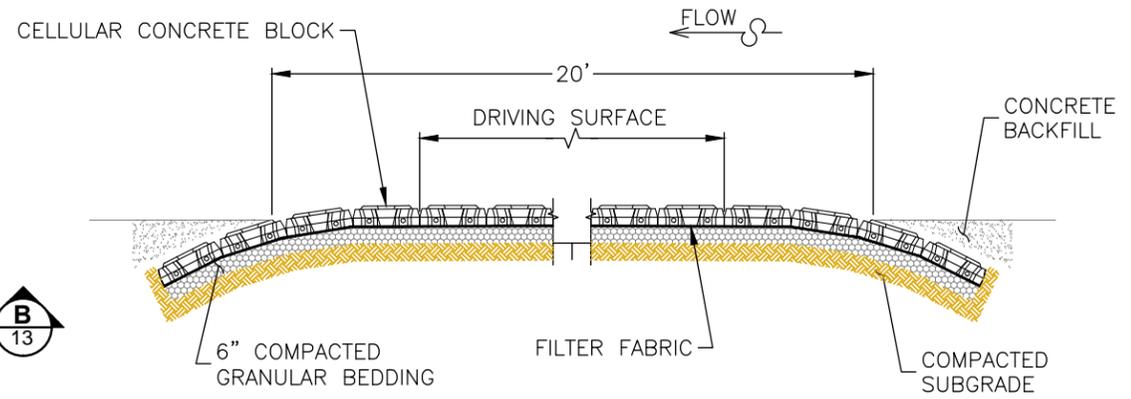
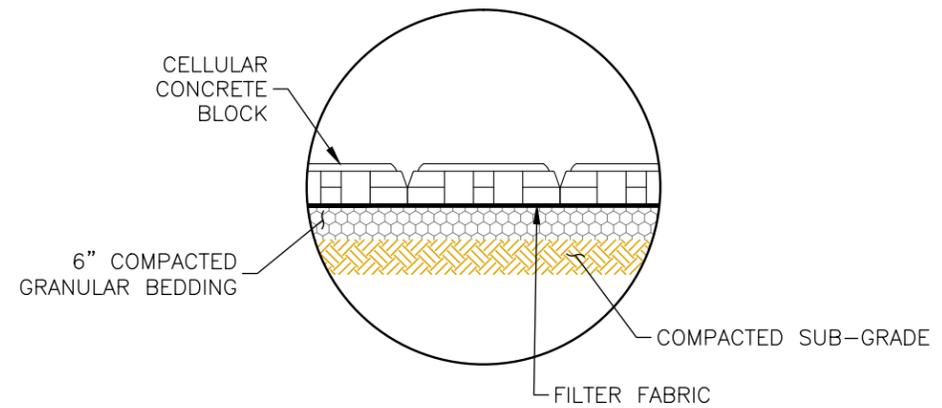


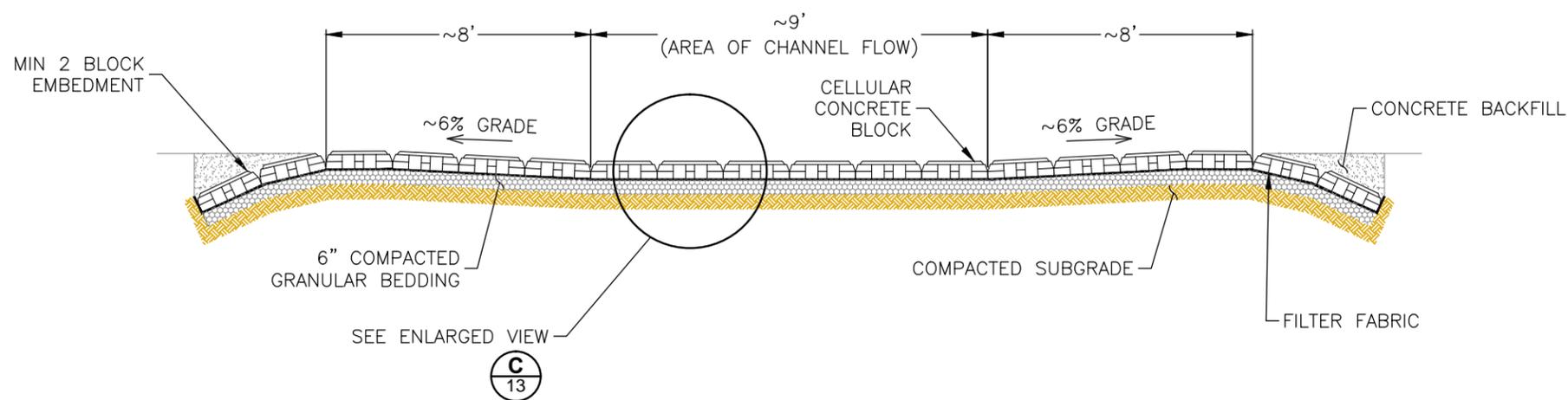
1 CELLULAR CONCRETE BLOCK LOW WATER CROSSING PLAN
SCALE: NONE



A CROSS SECTION A
SCALE: NONE



C ENLARGED VIEW
SCALE: NONE



B CROSS SECTION B
SCALE: NONE

Source: Adapted from Contech Engineering Solutions, LLC., ArmorFlex Water Crossing Standard Details, April 7, 2013

FILE: 21A-VI-LW-XING201506

CHKD. BY: MD ISSUED: 7/23/2015 REVISED:

DESIGN BY: DRT DRAWN BY: PC

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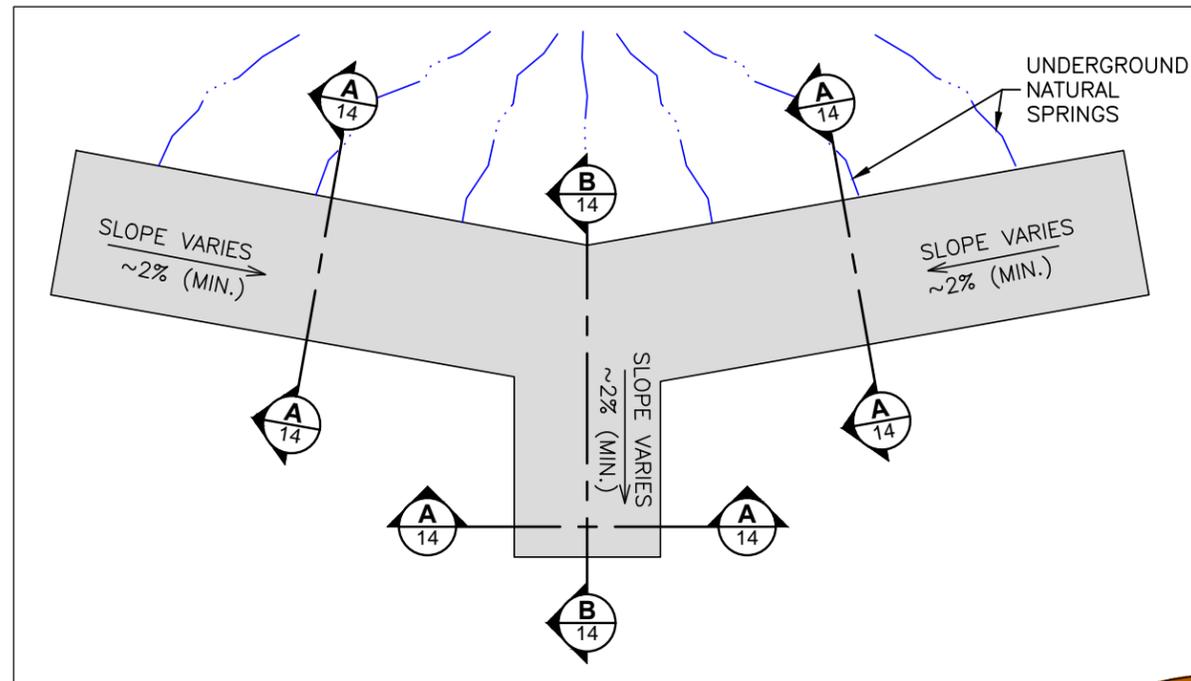


