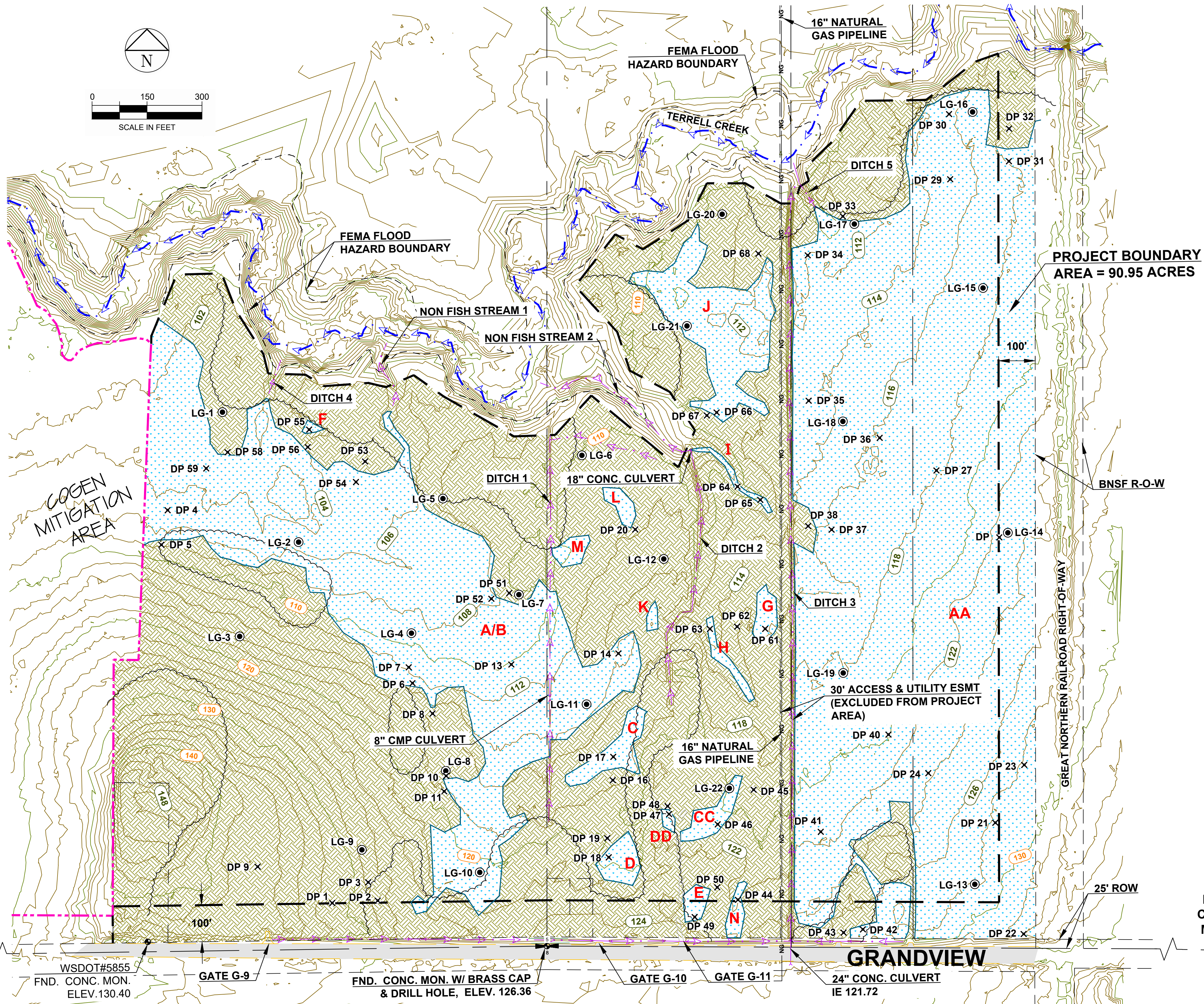
Sincerely,

CASCADE ENGINEERING GROUP, P.S., INC.

Aaron D. Jarnagin, P.E.
Project Engineer

Attachments:

1. Advance Mitigation Project 4 – Record Drawing; October 6, 2022



Wetlands In Credit Generating Area		
Delineated Wetland	Area (sf)	Area (Acres)
A/B	618,387	14.20
AA	1,075,394	24.69
C	16,194	0.37
CC	11,177	0.26
D	11,002	0.25
DD	1,694	0.04
E	2,405	0.06
F	1,143	0.03
G	7,296	0.17
H	5,582	0.13
I	3,820	0.09
J	85,829	1.97
K	1,859	0.04
L	5,285	0.12
M	5,792	0.13
N	1,146	0.03
Total	1,854,004	42.56

Wetlands In Site Perimeter Buffer		
Delineated Wetland	Area (sf)	Area (Acres)
A/B	2,574	0.06
AA	257,171	5.90
E	2,881	0.07
N	4,104	0.09
Total	266,730	6.12

LEGEND

- COGEN MITIGATION BOUNDARY

PROJECT BOUNDARY

EXISTING DITCH/SWALE

WETLAND DELINEATION BOUNDARY

FEMA FLOOD HAZARD BOUNDARY

BRUSH LINE (TREES)

LG-# MONITORING WELL

X DP # DATA PLOT / SAMPLE PLOT

*CONTOUR INTERVAL = 2-FT
- WETLAND
- UPLAND

SURVEY NOTES:

- THIS SURVEY WAS PREPARED BY POWERTEK SURVEYING IN ACCORDANCE WITH WAC 332-130-145 IN FEBRUARY 2021 AT THE REQUEST OF BP CHERRY POINT.
- FIELD SURVEY PERFORMED WITH TRIMBLE R8-3 GNSS RECEIVER AND LEICA TCPR 1201+ ROBOTIC TOTAL STATION AND MEETS OR EXCEEDS THE STANDARDS SET FORTH WITHIN WAC 332-130-090.
- HORIZONTAL DATUM: NAD 83/11 BASIS OF BEARING PER WSDOT INVERSE BETWEEN FOUND MONUMENTS WSDOT#5855 TO WSDOT#5856 BEARING S89°15'58"W.
WSDOT#5855
N=695777.139
E=1186559.658
EL.=130.400
- VERTICAL DATUM: WSDOT (NAVD88)
WSDOT#6419
N=695656.893
E=1191097.949
EL.=176.364
- THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT PURPORT TO SHOW ANY OR ALL EASEMENTS.
- WETLANDS DELINEATED BY MILLER ENVIRONMENTAL SERVICES IN FEBRUARY AND MARCH 2021; LOCATED BY POWERTEK SURVEYING.

RECORD DRAWING 10/06/2022



CASCADE

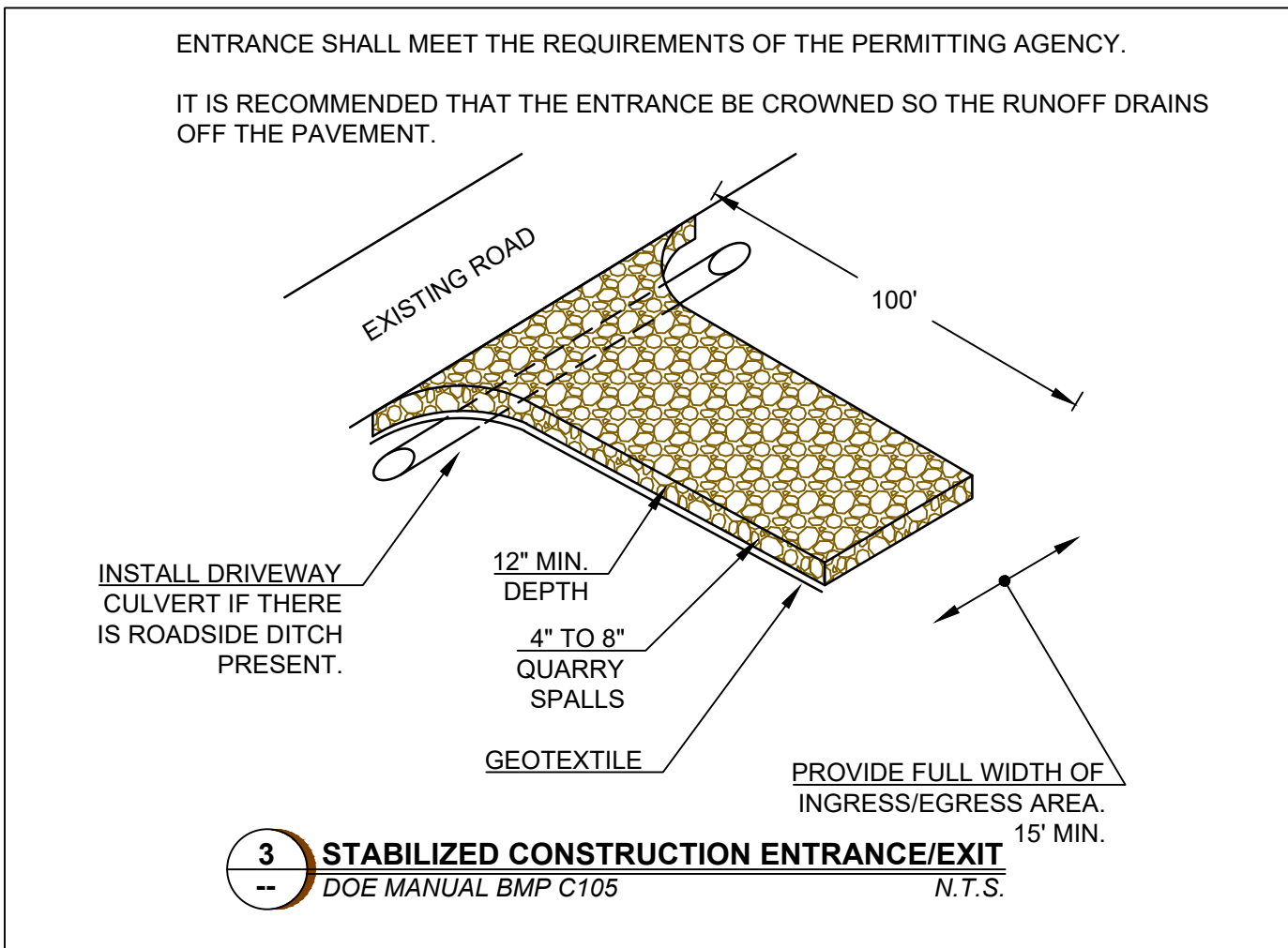
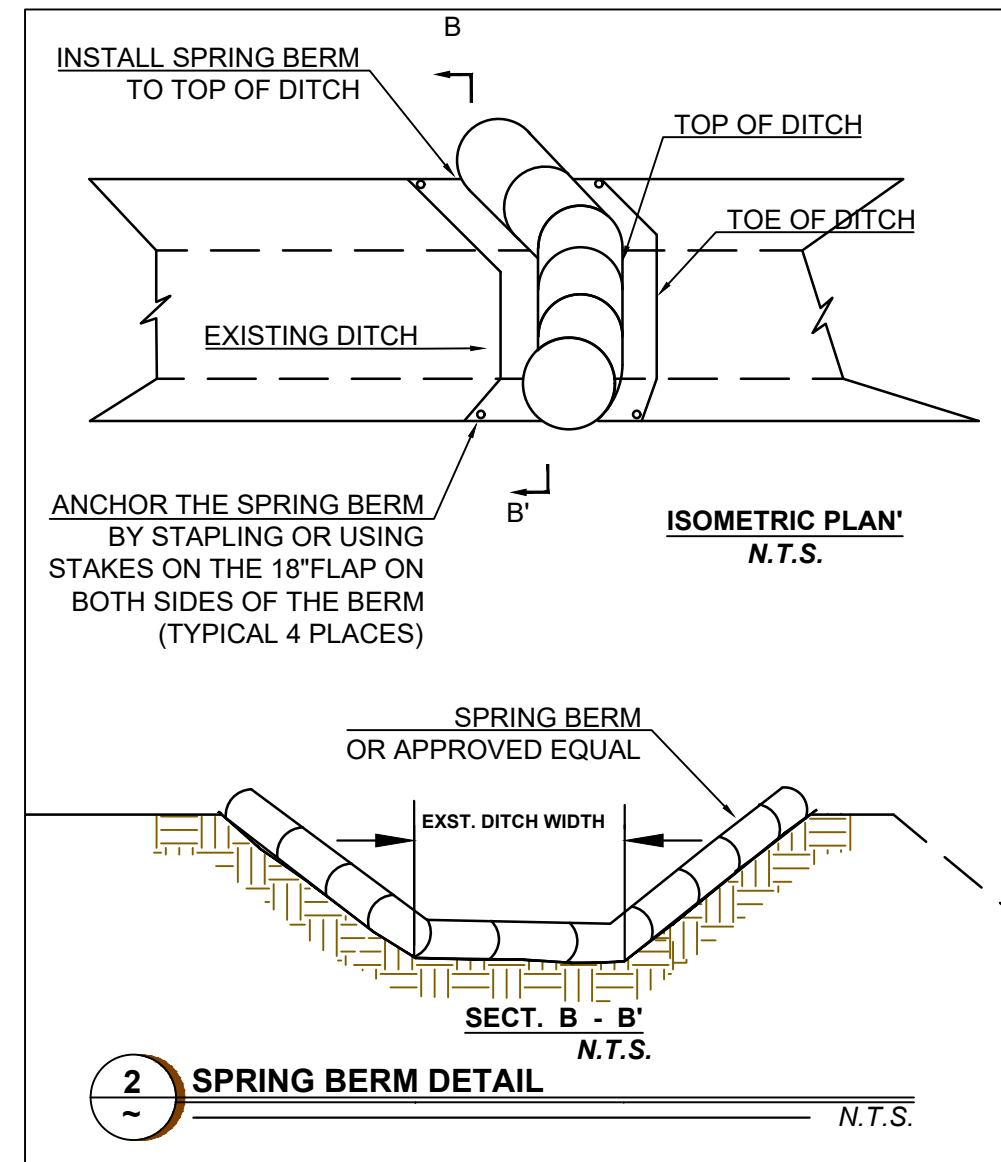
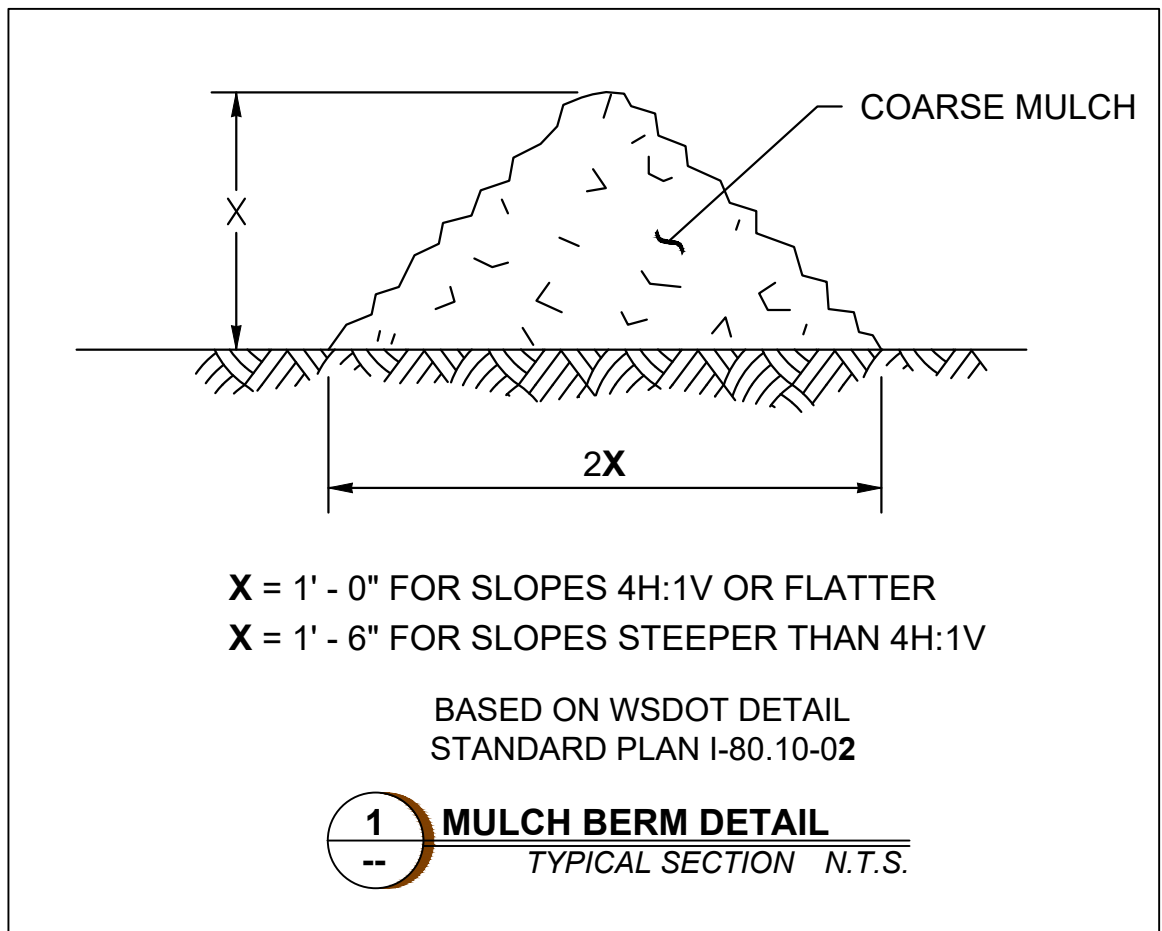
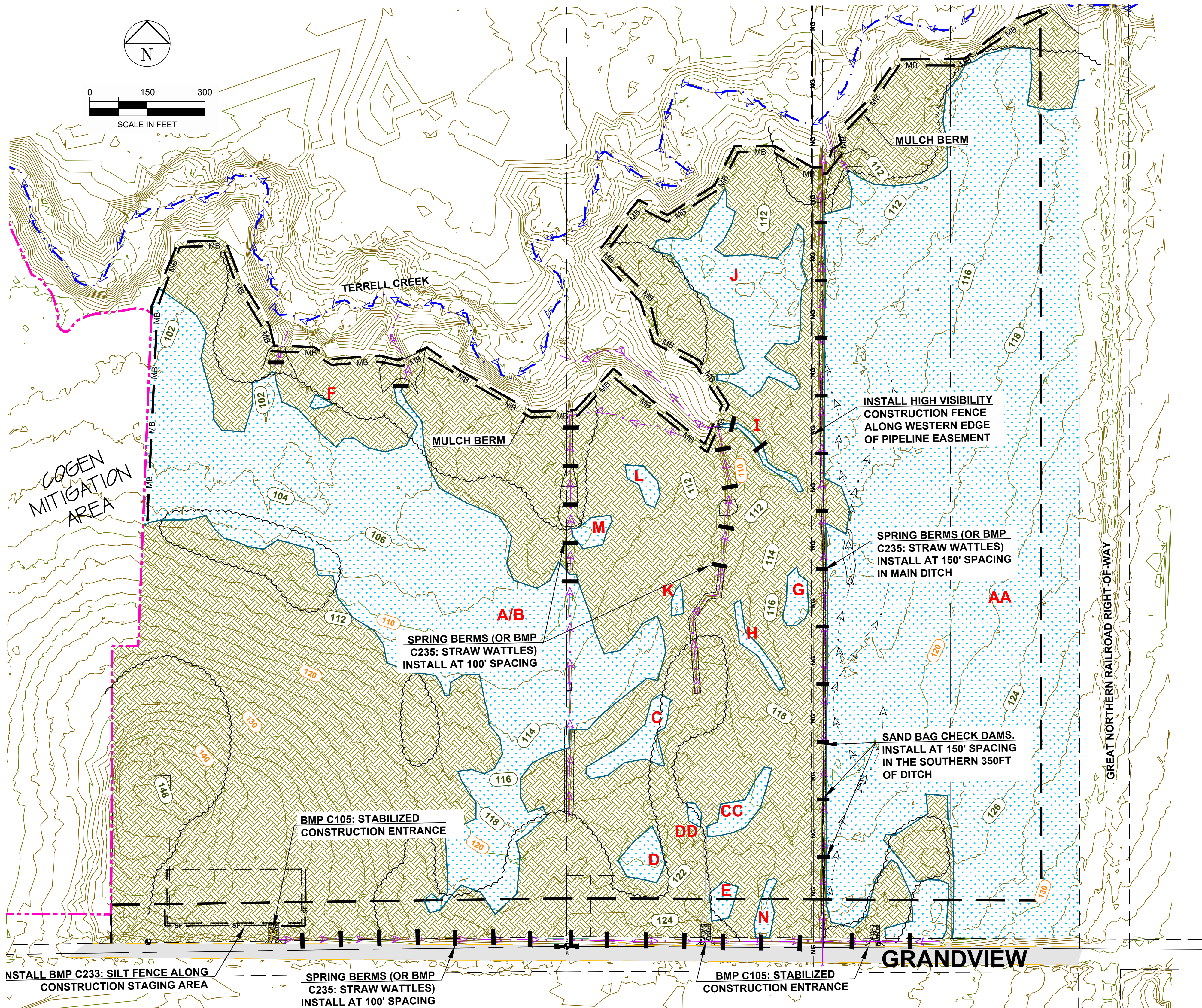
ENGINEERING GROUP, P.S., INC.