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AML RECLAMATION PROJECT

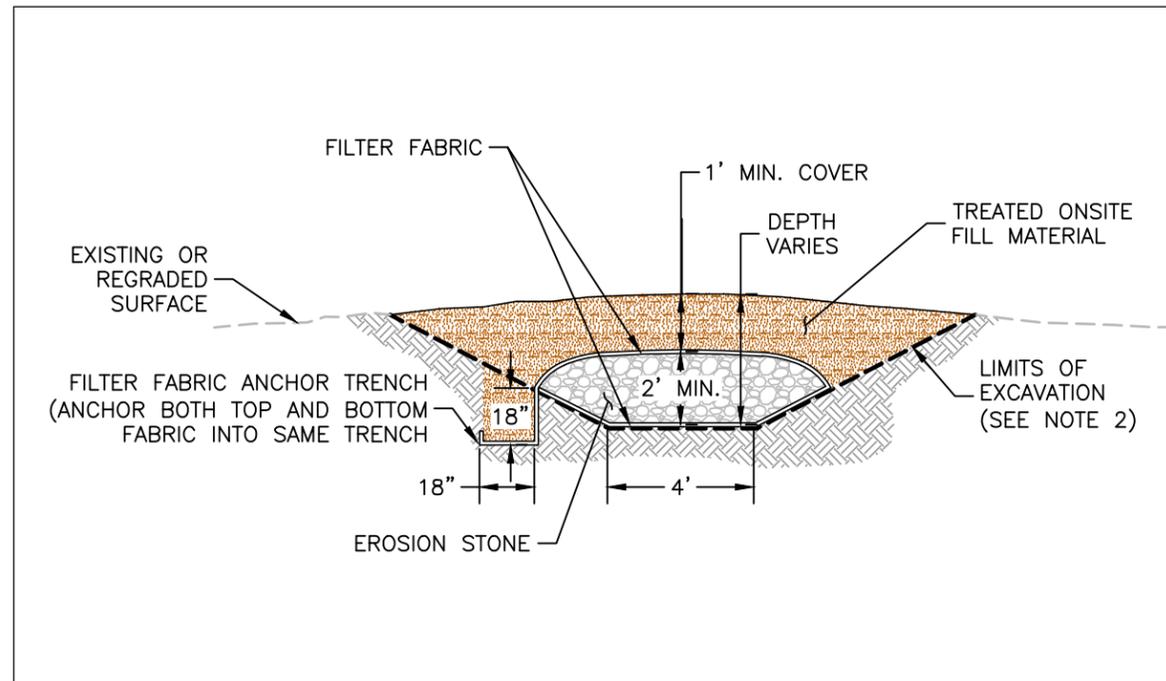
LOW WATER CROSSING DETAILS



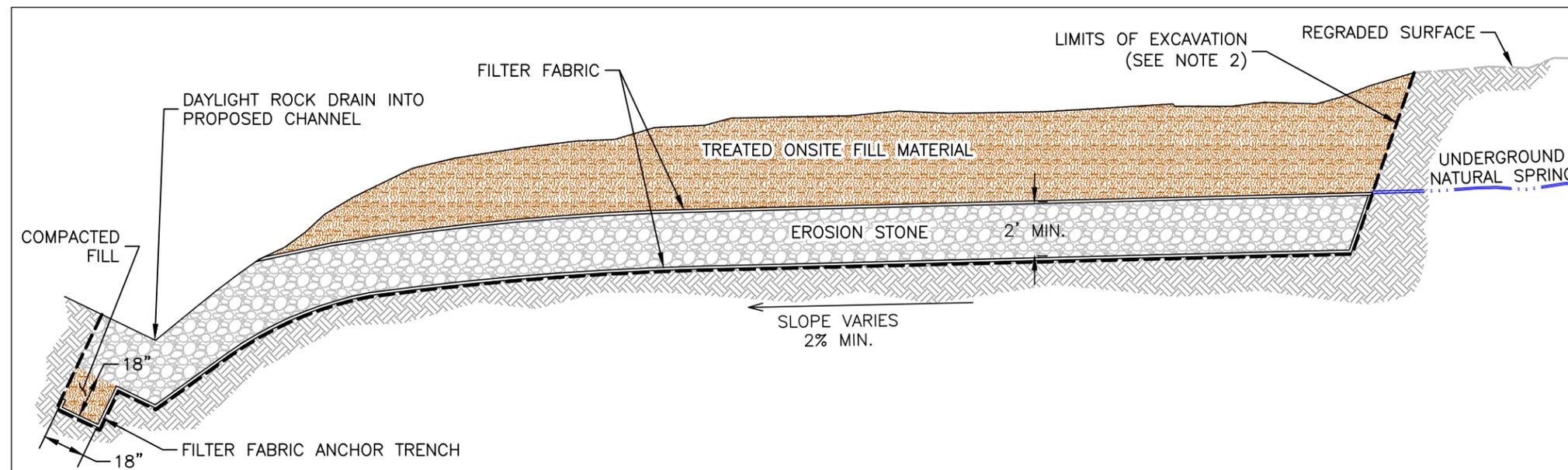
1 ROCK DRAIN PLAN VIEW
SCALE: NONE

NOTES:

1. FILTER FABRIC SHALL CONSIST OF AN EIGHT (8) OUNCE WOVEN GEOTEXTILE ACCEPTABLE TO THE ENGINEER.
2. THE LIMITS OF THE EXCAVATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER BASED ON FIELD CONDITIONS.



A ROCK DRAIN CROSS SECTION
SCALE: NONE



B ROCK DRAIN PROFILE
SCALE: NONE

FILE: 21A-VLDETAILS2-201506

ISSUED: 7/23/2015

CHKD. BY: MD

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DRAWN BY: PC

REVISIONS:

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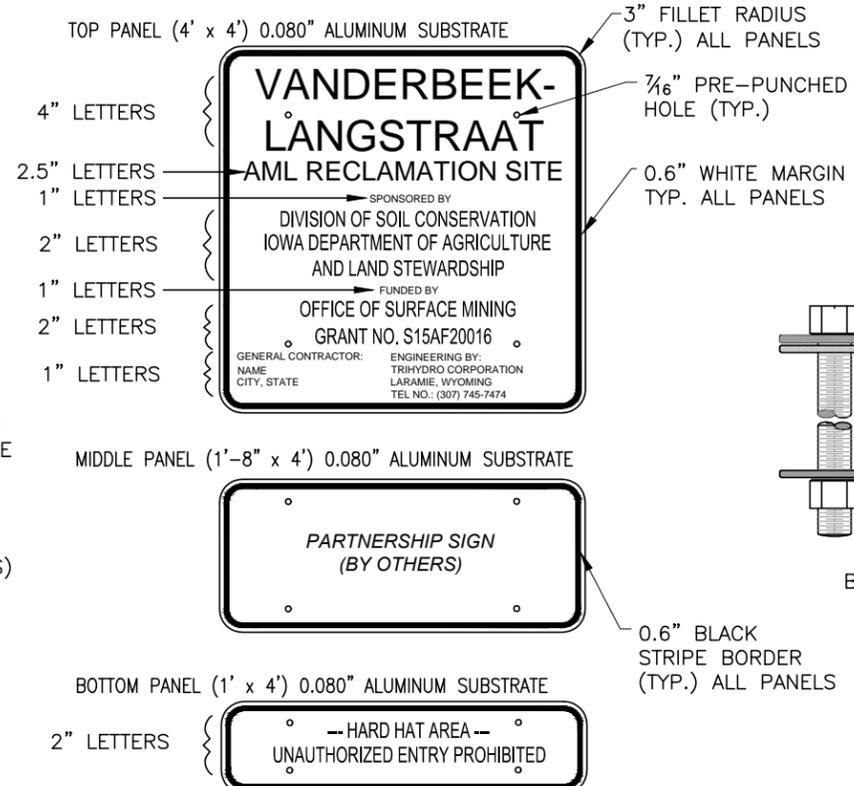
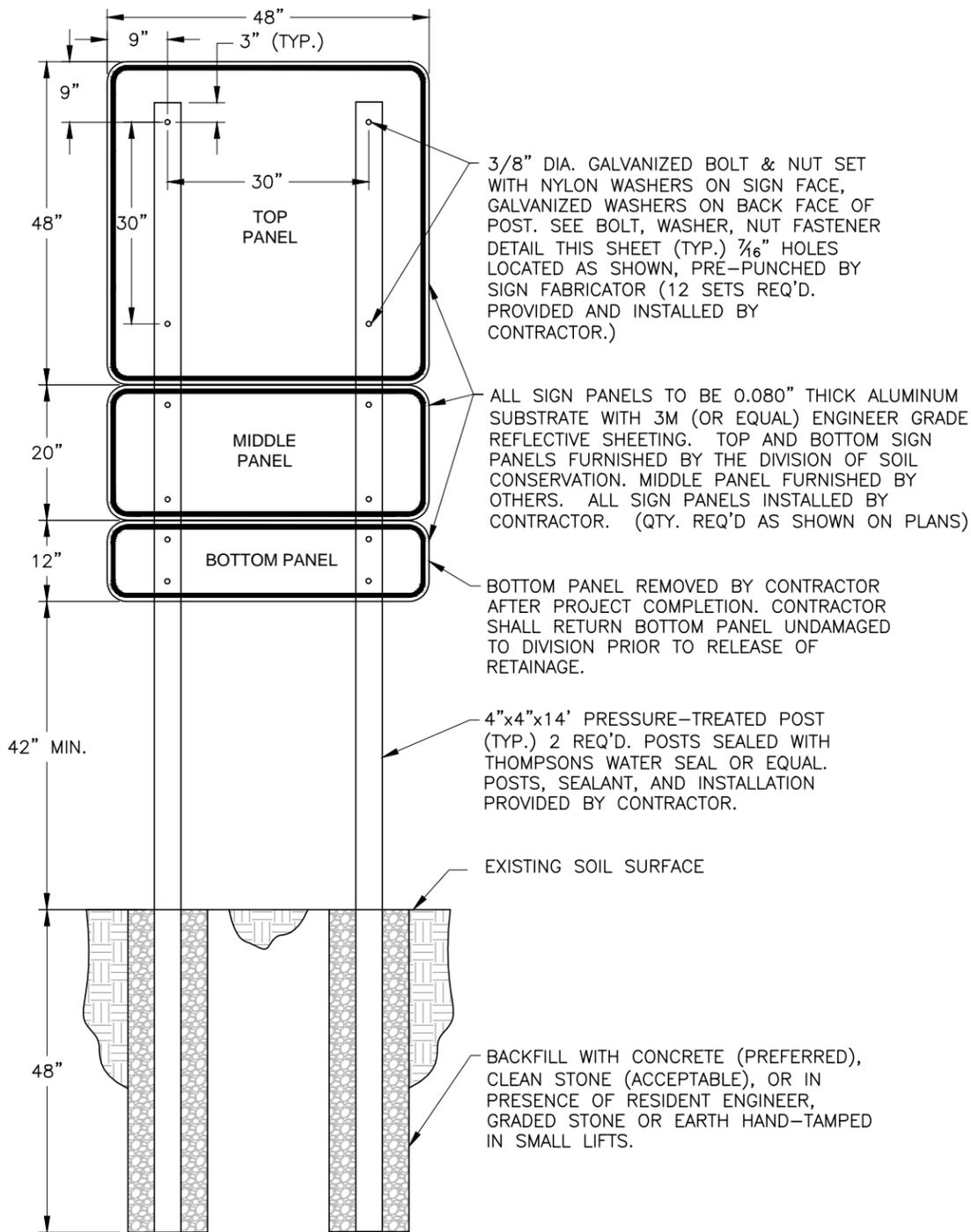


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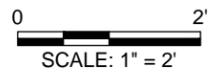
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ROCK DRAIN DETAILS



SIGNAGE NOTES:

- LETTERING AND SIGN FABRICATION SHALL BE PERFORMED BY A PROFESSIONAL SIGN MAKER.
- SIGN PANELS SHALL BE COVERED WITH WHITE, 3M ENGINEER GRADE PRISMATIC REFLECTIVE SHEETING SERIES 3430, OR EQUAL, MEETING ASTM D4956 TYPE I. SHEETING SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS.
- LETTERING SHALL BE BLACK. INK FOR LETTERING SHALL BE 3M SERIES 880N OR EQUAL APPLIED PER MANUFACTURER'S RECOMMENDATIONS.
- LETTERING AND LINE SPACING SHALL BE ADJUSTED TO AVOID INTERFERENCE WITH PRE-PUNCHED HOLES.
- LETTERING AND SHEETING MUST HAVE A MINIMUM 5-YEAR PERFORMANCE WARRANTY AGAINST PEELING AND CRACKING.
- ALL EXPOSED WOOD SHALL BE SEALED WITH THOMPSONS WATER SEAL OR EQUAL MEETING ASTM D-4446-08.
- ALL HARDWARE SHALL BE GALVANIZED OR RUST RESISTANT.
- NYLON AND STEEL WASHERS SHALL BE USED AS SHOWN ON THE BOLT, WASHER, NUT FASTENER DETAIL ABOVE.
- CLEAR UTILITIES WITH IOWA ONE-CALL (800) 292-8989 BEFORE EXCAVATING FOR POSTS.
- SECURE ENGINEERS APPROVAL FOR SIGN LOCATION BEFORE INSTALLATION.
- COSTS FOR POSTS, HARDWARE, WOOD SEALANT AND SIGN INSTALLATION SHALL BE INCIDENTAL TO MOBILIZATION.
- ONE (1) PROJECT SIGN IS REQUIRED, LOCATED AS SHOWN ON PLANS