119 Grand Avenue, Suite D
Bellingham, Washington 98225

(360) 306-8161

REV	DATE	AMR	PROJ. ENGR.	DESCRIPTION	BY	CHKD.	APP.
4	10/6/22		ADJ	RECORD DRAWING			
3	4/15/22		ADJ	ISSUE FOR CONSTRUCTION			
2	2/16/22		ADJ	ISSUE FOR APPROVAL			
1	7/27/21		ADJ	ISSUE FOR APPROVAL			

DWG. NO.		REFERENCE DRAWINGS	
		BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery	
		ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN EXISTING CONDITIONS & SURVEY CONTROL	
DATE: 7/27/21		SCALE: PER SHEET	BP PROJECT NO.: 4020AI
CONTRACTOR: CASCAD		DWG. NO.	REVISION
CONTRACTOR PROJECT NO.: BPWC0022		002	4



LEGEND	
--- COGEN MITIGATION BOUNDARY	WETLAND
--- PROJECT BOUNDARY	UPLAND
--- EXISTING DITCH/SWALE	BRUSH LINE (TREES)
--- WETLAND DELINEATION BOUNDARY	
MB --- MULCH BERM	
SF --- SILT FENCE	
--- SPRING BERM	
*CONTOUR INTERVAL = 2-FT	

REV	DATE	AMR	PROJ. ENGR.	DESCRIPTION	BY	CHKD.	APP.
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DWG. NO.		REFERENCE DRAWINGS	
		bp BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery	
		ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN S.W.P.P. SITE PLAN	
DATE: 7/27/2021		SCALE: PER SHEET	BP PROJECT NO.: 4020AI
CONTRACTOR: CASCADIA ENGINEERING GROUP		DWG. NO.	REVISION
CONTRACTOR PROJECT NO.: BPWC0022		003	4

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

THIS STORMWATER POLLUTION PREVENTION PLAN IS PROVIDED IN GENERAL ACCORDANCE WITH THE TERMS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS ADVISED THAT THE PROJECT AREA MAY DRAIN TO WETLANDS AND/OR STATE WATERS AND THAT THE CONTRACTOR IS RESPONSIBLE TO PROTECT THE RECEIVING WATERS FROM DELETERIOUS EFFECTS OF CONSTRUCTION.

THE CONTRACTOR IS REQUIRED TO HAVE A COPY OF THE SWPPP ONSITE AT ALL TIMES.

THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL BMPs SHOWN OR DESCRIBED IN THE CONTRACT DOCUMENTS. THE BMPs SHOWN ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. THESE BMPs SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED TO MEET THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION AND TO PREVENT VIOLATION OF SURFACE WATER QUALITY, GROUND WATER QUALITY, OR SEDIMENT MANAGEMENT STANDARDS. THE CONTRACTOR SHALL MAINTAIN THESE BMPs UNTIL ALL CONSTRUCTION IS APPROVED AND/OR THE SITE HAS BEEN PERMANENTLY STABILIZED.

THE FOLLOWING DESCRIBES HOW THE CONSTRUCTION SWPPP ADDRESSES EACH OF THE 13 REQUIRED ELEMENTS. REFER TO THESE PLANS FOR DRAWINGS OF THE PROJECT, VICINITY MAP, SITE MAP, CONVEYANCE SYSTEMS, EROSION AND SEDIMENT CONTROL MEASURES, AND EROSION AND SEDIMENT CONTROL DETAILS. THE BMPs NOTED ON THIS SHEET, AS WELL AS ADDITIONAL SUGGESTED BMPs MAY BE FOUND IN THE WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON VOLUME II, CONSTRUCTION STORMWATER POLLUTION PREVENTION.

ELEMENT #1: PRESERVE VEGETATION/MARK CLEARING LIMITS
1. PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES (INCLUDING CLEARING AND GRADING) CLEARLY MARK ALL CONSTRUCTION LIMITS AS SHOWN ON THE DRAWINGS.

2. SILT FENCE, GEOTEXTILE ENCASED BARRIERS, CONSTRUCTION FENCE, ORANGE PLASTIC FENCE, OR OTHER APPROVED MEASURES MAY BE USED TO MARK THE CLEARING LIMITS AT THE CONTRACTOR'S OPTION.

3. THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION SHALL BE RETAINED IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C101: PRESERVING NATURAL VEGETATION
BMP C103: HIGH VISIBILITY PLASTIC OR METAL FENCE

ELEMENT #2: ESTABLISH CONSTRUCTION ACCESS
1. CONSTRUCTION VEHICLE ACCESS AND EXIT SHALL UTILIZE EXISTING SITE APPROACH ROADS AND PAVED AREAS TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC ROADS.

2. IF SEDIMENT IS TRACKED OFF SITE, PUBLIC ROADS SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY, OR MORE FREQUENTLY DURING WET WEATHER. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR PICKUP SWEEPING AND SHALL BE TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

3. STREET WASHING IS ALLOWED ONLY AFTER SEDIMENT IS REMOVED AS DESCRIBED ABOVE. STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON SITE OR OTHERWISE BE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C105: STABILIZED CONSTRUCTION ENTRANCE
BMP C107: CONSTRUCTION ROAD / PARKING AREA STABILIZATION

ELEMENT #3: CONTROL FLOW RATES
1. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C207: CHECK DAMS
BMP C208: TRIANGULAR SILT DIKE, OR SPRING BERMS
BMP C235: STRAW WATTLES

ELEMENT #4: INSTALL SEDIMENT CONTROLS
1. THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION SHALL BE RETAINED IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.

2. SEDIMENT CONTROL BMPs SHALL BE CONSTRUCTED AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPs SHALL BE FUNCTIONAL BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.

3. PRIOR TO LEAVING THE CONSTRUCTION SITE, STORMWATER RUNOFF FROM DISTURBED AREAS SHALL PASS THROUGH AN APPROPRIATE SEDIMENT REMOVAL BMP. RUNOFF FROM FULLY STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP, BUT MUST MEET THE FLOW CONTROL PERFORMANCE STANDARD OF ELEMENT #3.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C232: GRAVEL FILTER BERM
BMP C235: STRAW WATTLES
BMP C236: VEGETATIVE FILTRATION
BMP C241: TEMPORARY SEDIMENT POND

ELEMENT #5: STABILIZE SOILS
1. EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPs THAT PROTECT THE SOIL FROM EROSION FORCES OF RAINDROPS, FLOWING WATER, AND WIND.

2. TO PREVENT EROSION, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW:

DURING THE WET SEASON (OCTOBER 1 - APRIL 30): 2 DAYS
DURING THE DRY SEASON (MAY 1 - SEPT. 30): 7 DAYS

THIS STABILIZATION REQUIREMENT APPLIES TO ALL SOILS ON SITE, WHETHER AT FINAL GRADE OR NOT. THESE TIMES MAY BE ADJUSTED BY THE LOCAL PERMITTING AUTHORITY IF IT CAN BE SHOWN THAT SITE CONDITIONS OR THE AVERAGE TIME BETWEEN STORM EVENTS JUSTIFIES A DIFFERENT STANDARD.

3. SOILS SHALL BE STABILIZED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.

4. SOIL STOCKPILES SHALL BE STABILIZED FROM EROSION, PROTECTED WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, BE LOCATED AWAY FROM STORM DRAIN INLETS, WATERWAYS, AND DRAINAGE CHANNELS.

5. APPLICABLE BMPs INCLUDE, BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, SOIL APPLICATION OF POLYACRYLAMIDE (PAM), THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED AND DUST CONTROL. SELECT SOIL STABILIZATION MEASURES SHALL BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, ESTIMATED DURATION OF USE, AND THE POTENTIAL WATER QUALITY IMPACTS.

6. REMOVE ALL EROSION CONTROL MEASURES AS SOON AS PRACTICAL AFTER ESTABLISHMENT OF UNIFORM GRASS GROWTH OR INSTALLATION OF OTHER PERMANENT STABILIZATION MEASURES. REPAIR ANY DAMAGE TO STABILIZED SURFACES AFTER REMOVAL OF TESC MEASURES.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C120: TEMPORARY AND PERMANENT SEEDING
BMP C121: MULCHING
BMP C122: NETS AND BLANKETS
BMP C123: PLASTIC COVERING
BMP C125: TOPSOILING

ELEMENT #6: PROTECT SLOPES
1. DESIGN, CONSTRUCT, AND PHASE CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (e.g., TRACK WALKING).

2. OFF-SITE STORMWATER RUN-ON OR GROUNDWATER SHALL BE DIVERTED AWAY FROM SLOPES AND DISTURBED AREAS WITH INTERCEPTOR DIKES, PIPES, AND/OR SWALES. OFF-SITE STORMWATER SHOULD BE MANAGED SEPARATELY FROM STORMWATER GENERATED ON THE SITE.

3. DO NOT CLEAR AND GRUB SLOPES GREATER THAN 4 (HORIZONTAL):1 (VERTICAL) UNLESS FURTHER WORK RESULTING IN STABILIZATION OF THE SLOPES TO BE CLEARED AND GRUBBED IS SCHEDULED.

4. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.

5. CHECK DAMS SHALL BE PLACED AT REGULAR INTERVALS WITHIN CONSTRUCTED CHANNELS THAT ARE CUT DOWN A SLOPE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C120: TEMPORARY AND PERMANENT SEEDING
BMP C207: CHECK DAMS
BMP C208: TRIANGULAR SILT DIKE, OR SPRING BERMS

ELEMENT #7: PROTECT DRAIN INLETS
1. ALL STORM DRAIN INLETS OPERABLE DURING CONSTRUCTION AND ALL INLETS WITHIN 200' DOWNSTREAM OF THE PROJECT SITE SHALL BE PROTECTED WITH CATCH BASIN FILTERS SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT. CATCH BASIN FILTERS IN THE ROADWAY WILL BE OIL AND SEDIMENT FILTERS AND CATCH BASIN FILTERS OUTSIDE OF THE ROADWAY WILL BE SEDIMENT FILTERS.

2. APPROACH ROADS SHALL BE KEPT CLEAN. SEDIMENT AND STREET WASH WATER SHALL NOT BE ALLOWED TO ENTER STORM DRAINS WITHOUT PRIOR AND ADEQUATE TREATMENT.

3. INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED WHEN SEDIMENT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE (OR WHEN FILLED WITH SIX-INCHES OF SEDIMENT).

SUGGESTED BMPs TO BE USED:
BMP C220: STORM DRAIN INLET PROTECTION

ELEMENT #8: STABILIZE CHANNELS AND OUTLETS
1. ALL TEMPORARY ON-SITE CONVEYANCE CHANNELS SHALL BE DESIGNED, CONSTRUCTED AND STABILIZED TO PREVENT EROSION FROM THE EXPECTED PEAK 10 MINUTE VELOCITY OF FLOW FROM A TYPE 1A, 10-YR, 24-HR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YR, 1-HR FLOW RATE INDICATED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED.



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Bellingham, Washington 98225

ELEMENT #11: MAINTAIN BMPs
1. INSPECT EROSION CONTROL DEVICES ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. MAKE NECESSARY REPAIRS AND MAINTENANCE TO ENSURE CONTINUED PERFORMANCE OF EROSION AND SEDIMENT CONTROLS.

2. STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES, AND DOWNSTREAM REACHES SHALL BE PROVIDED AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C202: CHANNEL LINING
BMP C209: OUTLET PROTECTION

ELEMENT #9: CONTROL POLLUTANTS
1. ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ONSITE SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.

2. COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. ONSITE FUELING TANKS SHALL INCLUDE SECONDARY CONTAINMENT.

3. MAINTENANCE, FUELING, AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES SHALL BE CONDUCTED USING SPILL PREVENTION AND CONTROL MEASURES. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY SPILL INCIDENT.

4. WHEEL WASH OR TIRE BATH WASTEWATER SHALL BE DISCHARGED TO A SEPARATE ONSITE TREATMENT SYSTEM OR TO THE SANITARY SEWER WITH LOCAL SEWER DISTRICT APPROVAL.

5. APPLICATION OF FERTILIZERS AND PESTICIDES, SHALL BE CONDUCTED IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO STORMWATER RUNOFF. MANUFACTURERS' LABEL REQUIREMENTS FOR APPLICATION RATES AND PROCEDURES SHALL BE FOLLOWED.

6. BMPs SHALL BE USED TO PREVENT OR TREAT CONTAMINATION OF STORMWATER RUNOFF BY pH MODIFYING SOURCES. THESE SOURCES INCLUDE, BUT ARE NOT LIMITED TO: BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, AND CONCRETE PUMPING AND MIXER WASHOUT WATERS. PERMITTEES SHALL ADJUST THE pH OF STORMWATER IF NECESSARY TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS.

7. PERMITTEES SHALL OBTAIN WRITTEN APPROVAL FROM ECOLOGY PRIOR TO USING CHEMICAL TREATMENT, OTHER THAN CARBON DIOXIDE OR DRY ICE TO ADJUST pH.

8. DUST CONTROL BMPs SHALL BE UTILIZED AS REQUIRED TO PREVENT WIND TRANSPORT OF DUST FROM DISTURBED SOIL SURFACES ONTO ROADS, DRAINAGE WAYS, AND SURFACE WATERS.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C140: DUST CONTROL
BMP C151: CONCRETE HANDLING
BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION

ELEMENT #10: CONTROL DEWATERING
1. FOUNDATION, VAULT, AND TRENCH DEWATERING WATER, WHICH HAVE SIMILAR CHARACTERISTICS TO STORMWATER RUNOFF AT THE SITE, SHALL BE DISCHARGED INTO A CONTROLLED CONVEYANCE SYSTEM PRIOR TO DISCHARGE TO A SEDIMENT TRAP OR SEDIMENT POND.

2. CLEAN, NON-TURBID DEWATERING WATER, SUCH AS WELL-POINT GROUND WATER, CAN BE DISCHARGED TO SYSTEMS TRIBUTARY TO, OR DIRECTLY INTO SURFACE WATERS OF THE STATE, AS SPECIFIED IN ELEMENT #8, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. CLEAN DEWATERING WATER SHOULD NOT BE ROUTED THROUGH STORMWATER SEDIMENT PONDS.

3. OTHER DEWATERING DISPOSAL OPTIONS MAY INCLUDE:
a) INFILTRATION.
b) TRANSPORT OFF SITE IN A VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS.
c) ECOLOGY APPROVED ON-SITE CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES.
d) SANITARY SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, IF THERE IS NO OTHER OPTION.
e) USE OF A SEDIMENTATION BAG (DIRTBAG OR APPROVED EQUAL) WITH OUTFALL TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

4. HIGHLY TURBID CONTAMINATED DEWATERING WATER FROM CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM SHALL BE HANDLED SEPARATELY FROM STORMWATER.

2. WHEN SEDIMENT ACCUMULATION IN SEDIMENTATION STRUCTURES, OTHER THAN INLET PROTECTION DEVICES, HAS REACHED A POINT ONE-THIRD DEPTH OF SEDIMENT STRUCTURE OR DEVICE, OR IF FLOW THROUGH THE DEVICE IS REDUCED BY MORE THAN ONE-THIRD CAPACITY, THE CONTRACTOR SHALL REMOVE AND REPLACE DISPOSABLE DEVICES OR CLEAN AND DISPOSE OF SEDIMENT.

3. TEMPORARY EROSION AND SEDIMENT CONTROL BMPs SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOILS SHALL BE PERMANENTLY STABILIZED.

ELEMENT #12: MANAGE THE PROJECT
1. PHASING OF CONSTRUCTION:

a) DEVELOPMENT PROJECTS SHALL BE PHASED WHERE FEASIBLE IN ORDER TO PREVENT, TO THE MAXIMUM EXTENT PRACTICABLE, THE TRANSPORT OF SEDIMENT FROM THE DEVELOPMENT SITE DURING CONSTRUCTION. RE-VEGETATION OF EXPOSED AREAS AND MAINTENANCE OF THAT VEGETATION SHALL BE AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.

b) CLEARING AND GRADING ACTIVITIES FOR DEVELOPMENTS SHALL BE PERMITTED ONLY IF CONDUCTED PURSUANT TO AN APPROVED SITE DEVELOPMENT PLAN (e.g., SUBDIVISION APPROVAL) THAT ESTABLISHES APPROVED AREAS OF CLEARING, GRADING, CUTTING AND FILLING. WHEN ESTABLISHING THESE PERMITTED CLEARING AND GRADING AREAS, CONSIDERATION SHOULD BE GIVEN TO MINIMIZING REMOVAL OF EXISTING TREES AND MINIMIZING DISTURBANCE AND COMPACTION OF NATIVE SOILS EXCEPT AS NEEDED FOR BUILDING PURPOSES. THESE PERMITTED CLEARING AND GRADING AREAS AND ANY OTHER AREAS REQUIRED TO PRESERVE CRITICAL OR SENSITIVE AREAS, BUFFERS, NATIVE GROWTH PROTECTION EASEMENTS, OR TREE RETENTION AREAS AS MAY BE REQUIRED BY LOCAL JURISDICTIONS, SHALL BE DELINEATED ON THE SITE PLANS AND THE DEVELOPMENT SITE.

2. SEASONAL WORK LIMITATIONS:
FROM OCTOBER 1 THROUGH APRIL 30, CLEARING, GRADING, AND OTHER SOIL DISTURBING ACTIVITIES SHALL ONLY BE PERMITTED IF SHOWN TO THE SATISFACTION OF THE LOCAL PERMITTING AUTHORITY THAT THE TRANSPORT OF SEDIMENT FROM THE CONSTRUCTION SITE TO RECEIVING WATERS WILL BE PREVENTED THROUGH A COMBINATION OF THE FOLLOWING:

a) SITE CONDITIONS INCLUDING EXISTING VEGETATIVE COVERAGE, SLOPE, SOIL TYPE, AND PROXIMITY TO RECEIVING WATERS; AND
b) LIMITATIONS ON ACTIVITIES AND THE EXTENT OF DISTURBED AREAS; AND
c) PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.

BASED ON THE INFORMATION PROVIDED AND LOCAL WEATHER CONDITIONS, THE LOCAL PERMITTING AUTHORITY MAY EXPAND OR RESTRICT THE SEASONAL LIMITATION ON SITE DISTURBANCE. THE LOCAL PERMITTING AUTHORITY SHALL TAKE ENFORCEMENT ACTION - SUCH AS NOTICE OF VIOLATION, ADMINISTRATIVE ORDER, PENALTY, OR STOP-WORK ORDER UNDER THE FOLLOWING CIRCUMSTANCES:
- IF, DURING THE COURSE OF ANY CONSTRUCTION ACTIVITY OR SOIL DISTURBANCE DURING THE SEASONAL LIMITATION PERIOD, SEDIMENT LEAVES THE CONSTRUCTION SITE CAUSING A VIOLATION OF THE SURFACE WATER QUALITY STANDARD; OR
- IF CLEARING AND GRADING LIMITS OR EROSION AND SEDIMENT CONTROL MEASURES SHOWN IN THE APPROVED PLAN ARE NOT MAINTAINED.

THE FOLLOWING ACTIVITIES ARE EXEMPT FROM THE SEASONAL CLEARING AND GRADING LIMITATIONS:

a) ROUTINE MAINTENANCE AND NECESSARY REPAIR OF EROSION AND SEDIMENT CONTROL BMPs;
b) ROUTINE MAINTENANCE OF PUBLIC FACILITIES OR EXISTING UTILITY STRUCTURES THAT DO NOT EXPOSE THE SOIL OR RESULT IN THE REMOVAL OF THE VEGETATIVE COVER TO SOIL; AND
c) ACTIVITIES WHERE THERE IS ONE HUNDRED PERCENT INFILTRATION OF SURFACE WATER RUNOFF WITHIN THE SITE IN APPROVED AND INSTALLED EROSION AND SEDIMENT CONTROL FACILITIES.

3. COORDINATE WITH UTILITIES AND OTHER CONTRACTORS:
THE PRIMARY PROJECT PROponent SHALL EVALUATE, WITH INPUT FROM UTILITIES AND OTHER CONTRACTORS, THE STORMWATER MANAGEMENT REQUIREMENTS FOR THE ENTIRE PROJECT, INCLUDING THE UTILITIES, WHEN IMPLEMENTING THE CONSTRUCTION SWPPP.

4. INSPECTION AND MONITORING:
A) A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL SHALL BE IDENTIFIED AT THE PRE-CONSTRUCTION MEETING AND SHALL BE ON-SITE OR ON-CALL AT ALL TIMES. EMERGENCY CONTACT INFORMATION SHALL BE KEPT ON-SITE. CERTIFICATION MAY BE THROUGH THE CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL CERTIFICATION PROGRAM OFFERED BY WSDOT, ASSOCIATED GENERAL CONTRACTORS OF WASHINGTON - EDUCATION FOUNDATION, OR ANY EQUIVALENT LOCAL OR NATIONAL CERTIFICATION AND/OR TRAINING PROGRAM.

B) IF INSPECTION AND/OR WATER MONITORING OF SITE RUNOFF REVEALS THAT THE BMPs IDENTIFIED IN THE CONSTRUCTION SWPPP ARE INADEQUATE, THE CONTRACTOR SHALL IMMEDIATELY ADD BMPs TO THE SWPPP AS NECESSARY.

C) SITE LOG BOOK: THE CONTRACTOR MUST MAINTAIN A SITE LOG BOOK THAT CONTAINS A RECORD OF THE IMPLEMENTATION OF THE SWPPP AND OTHER PERMIT REQUIREMENTS, INCLUDING THE INSTALLATION AND MAINTENANCE OF BMPs, SITE INSPECTIONS, AND STORMWATER MONITORING.

D) SITE INSPECTIONS: THE CONTRACTOR MUST INSPECT ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, ALL BMPs, AND ALL STORMWATER DISCHARGE POINTS AT LEAST ONCE EVERY CALENDAR WEEK AND WITHIN 24 HOURS OF ANY DISCHARGE FROM THIS SITE. THE CONTRACTOR MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN. THE EFFECTIVENESS OF BMPs MUST BE EVALUATED AND DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPs TO IMPROVE THE QUALITY OF STORMWATER DISCHARGES.

THE CONTRACTOR MUST SUMMARIZE THE RESULTS OF EACH INSPECTION IN AN INSPECTION REPORT OR CHECKLIST AND ENTER THE REPORT/CHECKLIST INTO, OR ATTACH IT TO, THE SITE LOG BOOK. SEE THE DOE'S CONSTRUCTION STORMWATER GENERAL PERMIT, SECTION S.4.B.5. FOR INFORMATION REQUIREMENTS FOR COMPLETING THE INSPECTION FORMS.

E) TURBIDITY/TRANSPARENCY SAMPLING REQUIREMENTS
a. SAMPLING FREQUENCY
• THE CONTRACTOR MUST SAMPLE ALL DISCHARGE LOCATIONS AT LEAST ONCE EVERY CALENDAR WEEK WHEN STORMWATER DISCHARGES FROM THE SITE OR ENTERS ANY ON-SITE SURFACE WATERS OF THE STATE.
• SAMPLES MUST BE REPRESENTATIVE OF THE FLOW AND CHARACTERISTICS OF THE DISCHARGE.
• SAMPLING IS NOT REQUIRED WHEN THERE IS NO DISCHARGE DURING A CALENDAR WEEK.
• SAMPLING IS NOT REQUIRED OUTSIDE OF NORMAL WORKING HOURS OR DURING UNSAFE CONDITIONS.
• IF THE CONTRACTOR IS UNABLE TO SAMPLE DURING A MONITORING PERIOD, THE CONTRACTOR MUST INCLUDE A BRIEF EXPLANATION IN THE MONTHLY DISCHARGE MONITORING REPORT (DMR).
• SAMPLING IS NOT REQUIRED BEFORE CONSTRUCTION ACTIVITY BEGINS.
b. SAMPLING LOCATIONS
• SAMPLING IS REQUIRED AT ALL POINTS WHERE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY IS DISCHARGED OFF SITE.
• THE CONTRACTOR MUST IDENTIFY ALL SAMPLING POINT(S) ON THE SWPPP SITE MAP AND CLEARLY MARK THESE POINTS IN THE FIELD WITH A FLAG, TAPE, STAKE OR OTHER VISIBLE MARKER.
c. SAMPLING AND ANALYSIS METHODS
• THE CONTRACTOR PERFORMS TURBIDITY ANALYSIS WITH A CALIBRATED TURBIDITY METER (TURBIDIMETER) EITHER ON SITE OR AT AN ACCREDITED LAB. THE CONTRACTOR MUST RECORD THE RESULTS IN THE SITE LOG BOOK IN NEPHELOMETRIC TURBIDITY UNITS (NTU).
• THE CONTRACTOR PERFORMS TRANSPARENCY ANALYSIS ON SITE WITH A 1½ - INCH DIAMETER, 60 - CENTIMETER (CM) - LONG TRANSPARENCY TUBE. THE CONTRACTOR WILL RECORD THE RESULTS IN THE SITE LOG BOOK IN CENTIMETERS (CM).
• SEE TABLE BELOW FOR MONITORING BENCHMARKS. SEE THE DOE'S CONSTRUCTION STORMWATER GENERAL PERMIT, SECTION S.4.C.5 FOR TURBIDITY/TRANSPARENCY BENCHMARK VALUES AND REPORTING TRIGGERS.

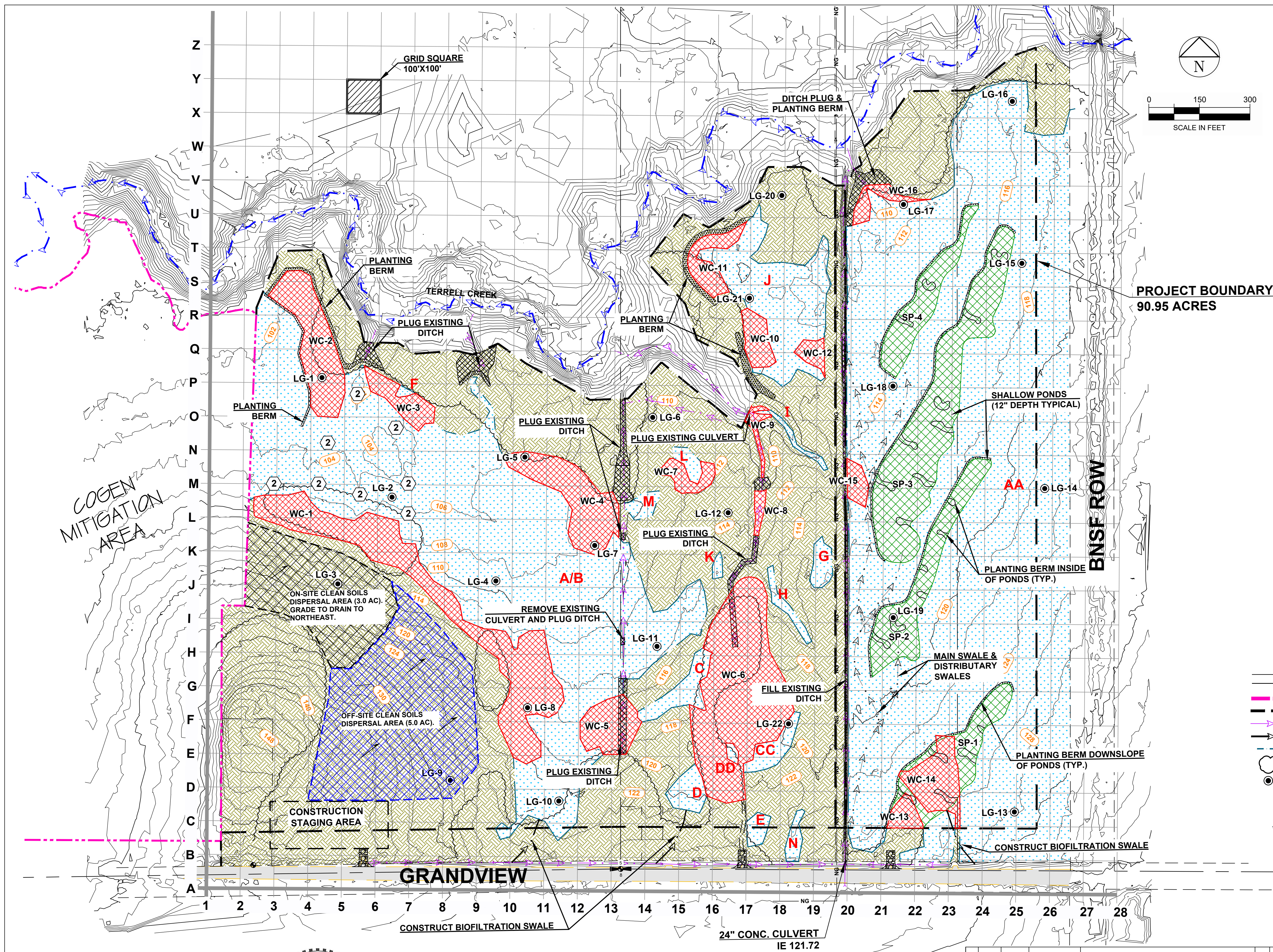
TABLE 4. MONITORING AND REPORTING REQUIREMENTS				
PARAMETER	UNIT	ANALYTICAL METHOD	SAMPLING FREQUENCY	BENCHMARK VALUE
TURBIDITY	NTU	SM2130 or EPA 180.1	WEEKLY, IF DISCHARGING	25 NTU
TRANSPARENCY	CM	MANUFACTURER INSTRUCTIONS, OR ECOLOGY GUIDANCE	WEEKLY, IF DISCHARGING	33 CM

5. THE CONSTRUCTION SWPPP SHALL BE RETAINED ON-SITE. THE CONTRACTOR'S TESC RECORD OF RAINFALL, TESC MEASURES, AND INSPECTION SHALL BECOME PART OF THE SWPPP. THE CONSTRUCTION SWPPP SHALL BE MODIFIED BY THE CONTRACTOR'S TESC RECORD WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP.

ELEMENT #13: PROTECT LOW IMPACT DEVELOPMENT (LID) BMPs
THERE ARE NO LID BMPs PROPOSED FOR THIS PROJECT.

RECORD DRAWING 10/06/2022

				DWG. NO.		REFERENCE DRAWINGS	



SEASONAL POND CREATION			
Pond No.	COORDINATES	AREA (SF)	AREA (ACRE)
SP-1	D23	26,527	0.61
SP-2	I21	47,497	1.09
SP-3	M21	112,798	2.59
SP-4	R21	31,615	0.73
TOTAL		218,438	5.01

WETLAND CREATION			
No.	COORDINATES	AREA (SF)	AREA (ACRE)
WC-1	K6	110,647	2.54
WC-2	Q4	43,294	0.99
WC-3	O7	14,273	0.33
WC-4	L12	42,905	0.98
WC-5	F13	23,457	0.54
WC-6	G17	121,010	2.78
WC-7	M15	9,044	0.21
WC-8	L17	3,247	0.07
WC-9	O17	4,128	0.09
WC-10	R17	11,618	0.27
WC-11	S16	14,455	0.33
WC-12	Q19	5,655	0.13
WC-13	C22	7,044	0.16
WC-14	D23	25,709	0.59
WC-15	M20	6,545	0.15
WC-16	U20	7,449	0.17
TOTAL		450,481	10.34

REHABILITATION AREAS		
ITEM	AREA (SF)	AREA (ACRE)
WETLAND REHABILITATION	1,868,310	42.89
UPLAND ENHANCEMENT	1,642,786	37.71
TOTAL	3,511,096	80.60

TOTAL PROJECT AREA =		3,961,577	90.95
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LEGEND

- COGEN MITIGATION BOUNDARY
- PROJECT BOUNDARY
- EXISTING DITCH/SWALE
- PROPOSED DITCH/SWALE
- WETLAND DELINEATION BOUNDARY
- BRUSH LINE (TREES)
- MONITORING WELL
- DITCH PLUG & WEIR
- REED CANARY GRASS DELEVELING
- SEASONAL POND CREATION
- PLANTING BERM
- PLUG DITCH
- WETLAND CREATION
- WETLAND
- UPLAND

*CONTOUR INTERVAL = 2-FT

NOTES:

1. MONITORING WELLS ARE TO BE PROTECTED IN PLACE TO THE EXTENT PRACTICABLE. ANY WELLS DISTURBED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND. BP PROJECT MANAGER WILL COORDINATE ANY WELL REPLACEMENT LOCATION, ELEVATION, AND TYPE.

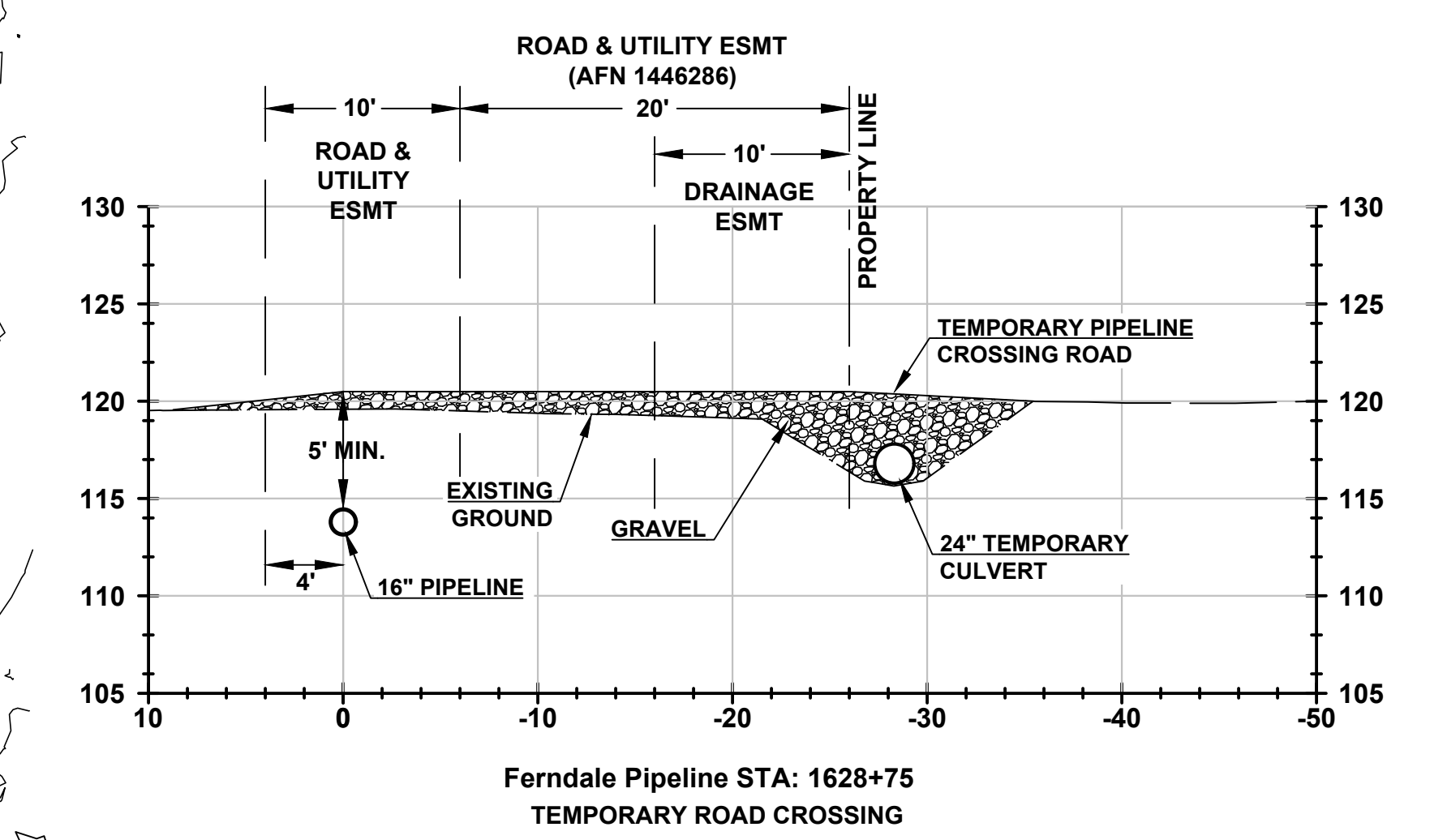
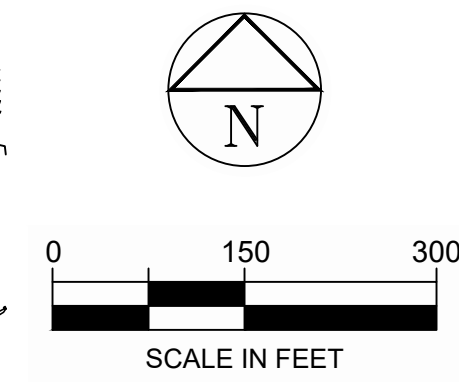
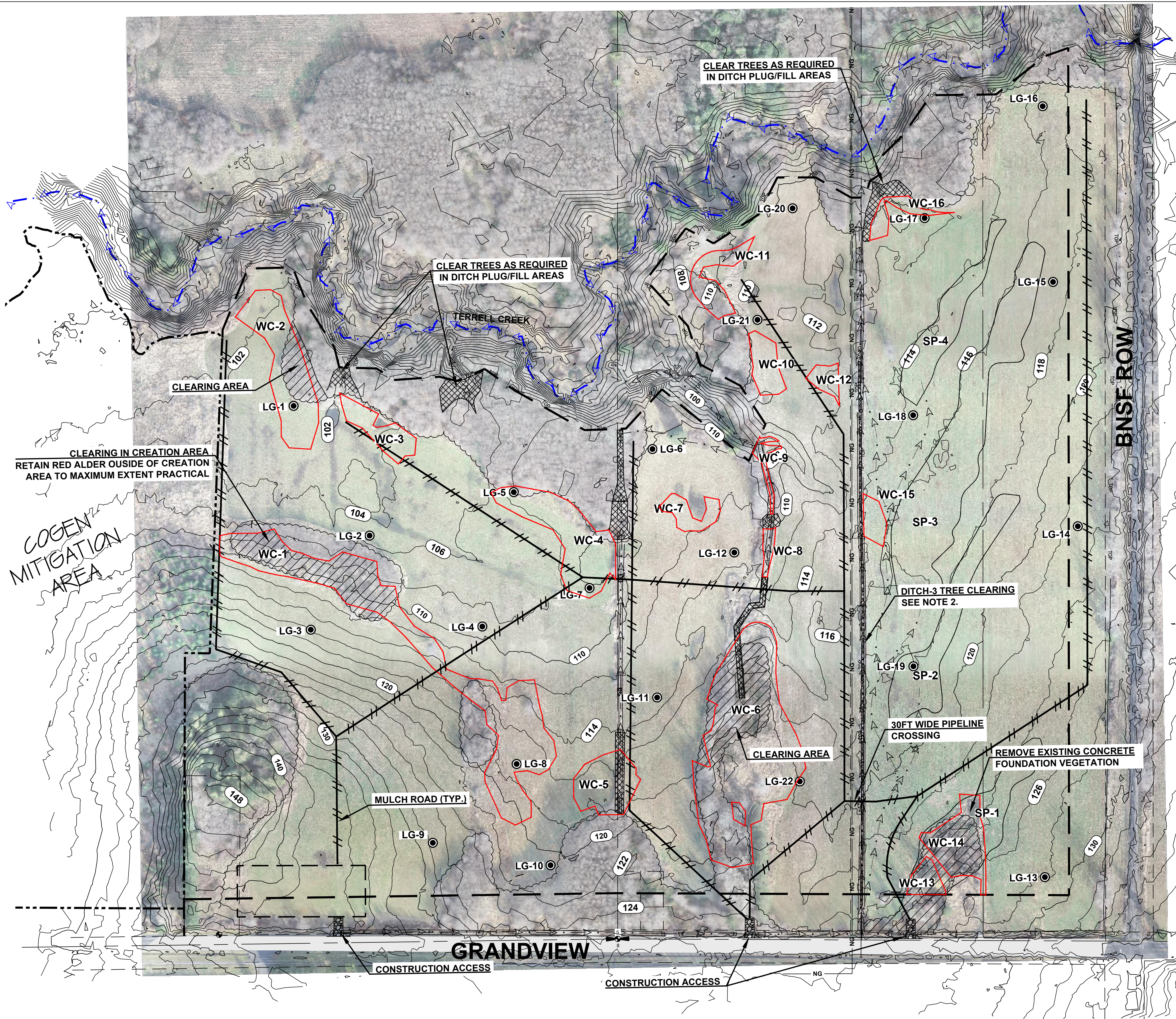
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ENGINEERING GROUP, P.S., INC.
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(360) 306-8161

AARON D. JARNAGIN
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
68702

4	10/6/22	ADJ	RECORD DRAWING		
3	4/15/22	ADJ	ISSUE FOR CONSTRUCTION		
2	2/16/22	ADJ	ISSUE FOR APPROVAL		
1	7/27/21	ADJ	ISSUE FOR APPROVAL		

REV	DATE	AMR	PROJ. ENGR.	DESCRIPTION	BY	CKD	APP.
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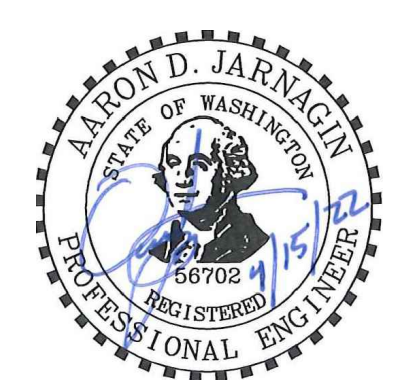
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DATE: 7/27/2021		SCALE: PER SHEET	
CONTRACTOR: CASCADIA ENGINEERING GROUP		BP PROJECT NO.: 4020AI	
CONTRACTOR PROJECT NO.: BPWC0022		DWG. NO.: 005	
		REVISION: 4	



- LEGEND**
- COGEN MITIGATION BOUNDARY
 - - - PROJECT BOUNDARY
 - - - EXISTING DITCH/SWALE
 - /// MULCH ROAD

- NOTES**
1. CLEAR YOUNG TREES/SAPLINGS IN AREA SHOWN. REMOVE ROOT WADS AND STOCKPILE TREES/SAPLINGS FOR USE IN CONSTRUCTING HABITAT FEATURES ON SITE.
 2. CUT TREES WITHIN DITCH 3 TO SUMP. TREE STUMP AND ROOT WAD TO REMAIN IN PLACE.
 3. MONITORING WELLS ARE TO BE PROTECTED IN PLACE TO THE EXTENT PRACTICABLE. ANY WELLS DISTURBED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND. BP PROJECT MANAGER WILL COORDINATE ANY WELL REPLACEMENT LOCATION, ELEVATION, AND TYPE.