Source: OSM Grant Sign detail

DESIGN BY: DRT DRAWN BY: PC CHKD. BY: MD ISSUED: 7/23/2015 REVISED: FILE: 21A-VL-SIGNAGE201408

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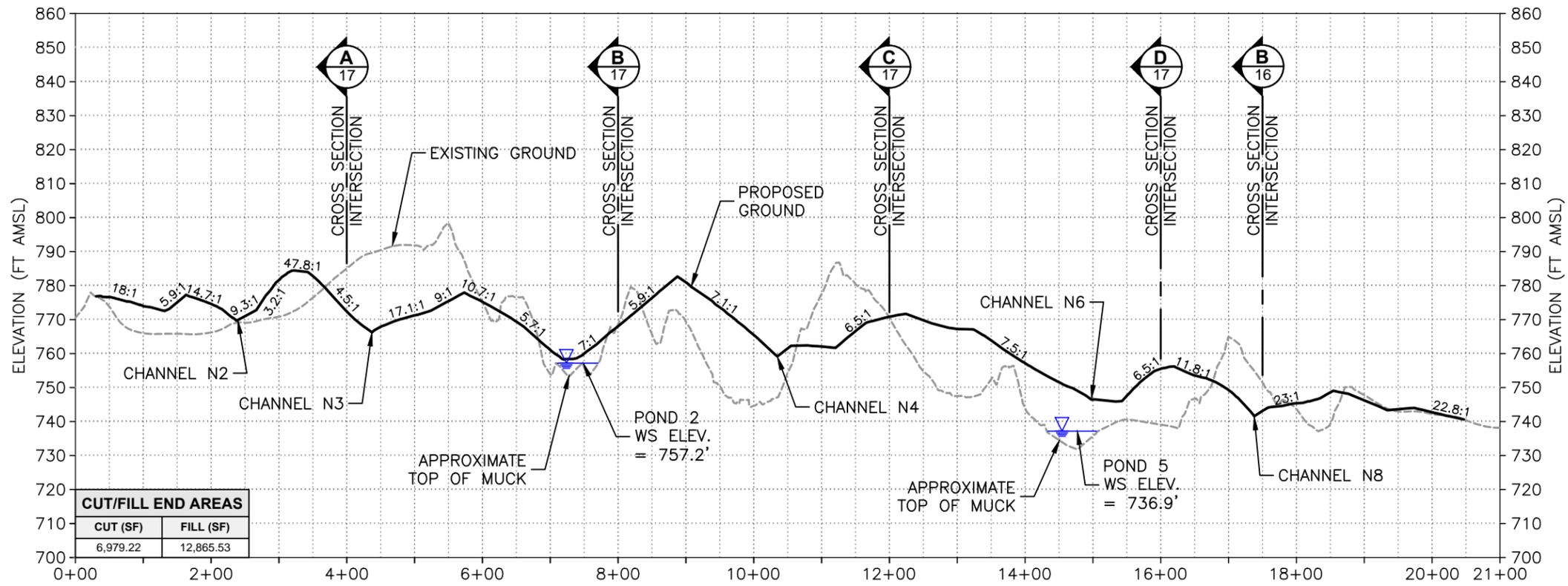
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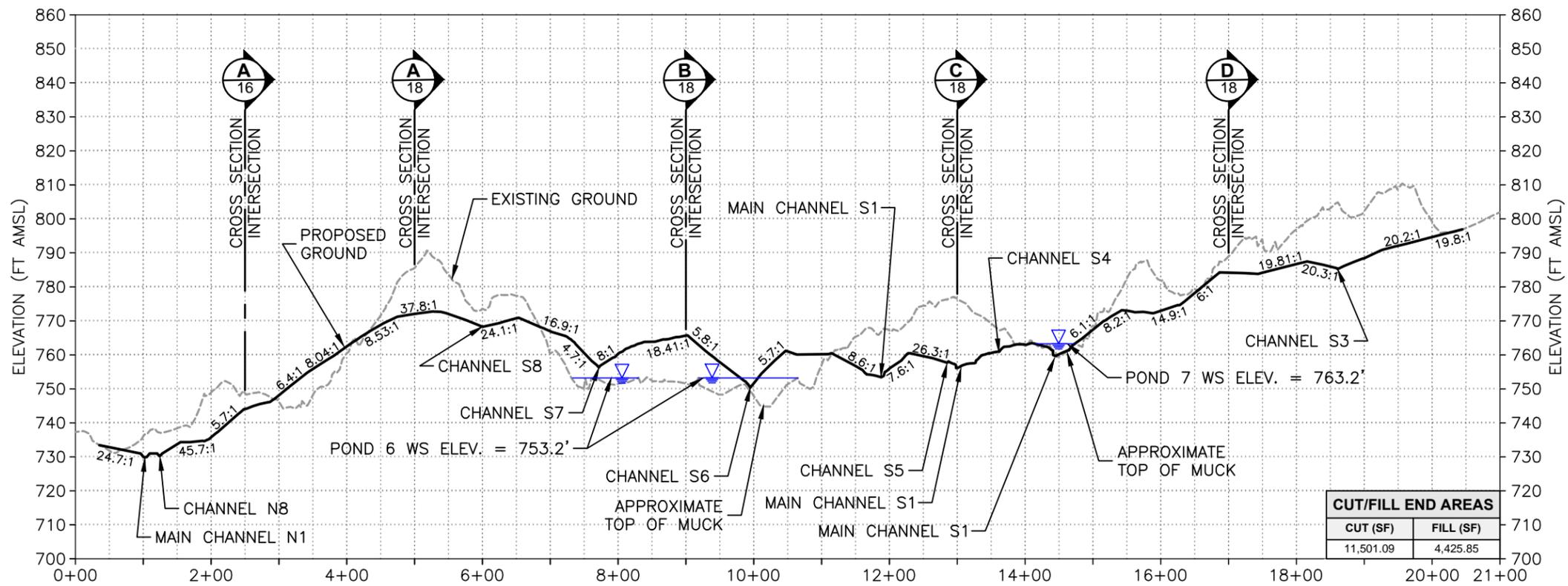
PROJECT SIGNAGE DETAILS

SHEET
15 OF 21

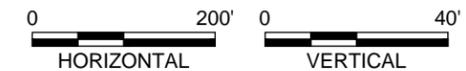
NOTE:
WATER SURFACE ELEVATIONS
SURVEYED MAY 2014



A NORTH-SOUTH CROSS SECTION A-A
SCALE H: 1" = 200' V: 1" = 40'



B EAST-WEST CROSS SECTION B-B
SCALE H: 1" = 200' V: 1" = 40'



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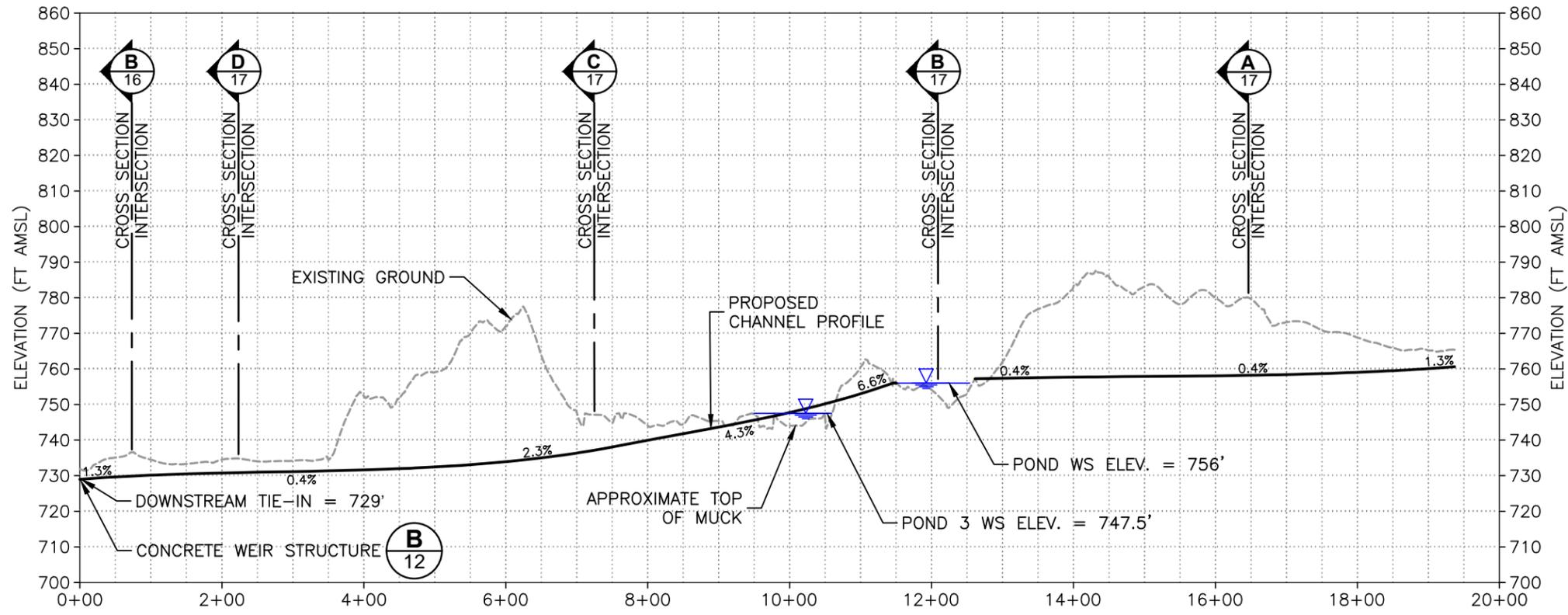