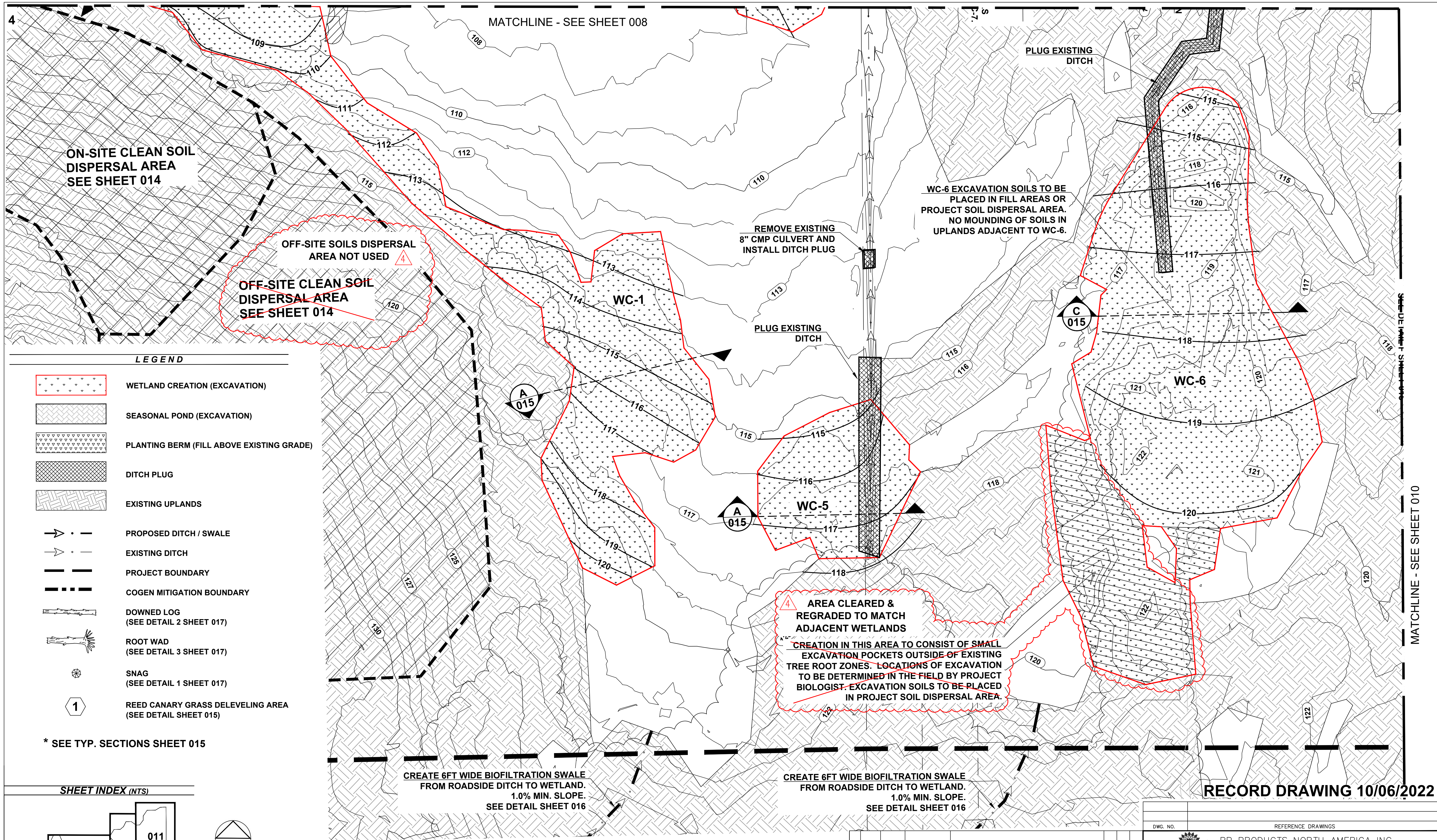
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3	4/15/22		ADJ	ISSUE FOR CONSTRUCTION			
2	2/16/22		ADJ	ISSUE FOR APPROVAL			
1	7/27/21		ADJ	ISSUE FOR APPROVAL			

DWG. NO.		REFERENCE DRAWINGS	
BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery			
ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN SITE ACCESS & CLEARING PLAN			
DATE: 7/27/2021	SCALE: PER SHEET	BP PROJECT NO.: 4020AI	REVISION
CONTRACTOR DWG. NO.	DWG. NO.	CONTRACTOR PROJECT NO.	
	006	BPWC0022	4



LEGEND

- WETLAND CREATION (EXCAVATION)
- SEASONAL POND (EXCAVATION)
- PLANTING BERM (FILL ABOVE EXISTING GRADE)
- DITCH PLUG
- EXISTING UPLANDS
- PROPOSED DITCH / SWALE
- EXISTING DITCH
- PROJECT BOUNDARY
- COGEN MITIGATION BOUNDARY
- DOWNED LOG (SEE DETAIL 2 SHEET 017)
- ROOT WAD (SEE DETAIL 3 SHEET 017)
- SNAG (SEE DETAIL 1 SHEET 017)
- 1 REED CANARY GRASS DELEVELING AREA (SEE DETAIL SHEET 015)

* SEE TYP. SECTIONS SHEET 015

SHEET INDEX (NTS)

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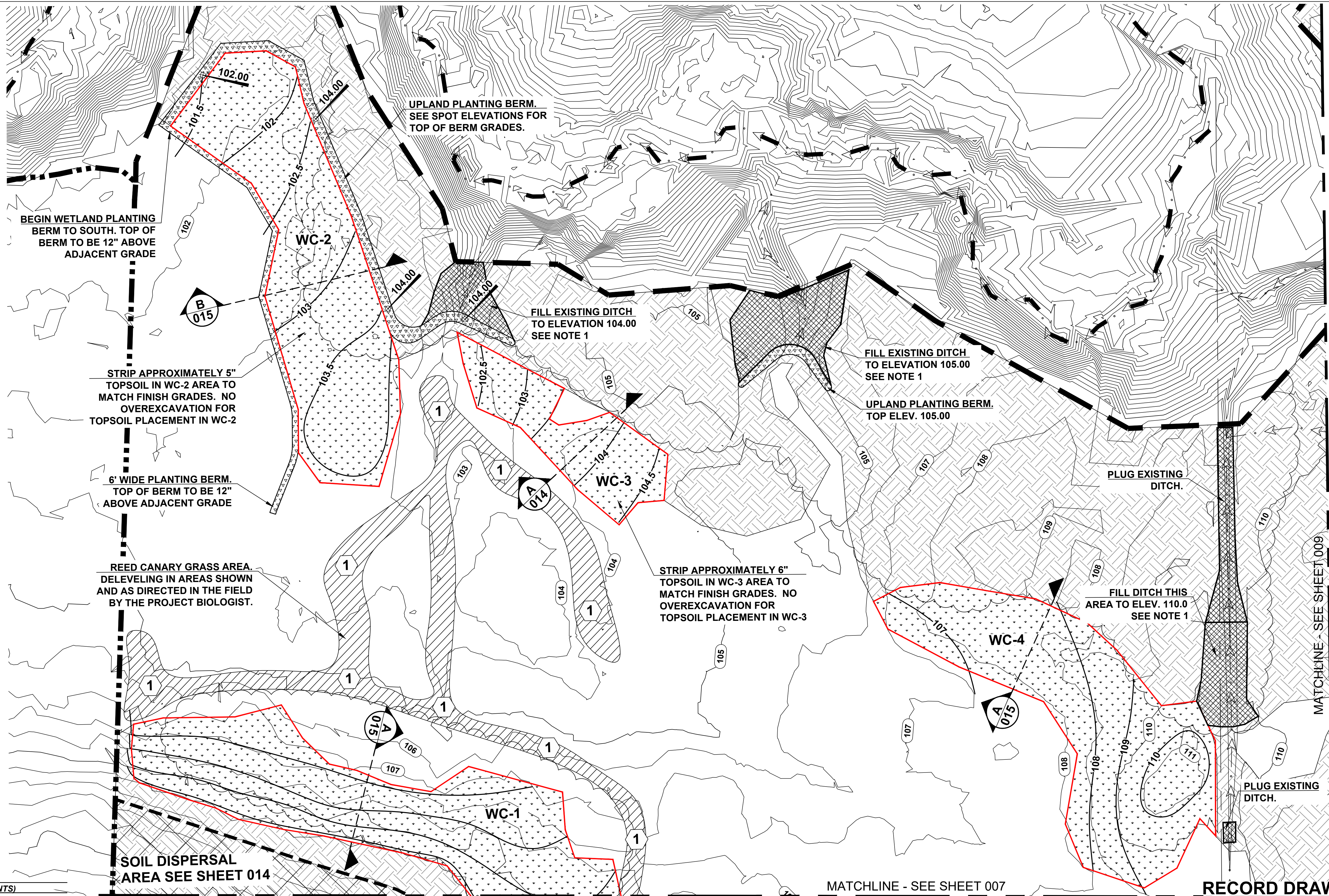
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DWG. NO.	REFERENCE DRAWINGS
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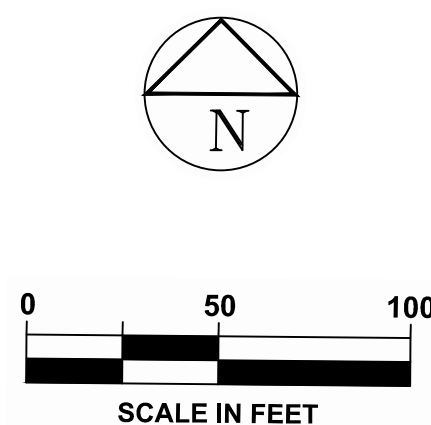
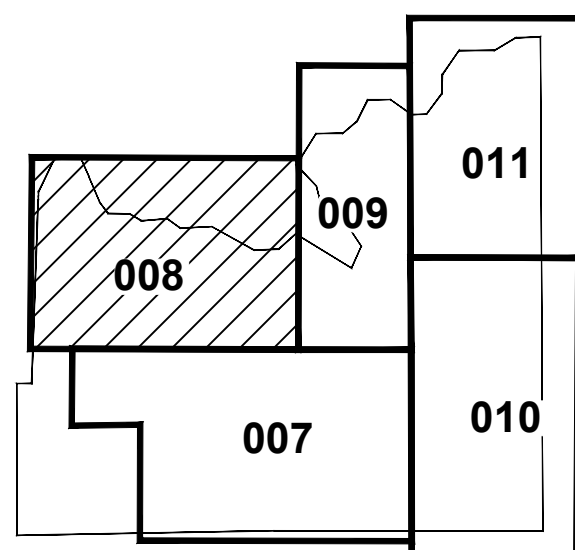
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7/27/2021	SCALE PER SHEET		4020AI

CONTRACTOR	DWG. NO.	REVISION
CASCADE ENGINEERING GROUP	007	4

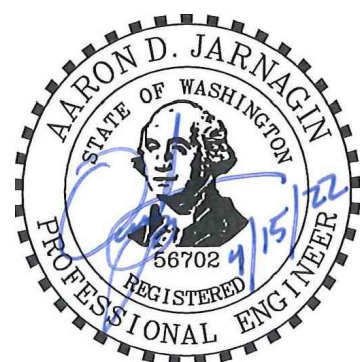
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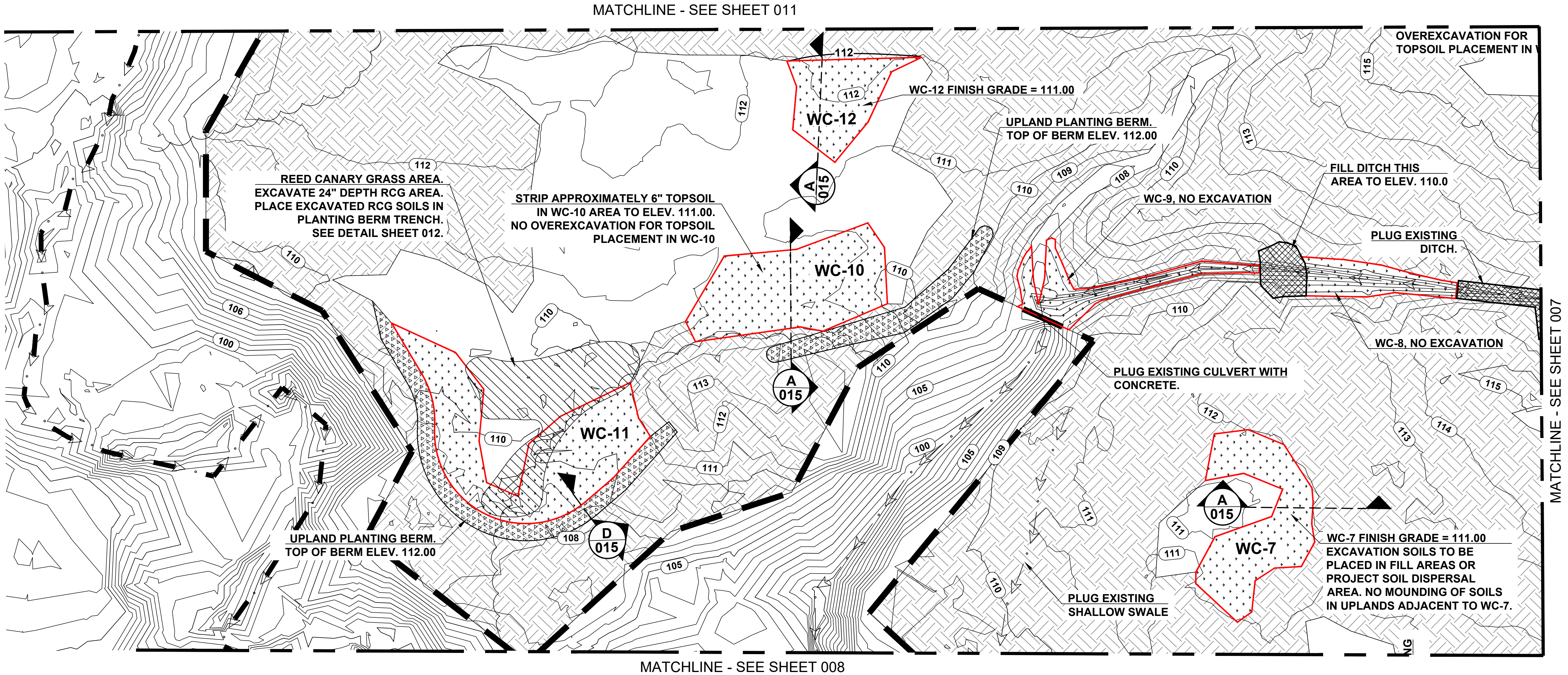
- NOTES**
1. COMPACT WITH CONSTRUCTION EQUIPMENT AT MAXIMUM 12" LIFTS.



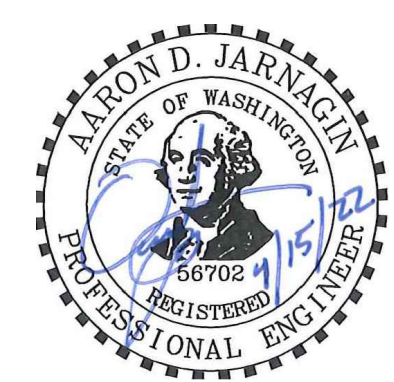
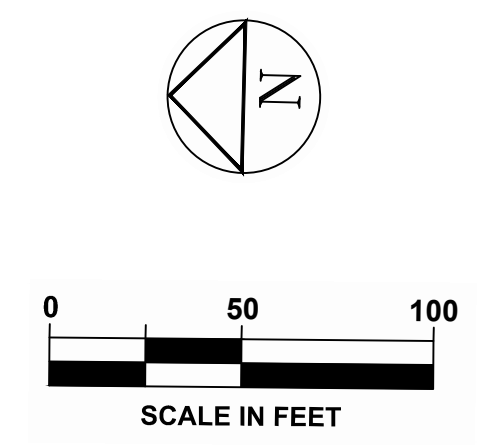
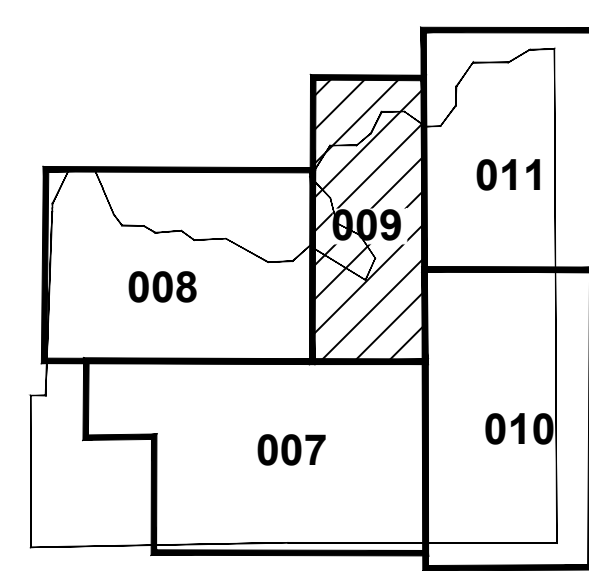
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DWG. NO.	REFERENCE DRAWINGS
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DATE: 7/27/2021 ENG. CONTRACTOR: CASCADE ENGINEERING GROUP CONTRACTOR DWG. NO.: CONTRACTOR PROJECT NO.: BPWC0022	DWG. NO.: 008 SCALE: PER SHEET BP PROJECT NO.: 4020AI REVISION: 4



SHEET INDEX (NTS)



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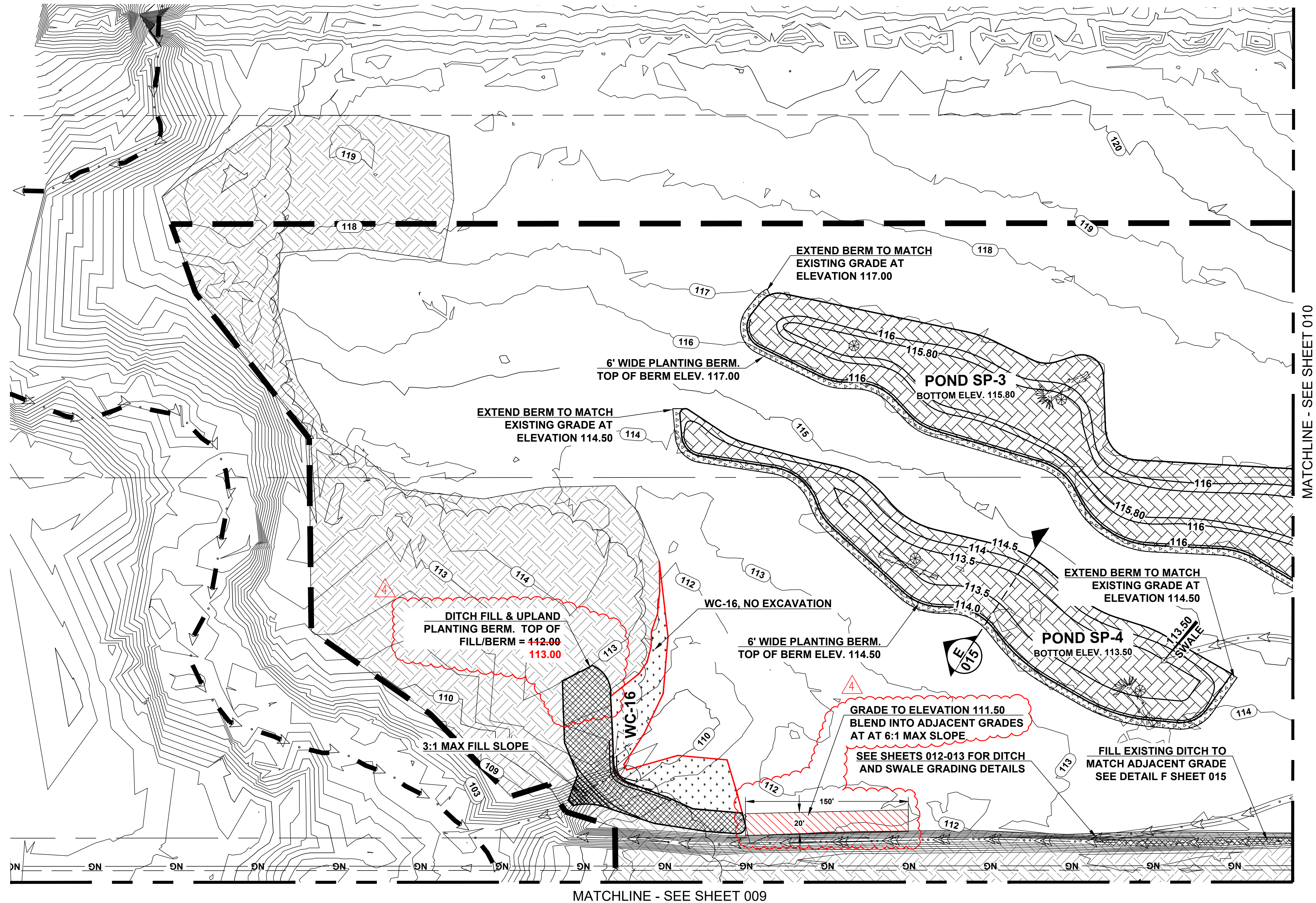
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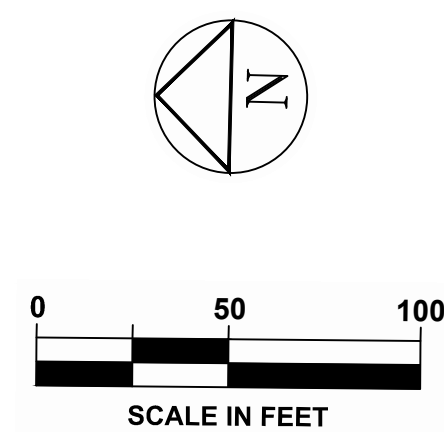
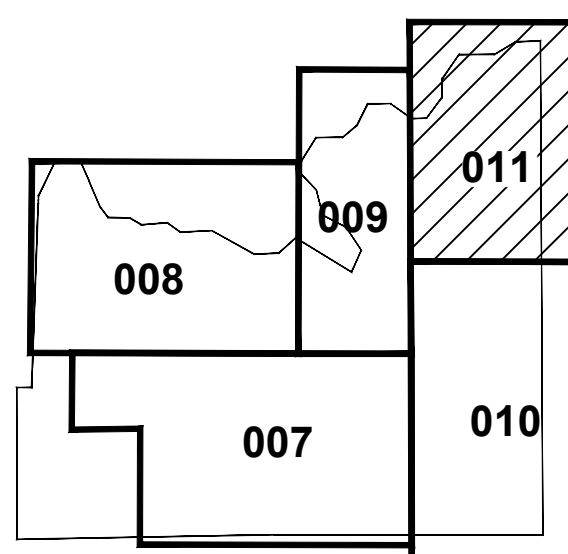
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RECORD DRAWING 10/06/2022

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BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery			
ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN GRADING PLAN - AREA 3			
DATE: 7/27/2021	SCALE: PER SHEET	BP PROJECT NO.: 4020AI	
ENG. CONTRACTOR: CASCADE ENGINEERING GROUP	DWG. NO.	009	REVISION: 4
CONTRACTOR PROJECT NO.: BPWC0022			



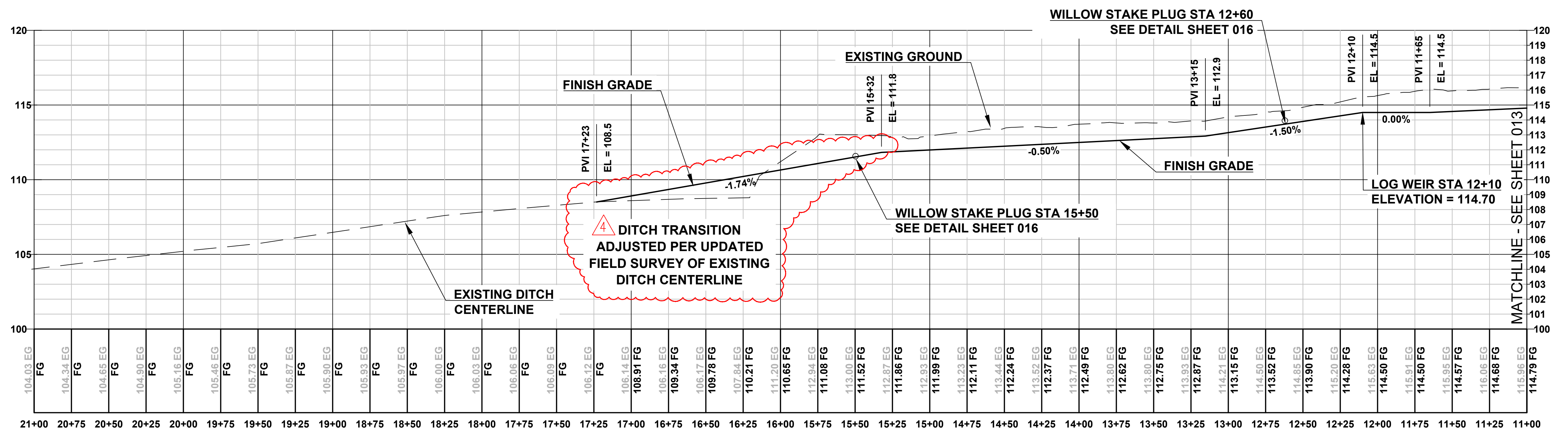
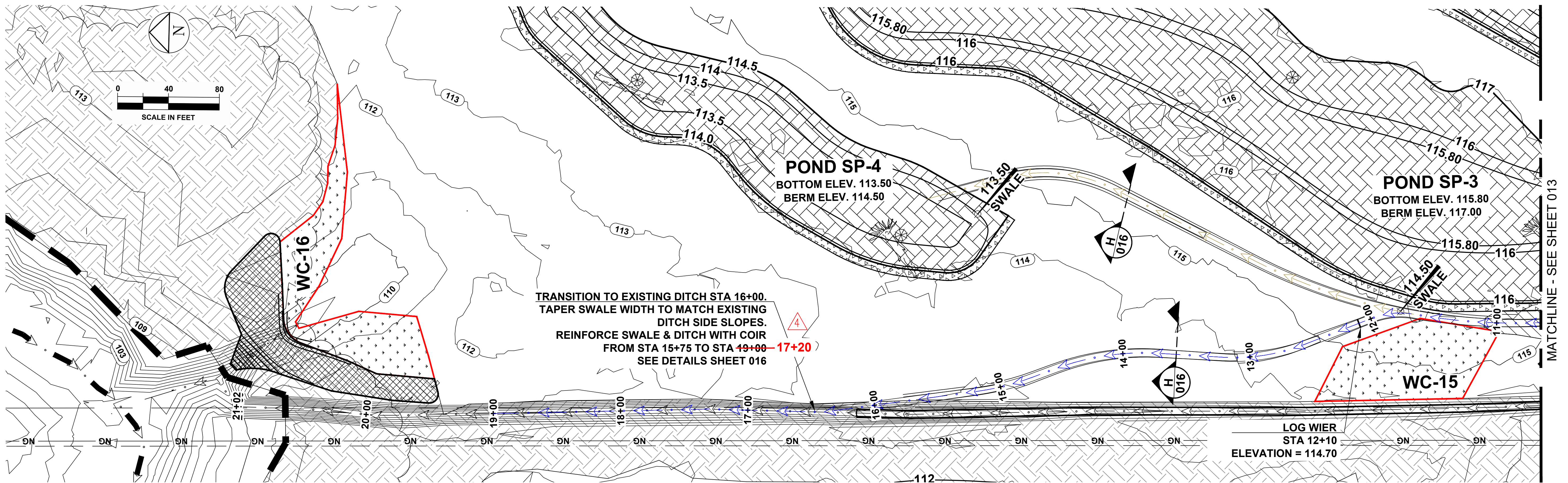
SHEET INDEX (NTS)



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DWG. NO.				REFERENCE DRAWINGS			
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DATE: 7/27/21 ENG. CONTRACTOR: CASCADE ENGINEERING GROUP				SCALE: PER SHEET		BP PROJECT NO.: 4020AI	
CONTRACTOR DWG. NO.: CONTRACTOR PROJECT NO.: BPWC0022				DWG. NO.: 011		REVISION: 4	



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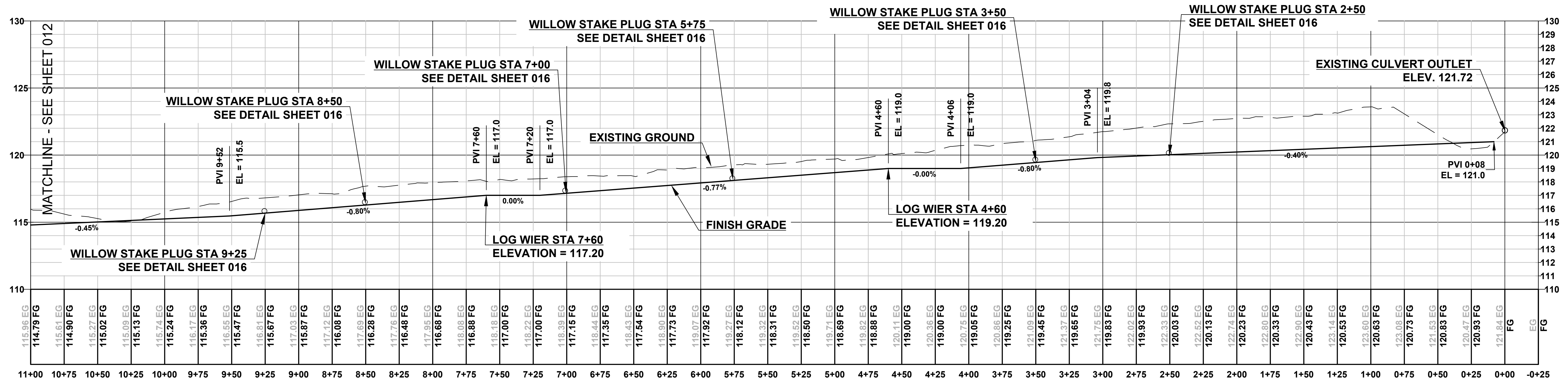
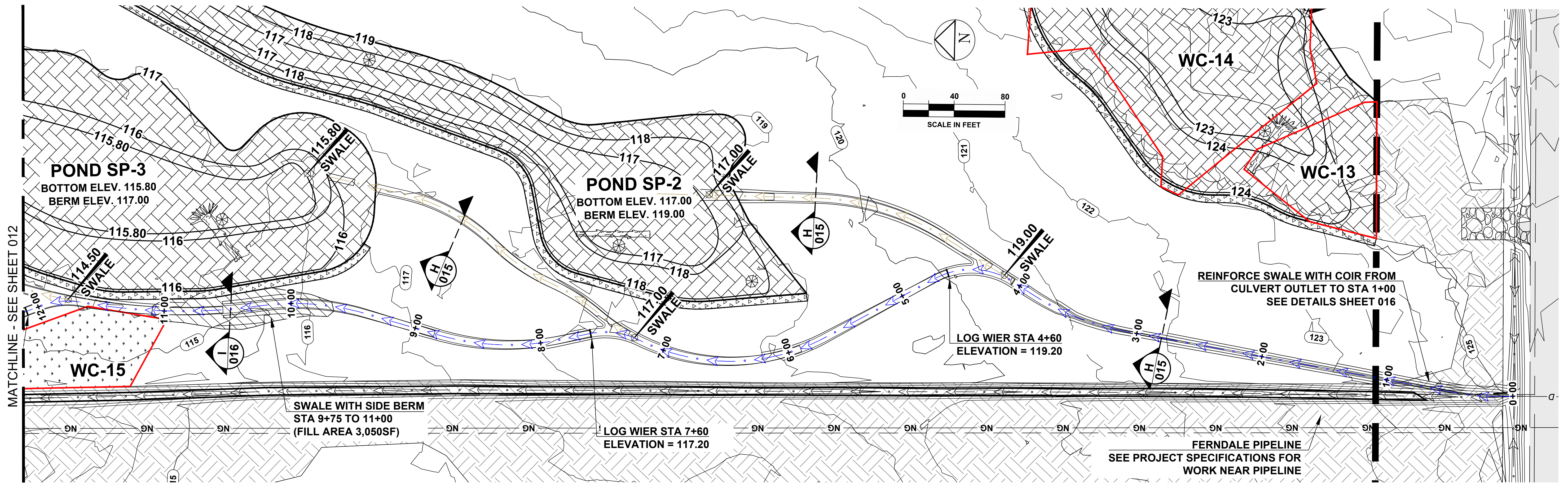
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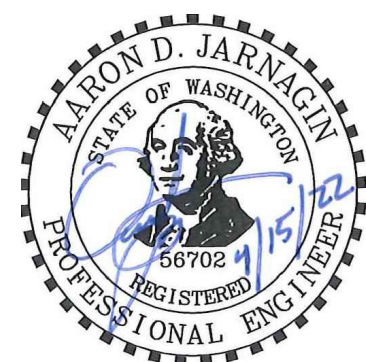
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1	7/27/21		ADJ	ISSUE FOR APPROVAL			

DWG. NO.	REFERENCE DRAWINGS
bp BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery	
ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN DITCH 3 REALIGNMENT PLAN & PROFILE	
DATE: 7/27/21 ENG. CONTRACTOR: CASCADE ENGINEERING GROUP CONTRACTOR DWG. NO.: CONTRACTOR PROJECT NO.: BPWC0022	DWG. NO.: 012 BP PROJECT NO.: 4020AI REVISION: 4



Ditch 3 - Realignment PROFILE



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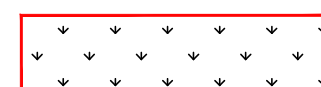
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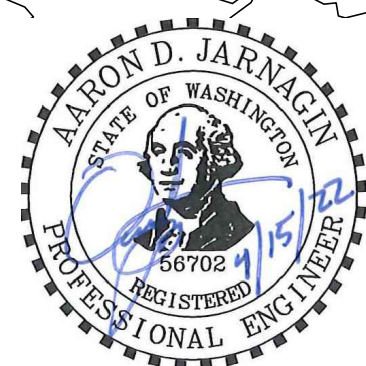
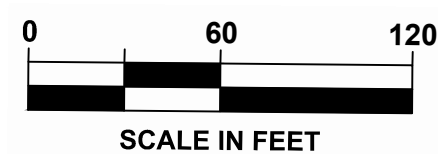
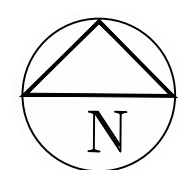
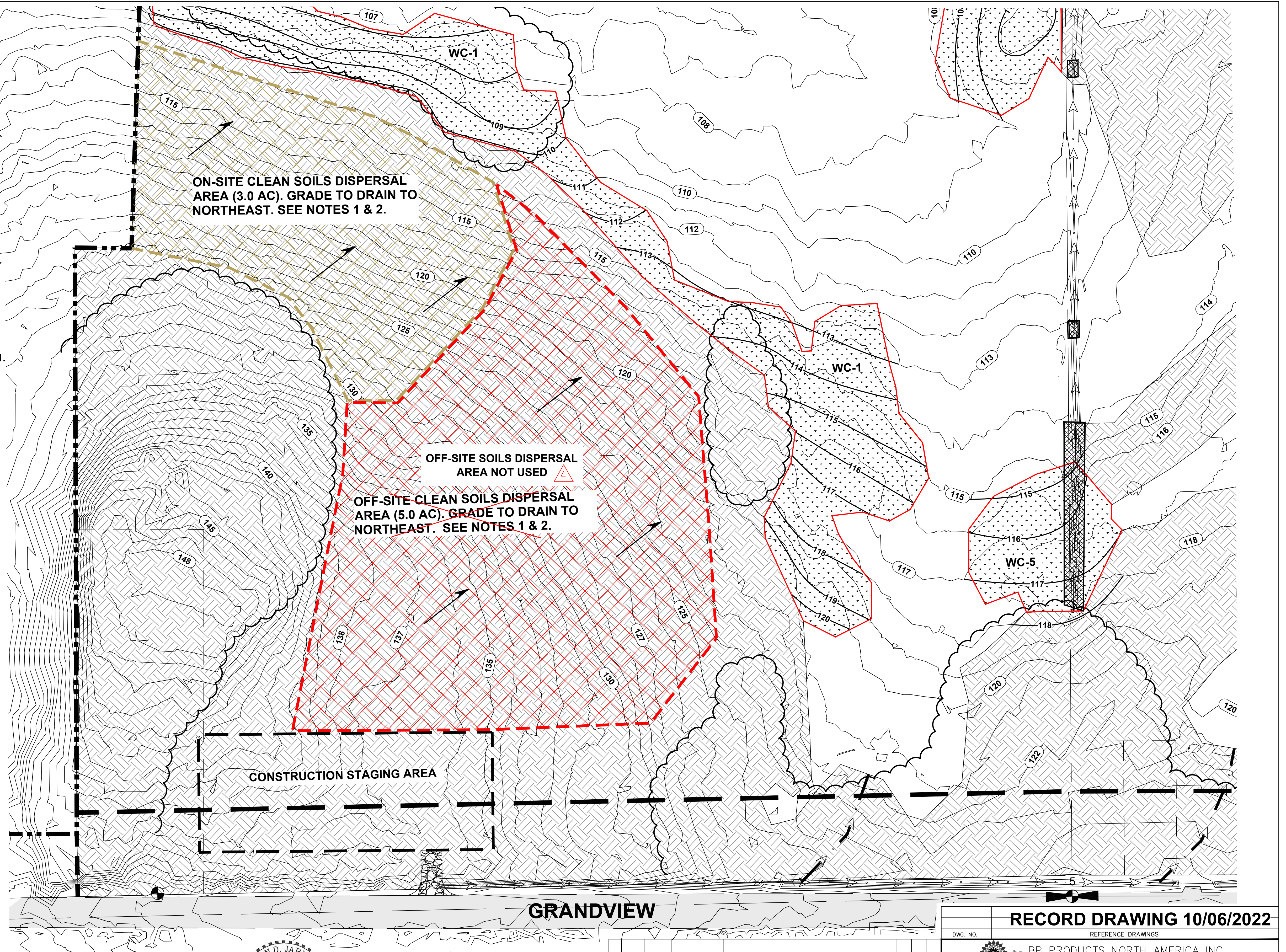
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DATE: 7/27/21	SCALE: PER SHEET
ENG. CONTRACTOR: CASCADE ENGINEERING GROUP	BP PROJECT NO.: 4020AI
CONTRACTOR DWG. NO.	DWG. NO.
CONTRACTOR PROJECT NO.	BPWC0022
013	4

NOTES

1. PLACE EXCAVATION SPOILS AT A MAXIMUM 24" DEPTH IN THE SOIL DISPERSAL AREA AND TOP WITH STOCKPILED TOPSOIL. SOIL DISPERSAL PERIMETER SIDE SLOPES NOT TO EXCEED 3:1. COMPACT WITH CONSTRUCTION EQUIPMENT AT MAXIMUM 12" LIFTS.
2. GRADE DISPERSAL AREA TO DRAIN NE AWAY FROM WESTERN PROJECT BOUNDARY

LEGEND

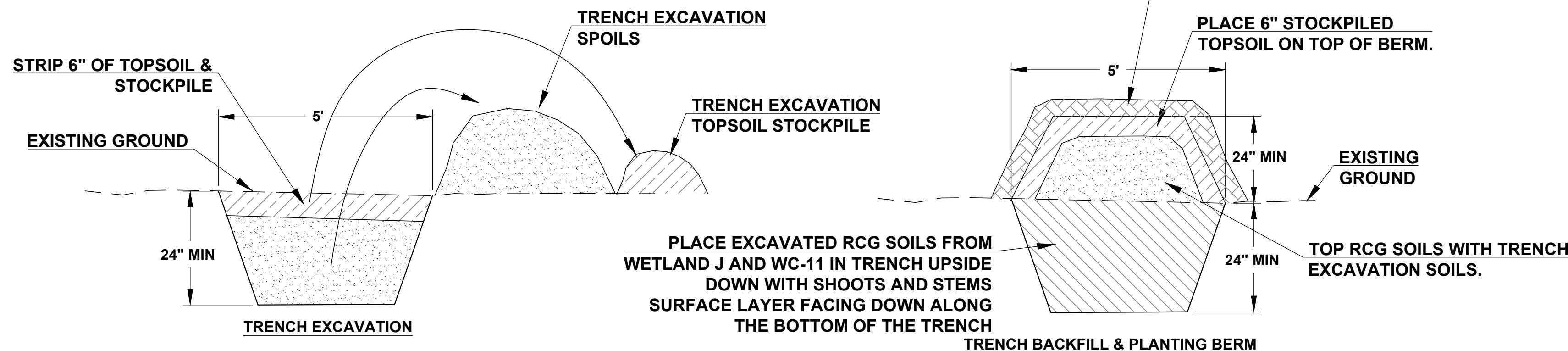
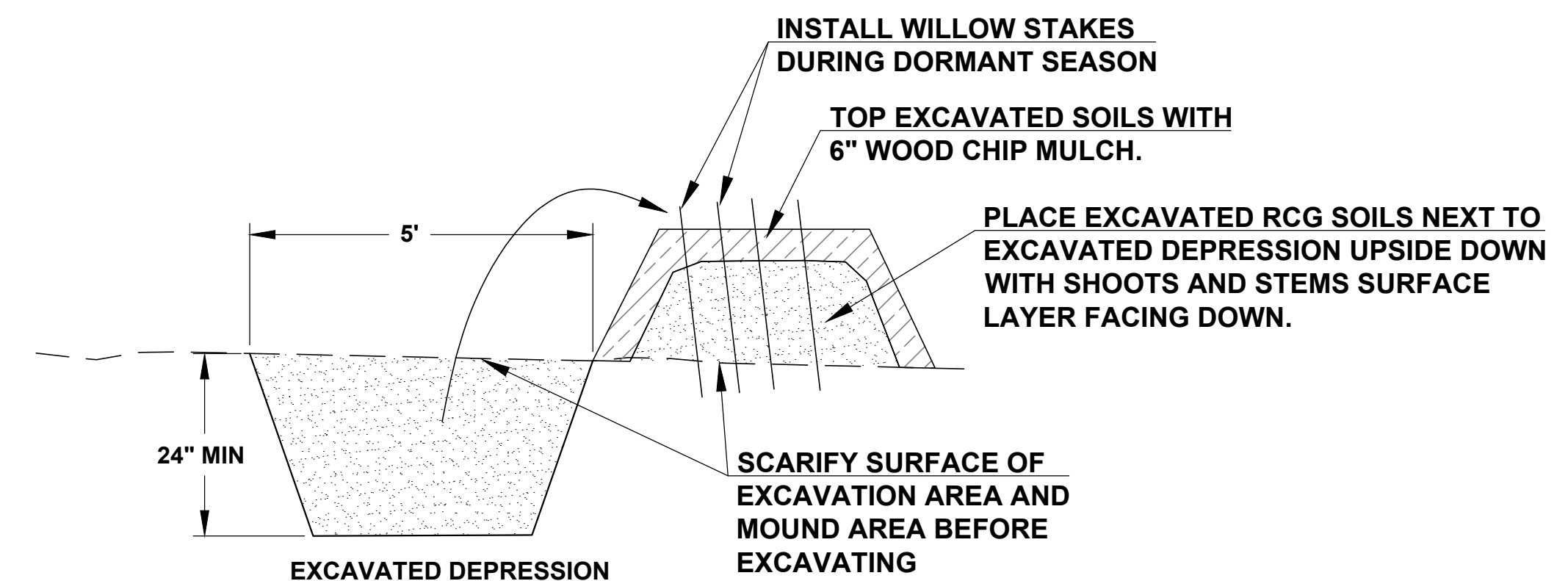
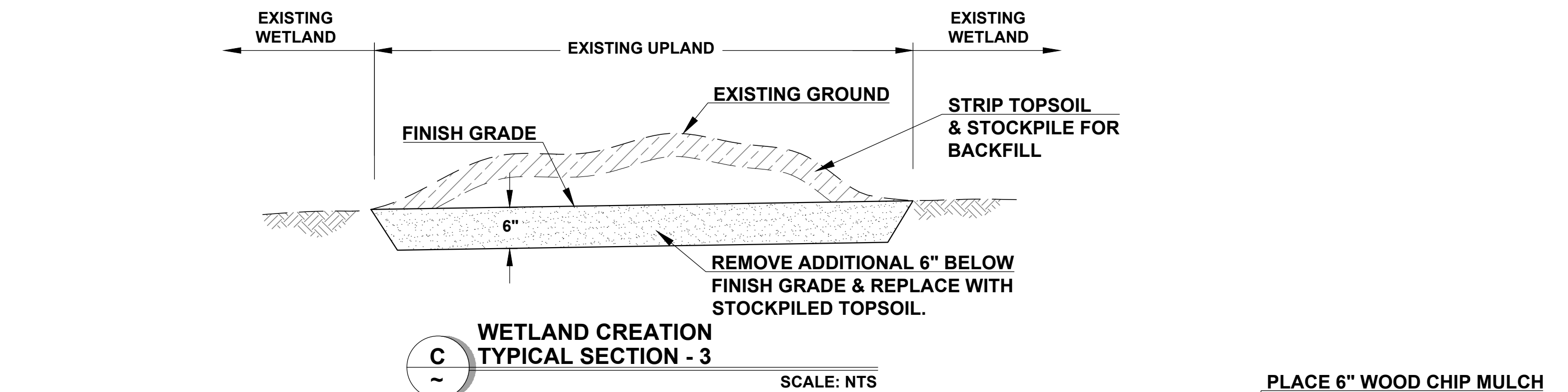
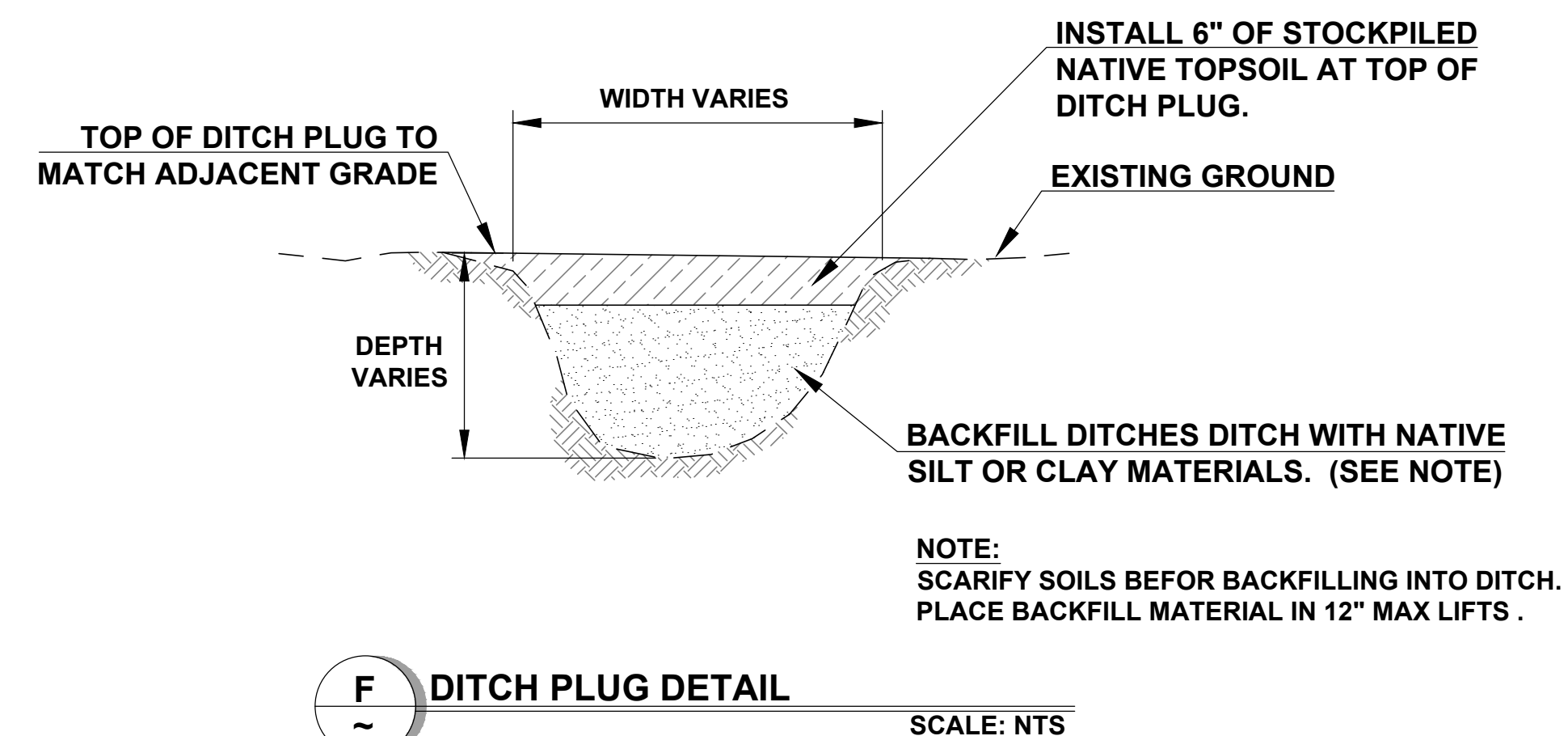
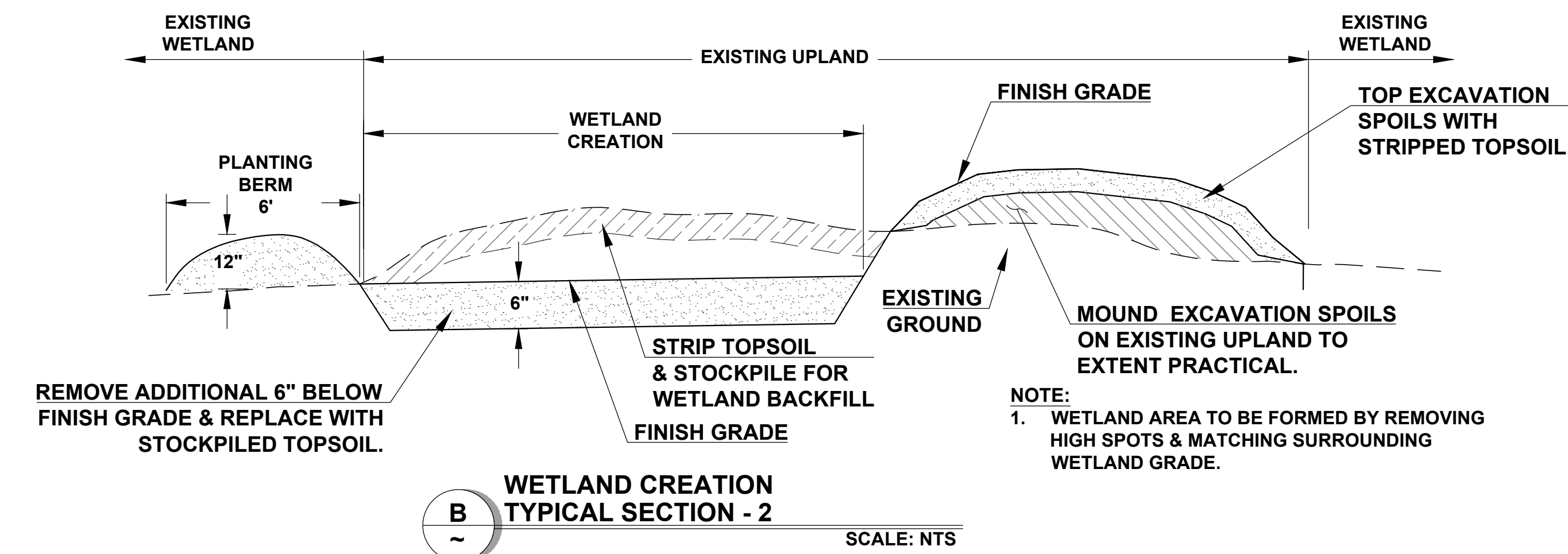
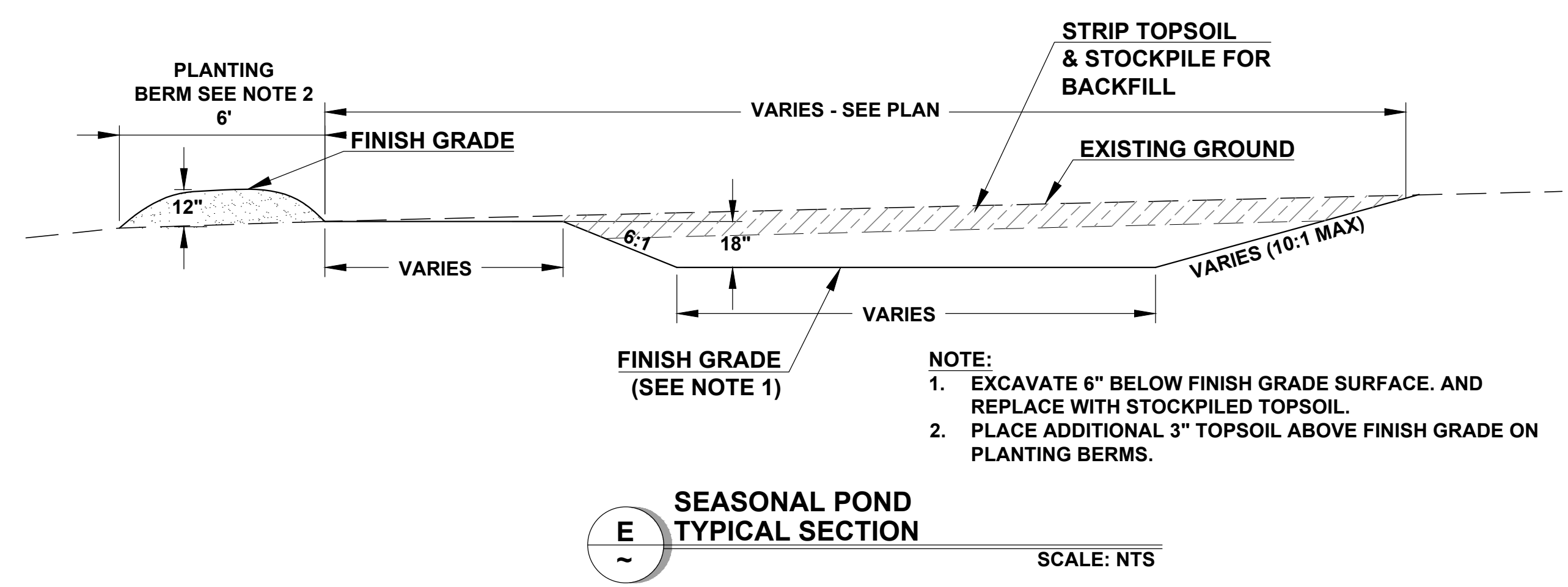
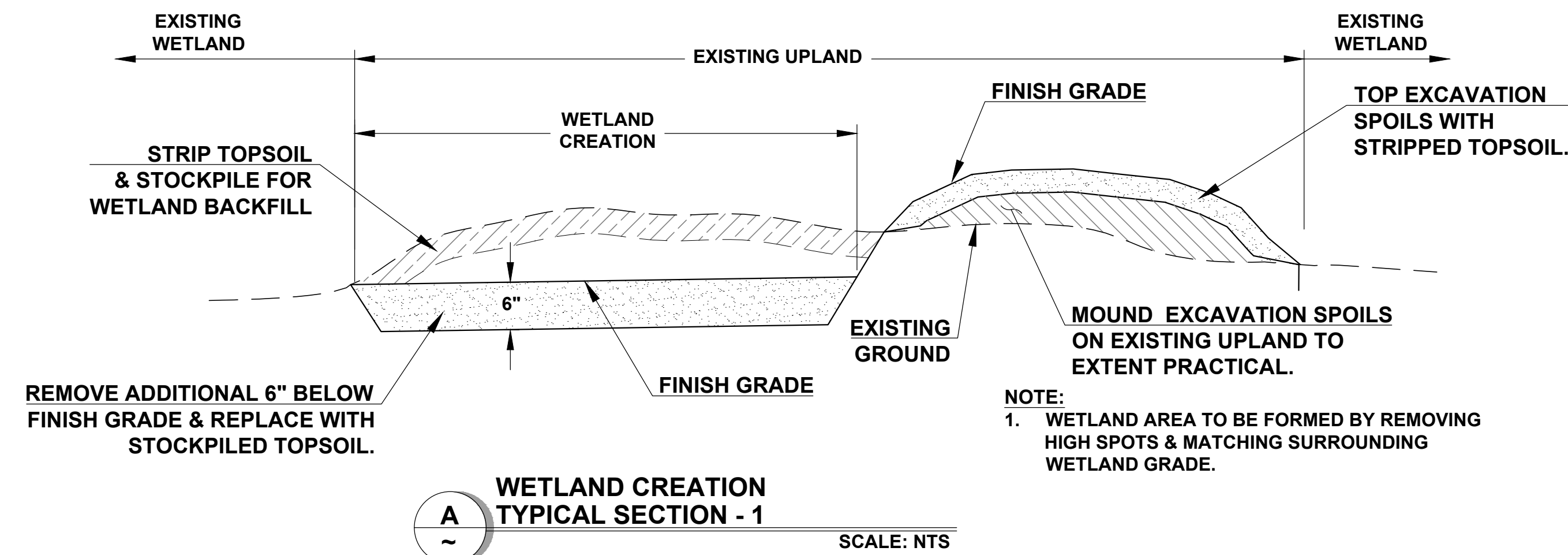
-  WETLAND CREATION (EXCAVATION)
-  DITCH PLUG
-  EXISTING UPLANDS



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REV	DATE	AMR	PROJ. ENGR.	DESCRIPTION	BY	CKD.	APR.
4	10/6/22		ADJ	RECORD DRAWING			
3	4/15/22		ADJ	ISSUE FOR CONSTRUCTION			

DWG. NO.				REFERENCE DRAWINGS			
bp BP PRODUCTS NORTH AMERICA INC				Cherry Point Refinery			
ADVANCE MITIGATION PROJECT PHASE-4				MITIGATION SITE PLAN			
CLEAN SOILS DISPERSAL LOCATIONS							
DATE		SCALE PER SHEET		BP PROJECT NO.		4020AI	
ENG. CONTRACTOR CASCADE ENGINEERING GROUP		DWG. NO.		014		REVISION	
CONTRACTOR DWG. NO.		CONTRACTOR PROJECT NO.		BPWC0022		4	

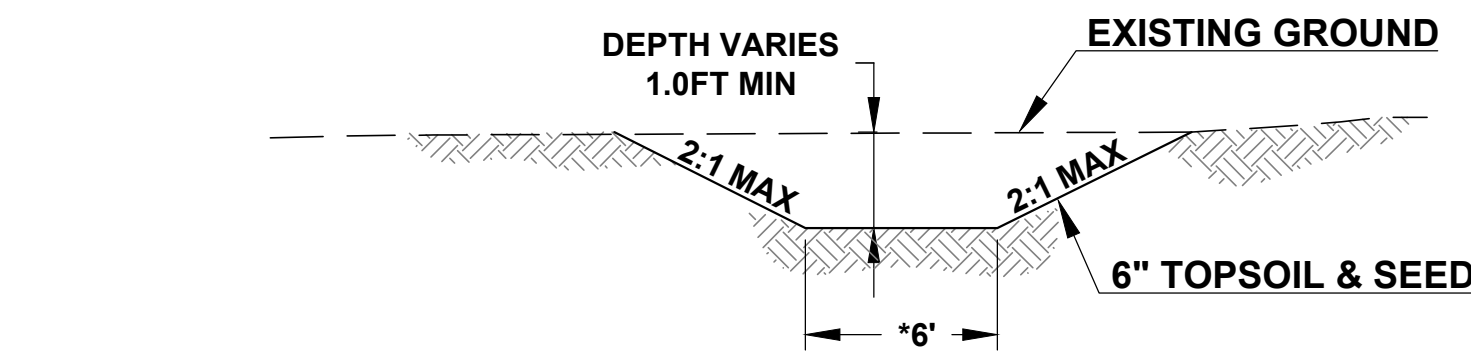


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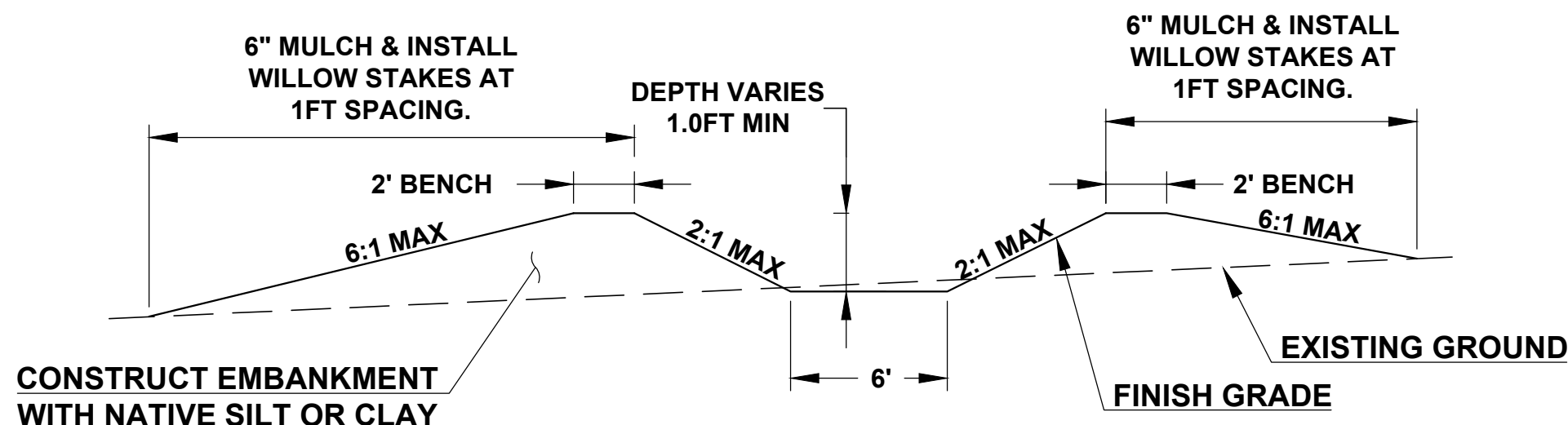
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DWG. NO.	REFERENCE DRAWINGS
bp BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery	
ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN TYPICAL SECTIONS	
DATE: 7/27/2021 ENG. CONTRACTOR: CASCADE ENGINEERING GROUP CONTRACTOR DWG. NO.: CONTRACTOR PROJECT NO.: BPWC0022	SCALE: PER SHEET BP PROJECT NO.: 4020AI DWG. NO.: 015 REVISION: 4



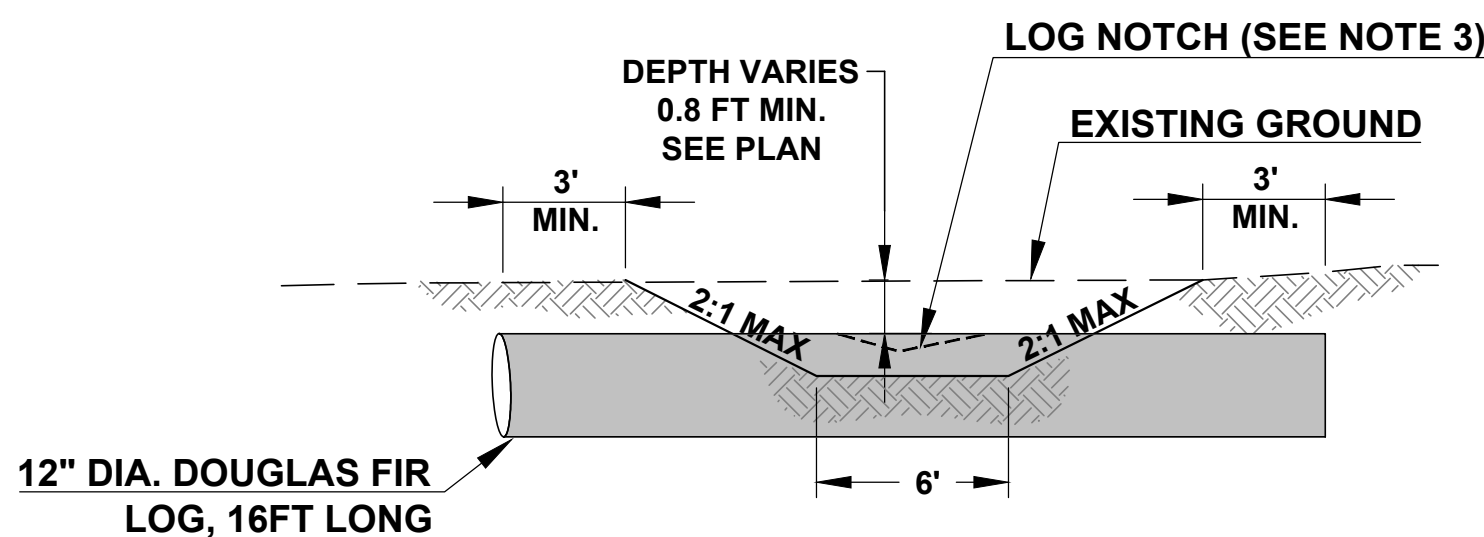
H **TYPICAL SWALE CROSS SECTION**
SCALE: NTS

- NOTES:
1. SWALE BOTTOM WIDTH 1FT STA 0+00 TO 3+50



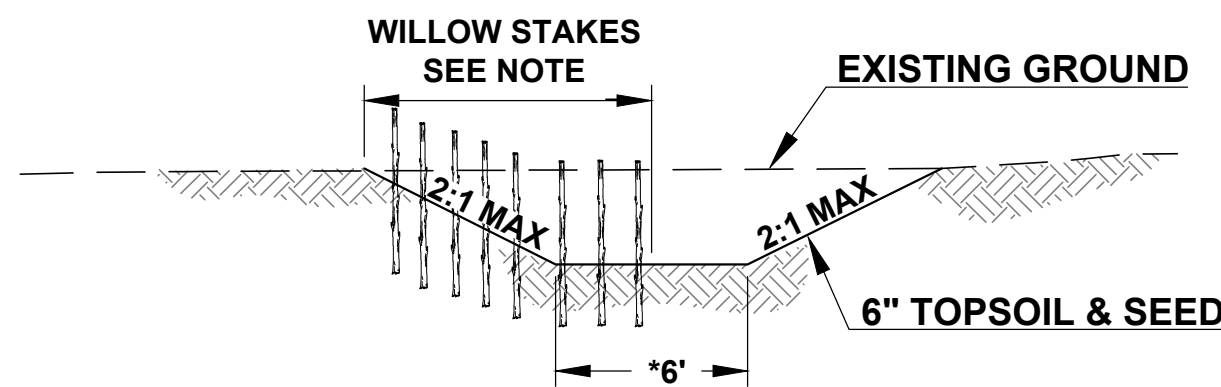
I **SWALE WITH SIDE BERM
TYPICAL CROSS SECTION**
SCALE: NTS

- NOTE:
SCARIFY SOILS BEFORE INSTALLING
EMBANKMENT.



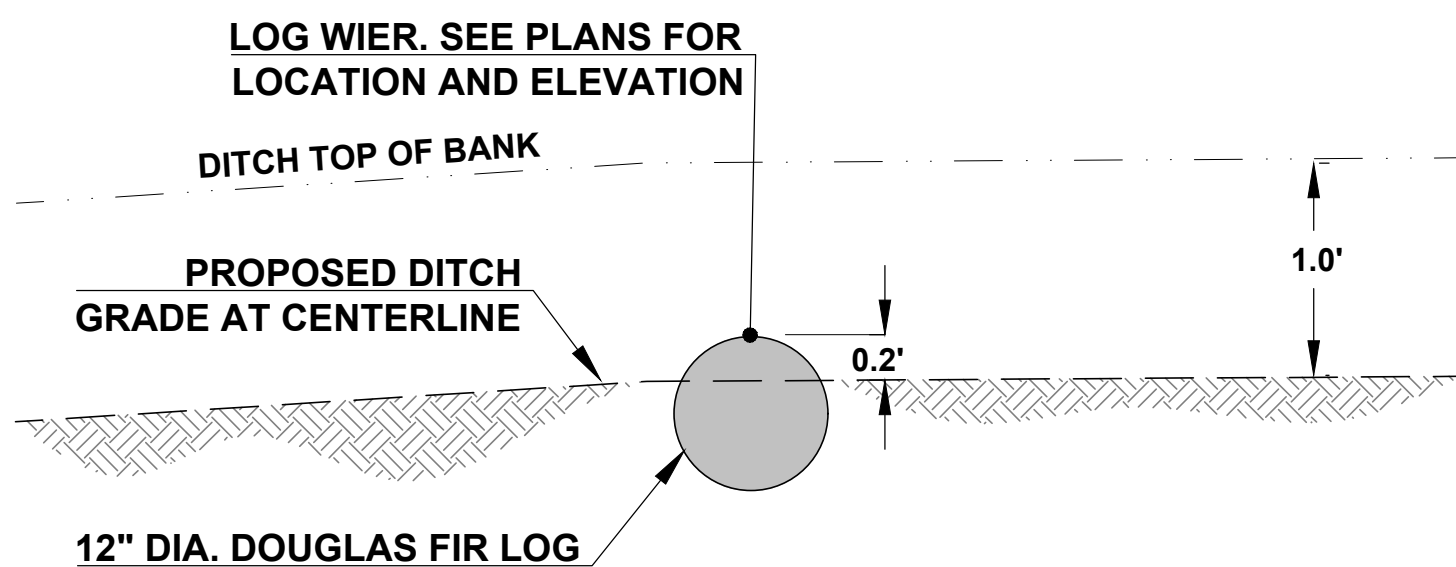
J **LOG WEIR TYPICAL CROSS SECTION**
SCALE: NTS

- NOTES:
1. CROSS SECTION FACES DOWNSTREAM
2. INSTALL DOUGLAS FIR LOGS AS SHOWN. TOP OF LOG ELEVATION, MEASURED AT MIDPOINT OF THE SWALE, IS SHOWN ON PLANS.
3. LOG MAY BE NOTCHED FOLLOWING INSTALLATION TO INCREASE FLOW AS REQUIRED FOR MAINTENANCE.

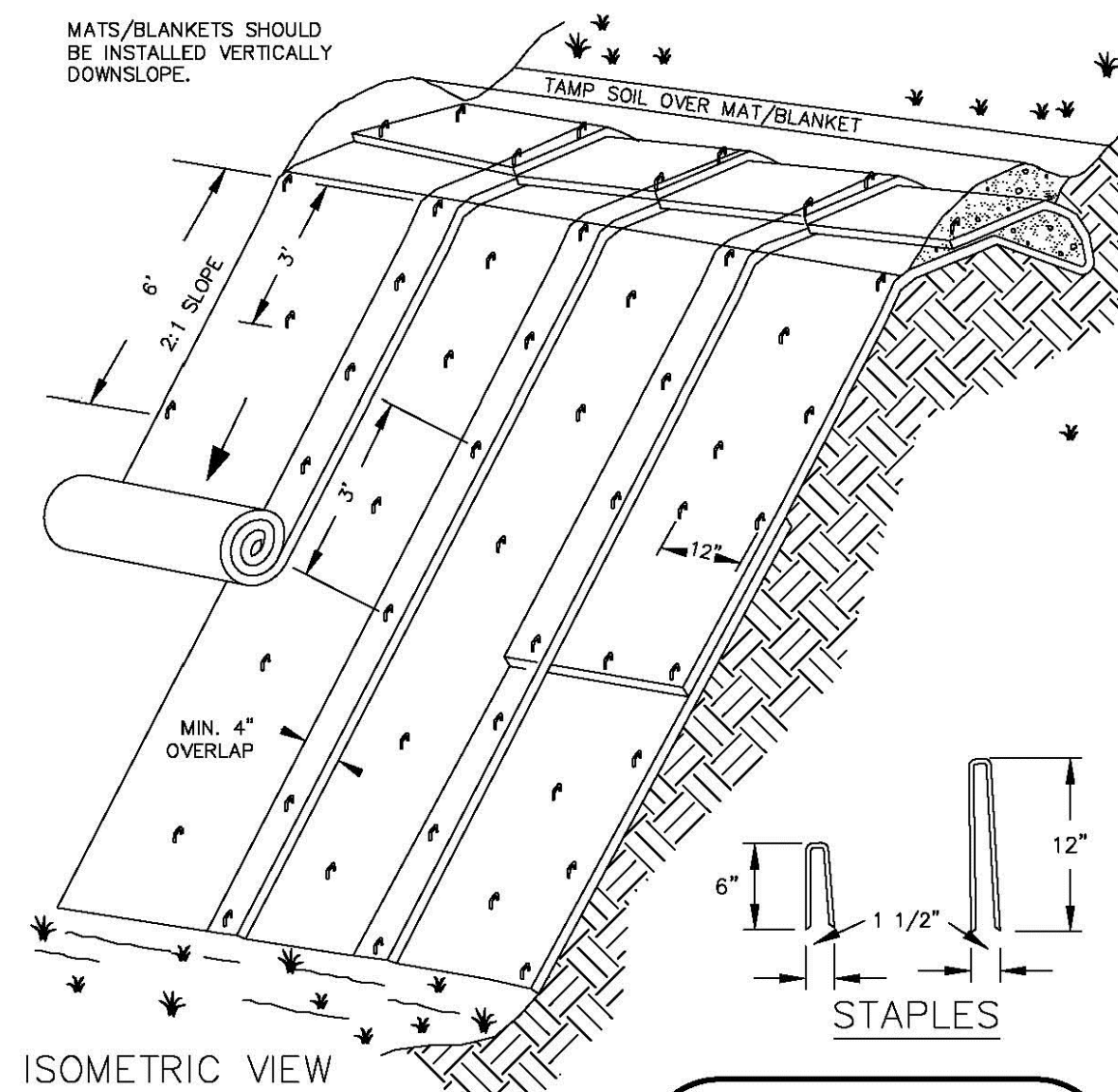
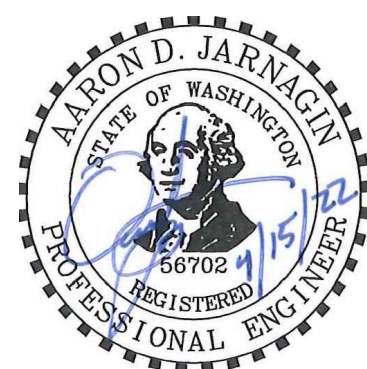


L **WILLOW STAKE PLUG
TYPICAL SECTION**
SCALE: NTS

- NOTES:
1. INSTALL TWO ROWS OF WILLOW STAKES ON THE WEST HALF OF THE SWALE AT 6\"/>



K **LOG WEIR
TYPICAL PROFILE SECTION**
SCALE: NTS



**TYPICAL SLOPE
SOIL STABILIZATION**

- NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLOUDS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.

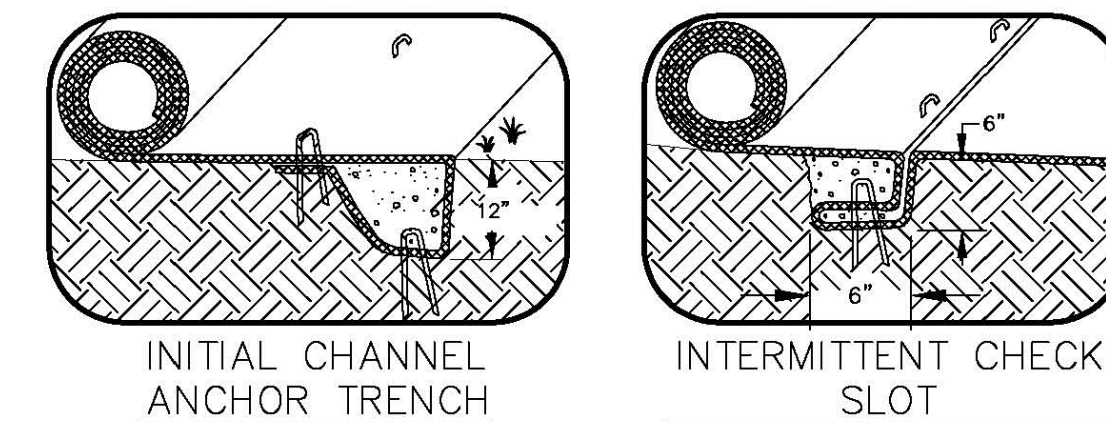
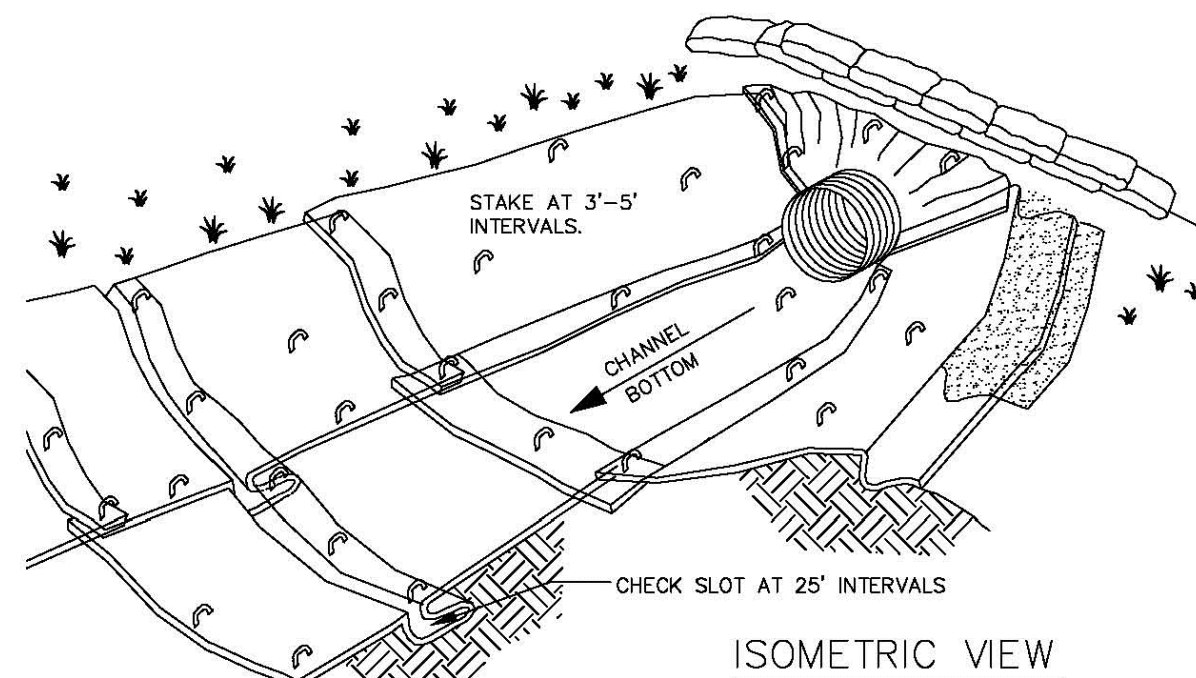
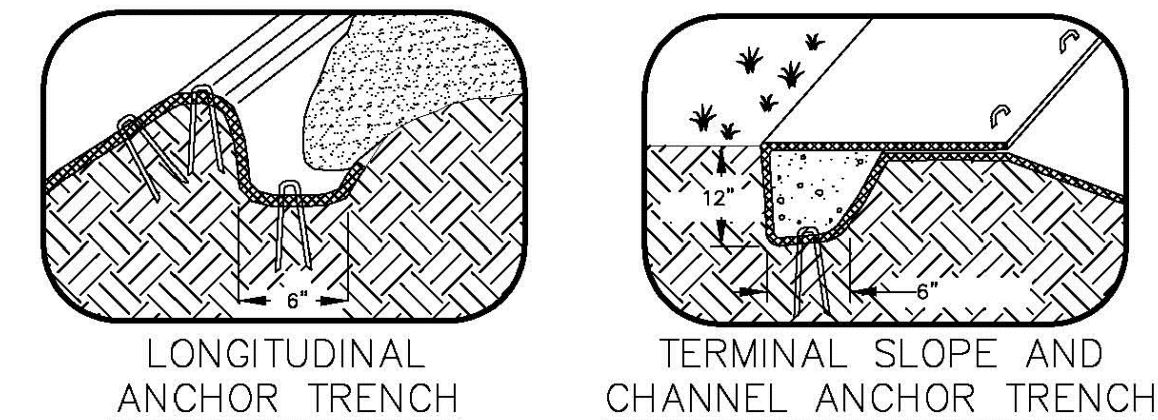
MATting SLOPE INSTALLATION

DRAWING NO. 805

REVISED 10-31-19



- NOTES:
1. CHANNEL MATTING TO BE WESTERN EXCELSIOR, EXCELL CC-4NN ALL NATURAL EROSION CONTROL BLANKET, OR APPROVED EQUAL.
2. SECURE CHANNEL MATTING TO GROUND WITH WOOD STAKES OR BIODEGRADABLE ANCHORS/STAPLES. NO METAL STAPLES OR ANCHORS ARE TO BE USED.

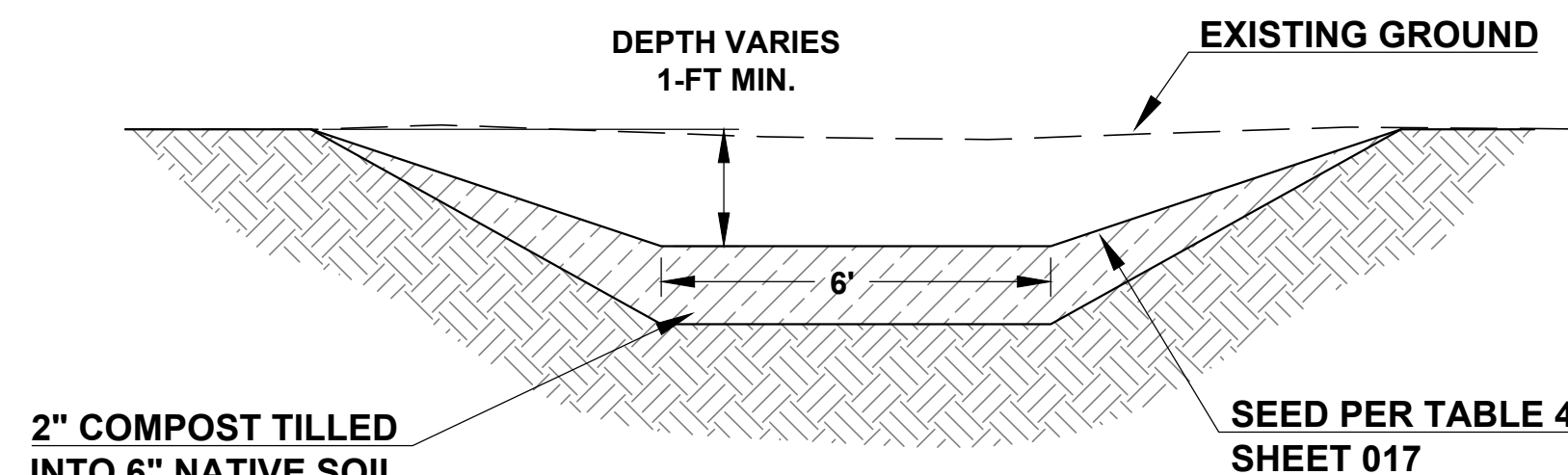


- NOTES:
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
2. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.

MATting CHANNEL INSTALLATION

DRAWING NO. 800

REVISED 10-31-19

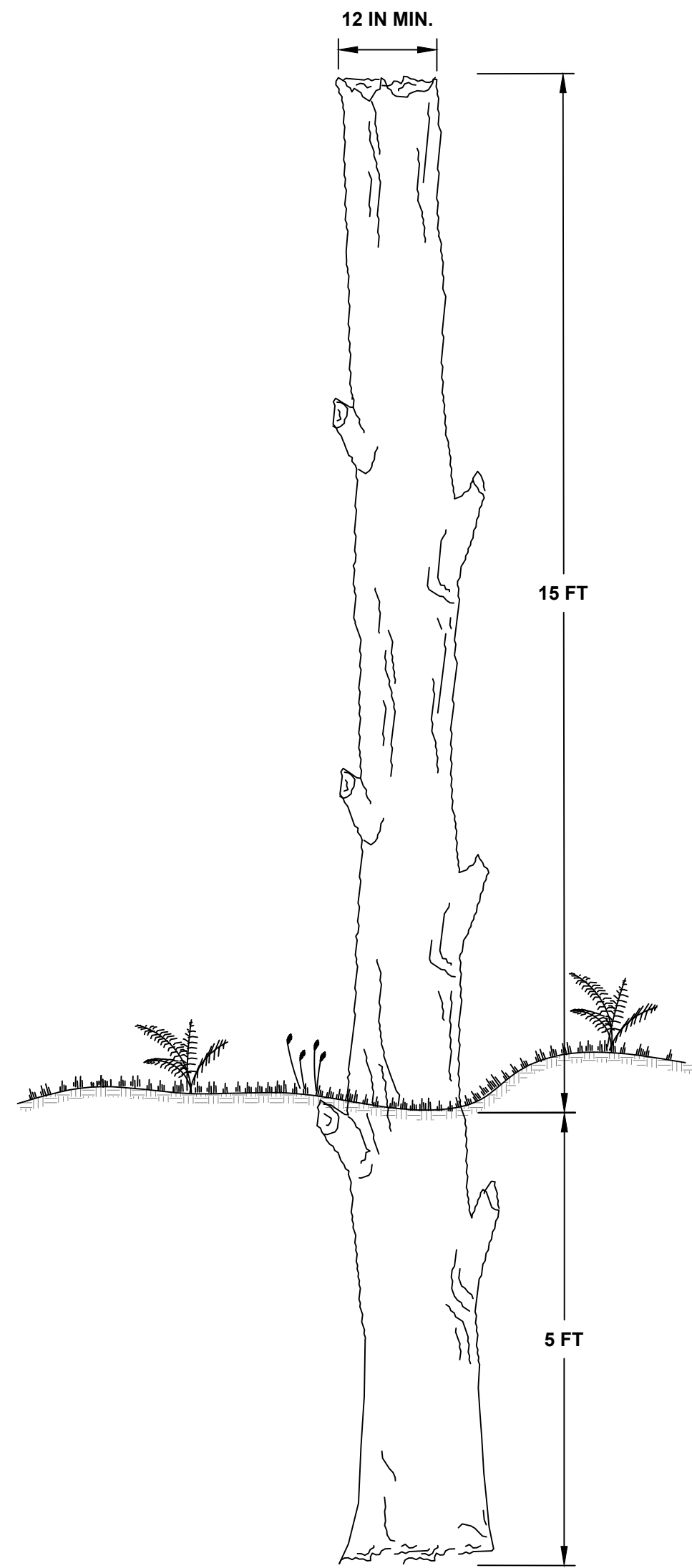


M **BIOFILTRATION SWALE
TYPICAL SWALE CROSS SECTION**
SCALE: NTS

- NOTES:
1. BIOSWALE MINIMUM SLOPE = 1%,
MAXIMUM SLOPE = 2%

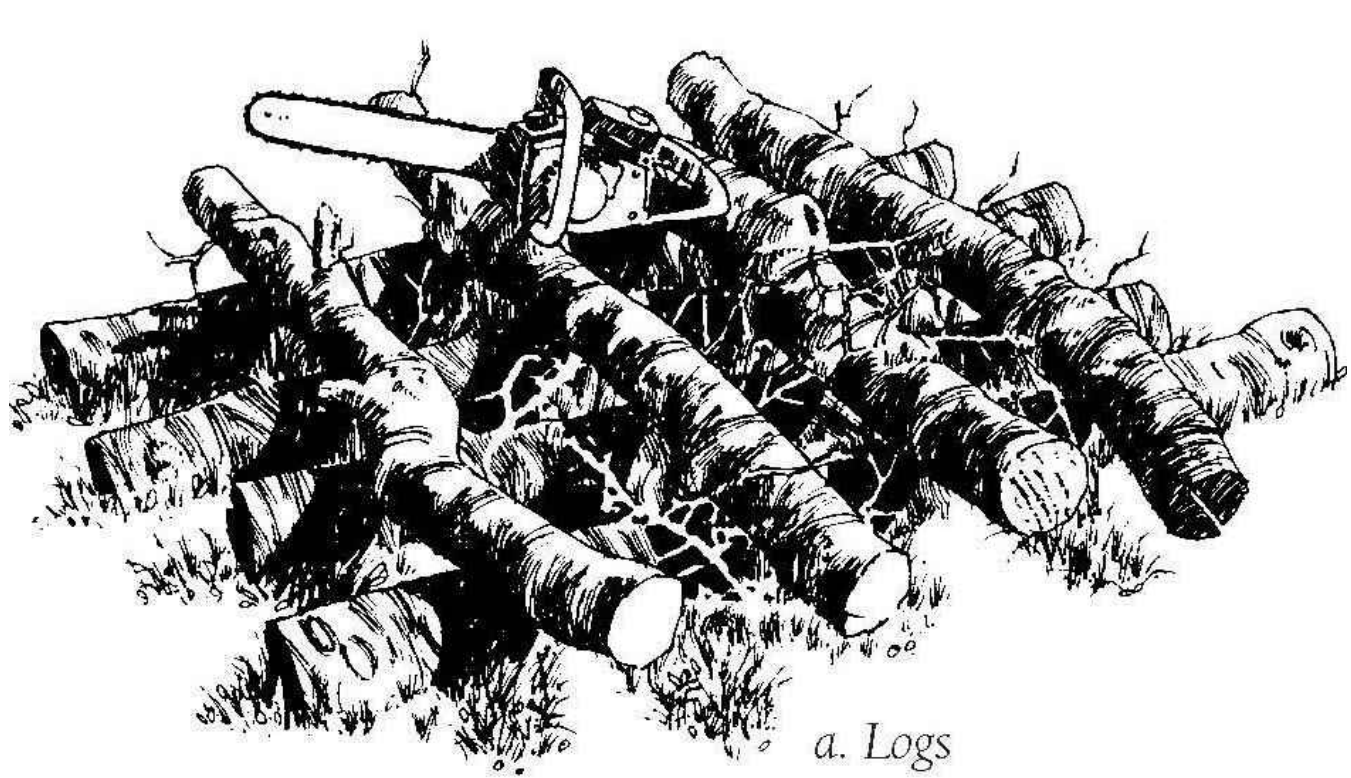
RECORD DRAWING 10/06/2022

DWG. NO.				REFERENCE DRAWINGS			
bp				BP PRODUCTS NORTH AMERICA INC Cherry Point Refinery			
4				ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN TYPICAL SECTIONS			
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ENG. CONTRACTOR: CASCADE ENGINEERING GROUP				BP PROJECT NO.: 4020AI			
CONTRACTOR DWG. NO.				DWG. NO.			
CONTRACTOR PROJECT NO.				BPWC0022			
REV				DATE			
AMR				PROJ. ENGR.			
DESCRIPTION				BY			
CDK				APR			
10/6/22				ADJ			
4/15/22				ADJ			
2/16/22				ADJ			
7/27/21				ADJ			
RECORD DRAWING				ISSUE FOR CONSTRUCTION			
ISSUE FOR APPROVAL				ISSUE FOR APPROVAL			



1 SNAG

PREFERRED LOGS	
COMMON NAME	
DOUGLAS FIR	
CEDAR	
COTTONWOOD	
MAPLE	

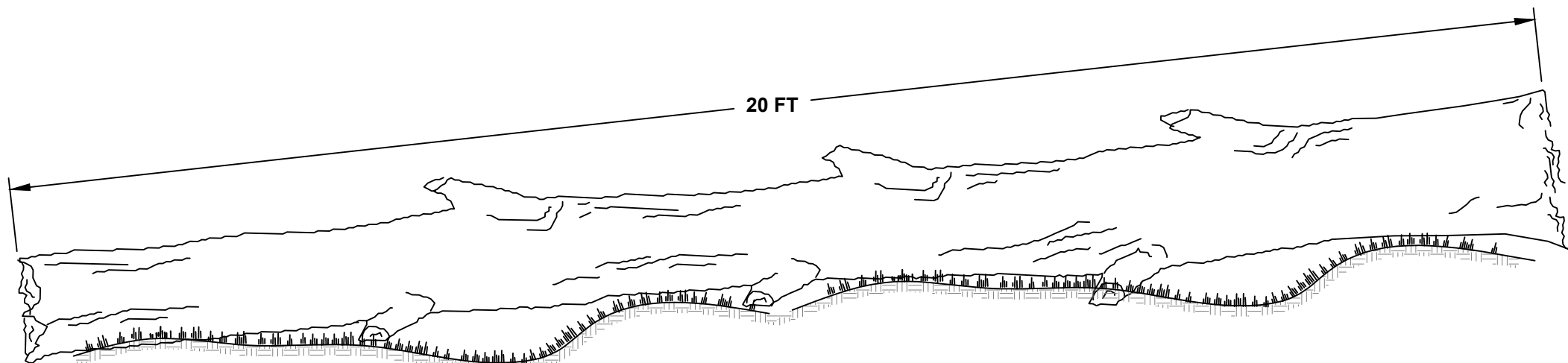


BRUSH SHELTER BASE

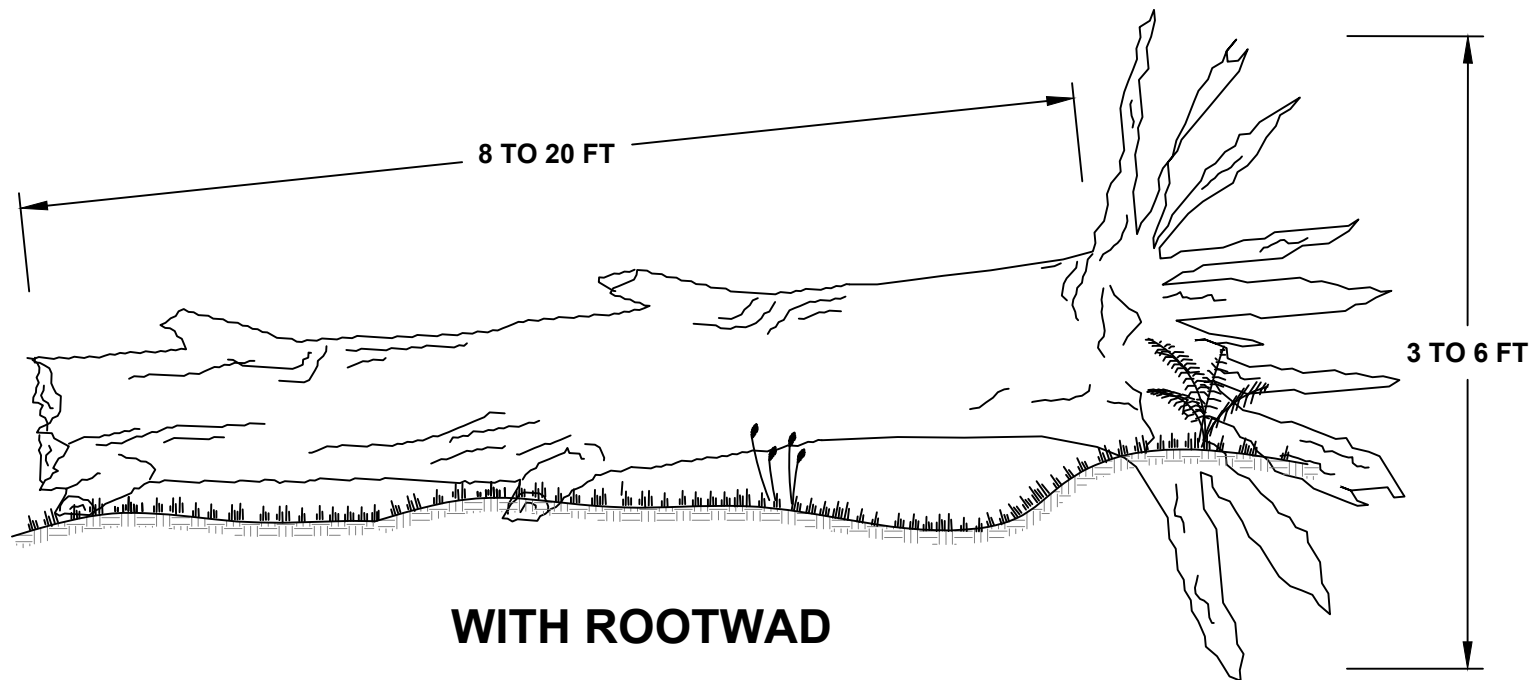


FINISHED BRUSH SHELTER

3 BRUSH SHELTER



WITHOUT ROOTWAD



WITH ROOTWAD

2 DOWNED LOG

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ADVANCE MITIGATION PROJECT PHASE-4 MITIGATION SITE PLAN HABITAT FEATURES DETAILS			
DATE: 7/27/2021		SCALE: PER SHEET	BP PROJECT NO.: 4020AI
ENG. CONTRACTOR: CASCADE ENGINEERING GROUP		DWG. NO.	REVISION
CONTRACTOR PROJECT NO.: BPWC0022		017	4

1. SEEDING

A. GENERAL PROVISIONS

SEEDING SHALL BE CONDUCTED BASED ON BEST PRACTICES, AS FOLLOWS: THE RATE OF APPLICATION SHALL FOLLOW SECTION C BELOW. SEED THAT HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE SHALL NOT BE USED. SEEDING OPERATIONS SHALL NOT BE PERMITTED WHEN WIND VELOCITIES EXCEED 15 MILES PER HOUR. SEED SHALL BE SOWN ONLY WHEN SOIL IS IN PROPER CONDITION TO INDUCE GROWTH. NO SEEDING SHALL BE DONE WHEN THE GROUND IS UNDULY WET, OR OTHERWISE NOT IN TILLABLE CONDITION. SEEDING SHALL OCCUR AS SOON AS POSSIBLE AFTER WORK IS COMPLETED AND ACCORDING TO THE SWPPP AND TESC.

B. LOCATION OF SEEDING

SEEDING SHALL OCCUR IN THE FOLLOWING AREAS AS SPECIFIED ON THE PLANS;

- ALL EXCAVATED SWALES AND PONDS; BIOFILTRATION SWALES; FILLED DITCHES; EXCAVATED WETLAND CREATION AREAS; AND SPOILS.
- BARE GROUND OR HERBICIDE TREATED SPOTS, AS NEEDED.
- AREAS WHERE THE EXISTING GROUND COVER HAS BEEN SIGNIFICANTLY DISTURBED DUE TO MOVEMENT OF HEAVY EQUIPMENT OR OTHER CONSTRUCTION RELATED DISTURBANCE.
- AREAS TO BE SEEDED THAT ARE NOT INDICATED ON THE PLANS OR MENTIONED ABOVE ARE TO BE APPROVED BY THE BP PROJECT ENGINEER.

C. COMPOSITION OF SEED MIX

- DISTURBED EXISTING WETLANDS, EXCAVATED WETLAND CREATION AREAS, NEWLY CREATED SEASONAL PONDS, SWALES, AND PLUGGED DITCHES SHALL BE SEEDED USING THE MIX IN TABLE 1 AT A RATE OF 60-LB/ACRE.
- DISTURBED UPLAND AREAS SHALL BE SEEDED USING THE MIX IN TABLE 2 AT A RATE OF 100-LB/ACRE.
- BIOFILTRATION SWALE SEEDING AREAS SHALL BE SEEDED USING THE MIX IN TABLE 4 AT A RATE OF 120-LB/ACRE.
- THE SEASONAL PONDS, EXCAVATED WETLAND CREATION AREAS, AND PLUGGED DITCHES SHALL ALSO BE SEEDED WITH THE MIX IN TABLE 3 AT A RATE OF 5-LB PER ACRE.

SEED GROWN IN OREGON/WASHINGTON ON THE WEST SIDE OF THE CASCADE MOUNTAINS OR SEED GROWN IN BC ON THE WEST SIDE OF THE COAST MOUNTAINS IS PREFERRED. ANY SUBSTITUTION TO THE MIX MUST BE APPROVED BY THE BP PROJECT ENGINEER IN WRITING.

D. SEED BED PREPARATION

THE GROUND TO BE SEEDED SHALL BE FREE OF LARGE CLOUDS, ROOTS AND OTHER MATERIAL. HAND PICKING MAY BE REQUIRED. SEEDING SHALL NOT COMMENCE UNTIL THE BP PROJECT ENGINEER HAS ACCEPTED THE CONDITIONS OF THE PREPARED AREAS.

E. SOIL BINDER OR TACKING AGENT

TACKIFIER SHALL BE USED AS A TIE-DOWN FOR THE SEED MIXTURE. TACKIFIER SHALL BE DERIVED FROM NATURAL ORGANIC PLANT SOURCES CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS. TACKIFIER SHALL HYDRATE IN WATER AND READILY BLEND WITH OTHER SLURRY MATERIALS.

F. HYDROSEEDING

SEED AND TACKIFIER SHALL BE ADDED TO WATER AND THOROUGHLY MIXED. THE SEED, TACKIFIER, AND WATER SHALL BE THOROUGHLY MIXED TO PRODUCE A HOMOGENOUS SLURRY. WHILE THE SOIL IS STILL LOOSE AND MOIST, THE SEED, TACKIFIER AND WATER SLURRY SHALL BE UNIFORMLY BROADCAST UNDER PRESSURE OVER THE SPECIFIED AREAS AT A HYDROMULCH RATE OF 1,500-LB PER ACRE USING A HYDROSEEDING APPARATUS. THE RATE OF FLOW SHALL BE CAREFULLY REGULATED; THE AREA SHOULD BE COVERED TWICE WITH ½ OF THE MIXTURE EACH TIME. THE SECOND APPLICATION SHALL BE APPLIED IN THE OPPOSING DIRECTION FROM THE FIRST APPLICATION TO ENSURE UNIFORMITY.

G. WATERING

NEWLY SEEDED AREAS SHALL NOT BE WATERED TO FORCE SEED GERMINATION, BUT ONLY TO SUSTAIN GROWTH. VEGETATED AREA SHALL BE WATERED SO AS TO PROVIDE OPTIMUM GROWTH CONDITIONS FOR THE ESTABLISHMENT OF GRASS. RUN-OFF AND PUDDLING SHALL BE PREVENTED DURING WATERING.

H. PROTECTION AND CARE OF SEEDED AREAS

AFTER THE COMPLETION OF SEEDING, THE CONTRACTOR SHALL ENSURE THAT NO HEAVY EQUIPMENT OR VEHICLES ENTER THE SEEDED AREA THROUGHOUT THE REMAINDER OF CONSTRUCTION SEASON ON THE PROJECT SITE.

TABLE 1
NATIVE WETLAND SEED MIX

SCIENTIFIC NAME	COMMON NAME	PERCENT COMPOSITION
		(BY WEIGHT)
AGROSTIS SCABRA	ROUGH BENTGRASS	33%
DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	8%
DANTHONIA CALIFORNICA	CALIFORNIA OATGRASS	3.5%
FESTUCA ROEMERI	ROEMER'S FESCUE (NATIVE)	37%
GLYCERIA OCCIDENTALIS	WESTERN MANNAGRASS	5.0%
HORDEUM BRACHYANTHERUM	MEADOW BARLEY	5.5%
JUNCUS TENUIS	SLENDER RUSH	8%

TABLE 2
NATIVE UPLAND SEED MIX

SCIENTIFIC NAME	COMMON NAME	POUNDS PLS / ACRE
BROMUS CARINATUS	CALIFORNIA BROME	39
BROMUS SITCHENSIS	ALASKA BROME	9
DANTHONIA CALIFORNICA	CALIFORNIA OATGRASS	9
DANTHONIA SPICATA	COMMON WILD OATS	4
ELYMUS GLAUCUS	BLUE WILDRYE	25
FESTUCA RUBA	RED FESCUE	6
LUPINUS LATIFOLIUS	BROADLEAF LUPINE	8
TOTAL POUND PLS / ACRE		100

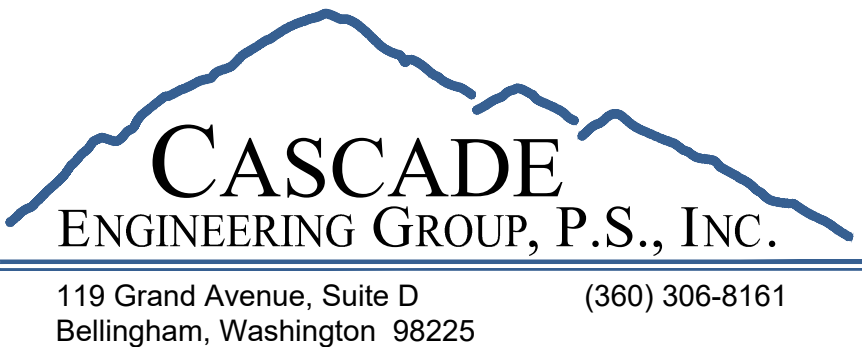
TABLE 3
EMERGENT NATIVE WETLAND POND SEED MIX

SCIENTIFIC NAME	COMMON NAME	PERCENT COMPOSITION
		(BY WEIGHT)
CAREX OBNUPTA	SLOUGH SEDGE	20%
CAREX STIPATA	SAWBEAK SEDGE	10%
BECKMANNIA SYZIGACHNE	AMERICAN SLOUGHGRASS	20%
ELEOCHARIS PALUSTRIS	SPIKE RUSH	20%
JUNCUS TENUIS	SLENDER RUSH	10%
SCIRPUS MICROCARPUS	SMALL-FRUITED BULRUSH	20%

TABLE 4
BIOFILTRATION SWALE SEED MIX

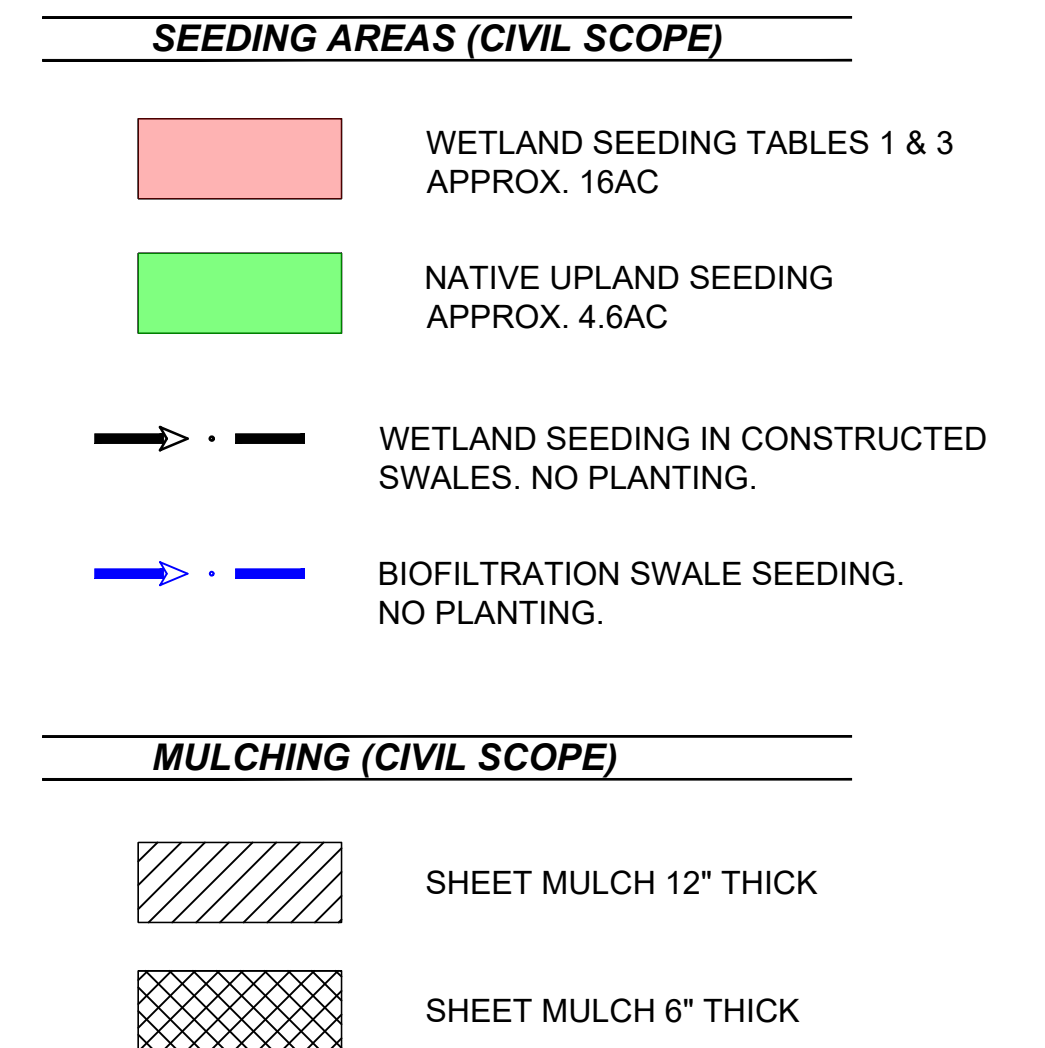
SCIENTIFIC NAME	COMMON NAME	PERCENT COMPOSITION
		(BY WEIGHT)
FESTUCA ELATIOR	MEADOW FESCUE	75%
AGROSTIS CAPILLARIS	COLONIAL BENTGRASS	15%
AGROSTIS GIGANTEA	RED TOP	10%

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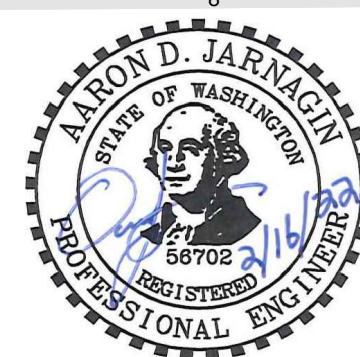


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