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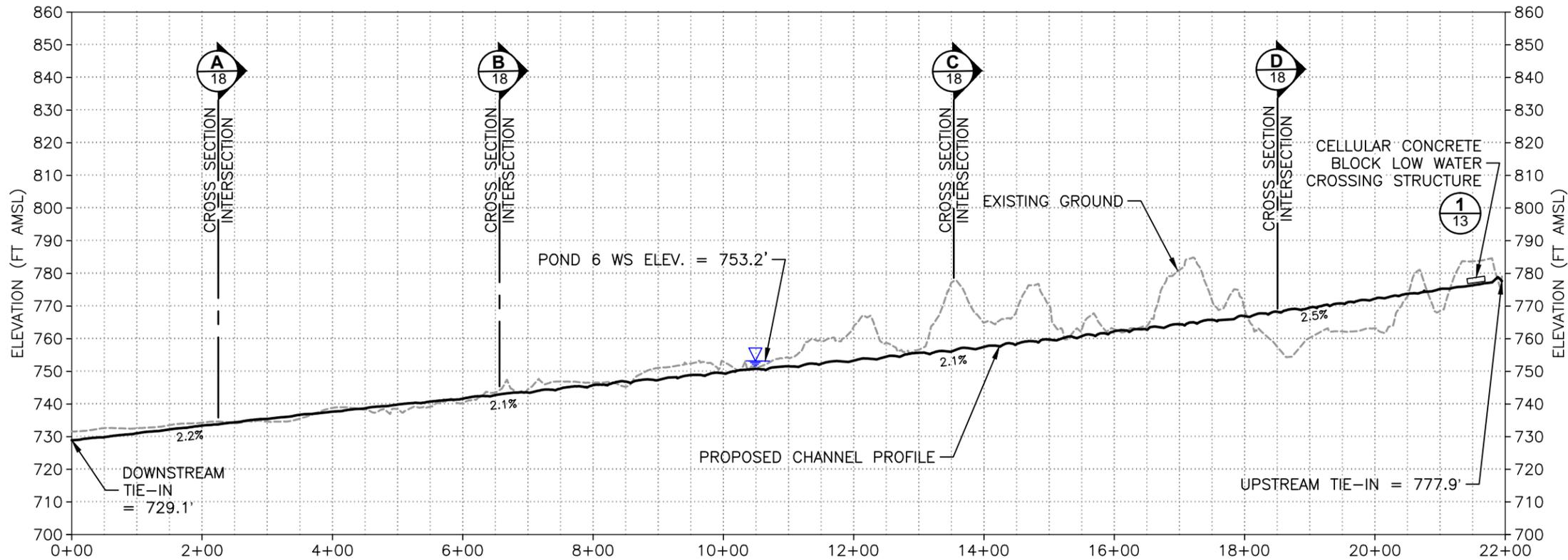


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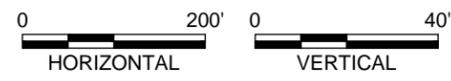
CROSS SECTIONS 1 OF 3



A MAIN CHANNEL PROFILE N1 (SOUTH-NORTH)
SCALE H: 1" = 200' V: 1" = 40'



B CHANNEL S1 PROFILE (WEST-EAST)
SCALE H: 1" = 200' V: 1" = 40'



NOTE:
WATER SURFACE ELEVATIONS
SURVEYED MAY 2014

CHANNEL S1 SLOPES TABLE			
STATIONS		SLOPES (%)	
		CHANNEL S1	LOW FLOW PILOT CHANNEL
22+00	16+00	2.5	2.4
16+00	10+00	2.1	1.9
10+00	4+00	2.1	1.8
4+00	0	2.2	2.0

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VANDEBEEK-LANGSTRAAT
AML RECLAMATION PROJECT

CHANNEL PROFILES

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

SITE INFORMATION:

- SITE IS LOCATED IN THE SW1/4, SECTION 34, TOWNSHIP 74N, RANGE 15W, AND NW1/4, SECTION 3, TOWNSHIP 73N, RANGE 15W, MAHASKA AND WAPELLO COUNTIES, IOWA.
- THIS STORMWATER POLLUTION PREVENTION PLAN (SWPPP) COVERS RECLAMATION OF APPROXIMATELY 45.5 ACRES OF A FORMER SURFACE MINE.
- THE PREDOMINATE SOIL TYPES ACCORDING TO THE NATURAL RESOURCE CONSERVATION SERVICE ON-LINE WEB SOIL SURVEY INCLUDE: LADOGA SILT LOAM WITH SLOPES VARYING FROM 2% TO 14% (76B, 76C, & 76D), MINE PITS AND DUMPS (502), COLO-ELY SILTY CLAY LOAMS (11B), HEDRICK SILT LOAM (571C), OTLEY SILTY CLAY LOAM (281C), AND GIVIN SILT LOAM (75).
- THE AVERAGE RUNOFF COEFFICIENT FOR THIS LAND AFTER PERMANENT VEGETATION IS ESTIMATED TO BE 0.34.
- RUNOFF FROM THE CONSTRUCTION AREA WILL FLOW INTO AN UNNAMED TRIBUTARY OF BROWN CREEK WHICH ULTIMATELY FLOWS INTO THE DES MOINES RIVER.

GENERAL:

- THIS SWPPP WAS DEVELOPED IN COMPLIANCE WITH THE IOWA DEPARTMENT OF NATURAL RESOURCES NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT NO. 2 (PERMIT) TO DISCHARGE STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (EFFECTIVE OCTOBER 1, 2012 THROUGH OCTOBER 1, 2017).
- IN THE EVENT OF CONFLICT BETWEEN THESE REQUIREMENTS AND STORMWATER POLLUTION CONTROL LAWS, RULES, OR REGULATIONS OF OTHER STATE, OR LOCAL AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION, MONITORING, INSPECTION, AND MAINTENANCE OF ALL BEST MANAGEMENT PRACTICES (BMPs) AS REQUIRED BY THE PERMIT AND THIS SWPPP.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION AND COMPLIANCE OF THE SWPPP FOR THE ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH ALL ITS SUBCONTRACTORS.
- THE CONTRACTOR AND ALL ITS SUBCONTRACTORS SHALL LIMIT THE SITE DISTURBANCE TO THAT NECESSARY TO ADEQUATELY ADDRESS PHYSICAL AND ENVIRONMENTAL HAZARDS OF THE PROJECT; VEGETATED AREAS SHALL BE LEFT UNDISTURBED WHEN PRACTICAL TO AID IN MINIMIZING EROSION AND PREVENTING SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.
- THE WORK SHALL BE COMPLETED IN ACCORDANCE WITH THIS SWPPP, THE CONTRACT DRAWINGS, AND SECTION 02120 OF THE CONSTRUCTION SPECIFICATIONS.
- A COPY OF THE SWPPP SHALL BE KEPT AT THE CONSTRUCTION SITE FROM THE TIME CONSTRUCTION BEGINS UNTIL THE SITE REACHES FINAL STABILIZATION IN A CONTRACTOR-SUPPLIED, WEATHER-PROTECTED ENCLOSURE SUCH AS A MAILBOX OR CONSTRUCTION TRAILER, SO THAT THE PLAN IS ACCESSIBLE AT THE SITE AT ALL TIMES. A SIGN OR NOTICE POSTED BY THE CONTRACTOR SHALL INDICATE THE PLAN'S LOCATION.
- THE CONTRACTOR SHALL NOTIFY THE IOWA DNR, THE DIVISION, AND THE LOCAL POLICE DEPARTMENT OF ANY HAZARDOUS CONDITIONS AS SOON AS POSSIBLE BUT NOT MORE THAN 6 HOURS AFTER ONSET OF HAZARDOUS CONDITIONS. HAZARDOUS CONDITIONS ARE DEFINED AS ANY SITUATION INVOLVING THE ACTUAL, IMMINENT, OR PROBABLE SPILLAGE, LEAKAGE, OR RELEASE OF A HAZARDOUS SUBSTANCE ONTO THE LAND, INTO WATERS OF THE STATE, OR INTO THE ATMOSPHERE, WHICH CREATES AN IMMEDIATE OR POTENTIAL DANGER TO THE PUBLIC HEALTH OR SAFETY OR THE ENVIRONMENT.
- CONTRACTOR SHALL FOLLOW THE IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL (UPDATED 2006).

EROSION CONTROLS:

- AS INDICATED IN PART 2D-3 SECTION D OF IOWA'S STORMWATER MANAGEMENT MANUAL, THE DESIGN STORM USED FOR SIZING OF STRUCTURAL STORMWATER CONTROLS SHALL BE DESIGNED TO ALSO WITHSTAND AND FUNCTION PROPERLY DURING THE SMALLER, MORE FREQUENT EVENTS (SMALLER THAN THE 1-YEAR STORM).
- ON-SITE ACCESS ROAD WILL SERVE AS VEHICLE TRACKING CONTROL. TRAVEL WITHIN THE SITE SHALL BE RESTRICTED TO EXISTING ROADS, DESIGNATED WORK AREAS, AND TEMPORARY ACCESS ROADS. SITE ACCESS ROADS SHALL BE MAINTAINED TO LIMIT OFF-SITE SEDIMENT TRACKING. ON AND OFF SITE TRACKING OF MUD SHALL BE REMOVED AS NECESSARY. THE SITE ACCESS IS ONTO A DIRT, COUNTY ROAD.
- DUST RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE SUPPRESSED USING A WATER TRUCK AS NECESSARY FOR THE DURATION OF THE CONTRACT PERIOD.
- WATER DISCHARGED FROM THE EXISTING PITS AND WATER PUMPED DURING CONSTRUCTION OPERATION SHALL BE HANDLED IN A PROPER MANNER. EROSION AND SCOUR SHALL BE PREVENTED AT DISCHARGE POINTS. LEVEL SPREADERS, RIP-RAP, AND/OR OTHER ENERGY ABSORBING DEVICES OR APPROPRIATE BMPs SHALL BE USED.
- WHERE PRACTICABLE, SILT FENCE SHALL BE INSTALLED ALONG THE DOWNHILL BOUNDARY OF THE CONSTRUCTION AREA PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITY. DIVERSION DITCHES AND TEMPORARY SEDIMENT TRAPS SHALL BE USED UNTIL THE SILT FENCE IS INSTALLED OR OTHER PRACTICES CAN BE INSTALLED IN AREAS WHERE THE SILT FENCE WILL INTERFERE WITH CONSTRUCTION.
- WATTLES SHALL BE INSTALLED ACROSS THE RECLAIMED SITE IN CONSTRUCTED CHANNELS TO REDUCE VELOCITIES AND TO CAPTURE SEDIMENT PRIOR TO STORMWATER REACHING OUTFALL LOCATIONS.
- LOCATIONS AND QUANTITIES OF SILT FENCE, WATTLES, OR OTHER BMPs SHOWN ON THE PLAN ARE APPROXIMATE. ACTUAL LOCATIONS OR QUANTITIES ARE TO BE DETERMINED IN THE FIELD WITH THE APPROVAL OF THE DIVISION OR THE ENGINEER.
- AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY, AS DETERMINED BY THE DIVISION OR ENGINEER AFTER INVESTIGATION, SHALL BE FURNISHED, INSTALLED AND MAINTAINED BY THE CONTRACTOR.
- STABILIZATION MEASURES SHALL BE INITIATED ON DISTURBED AREAS THAT WILL NOT BE REDISTURBED FOR 21 DAYS OR MORE BY THE 14TH DAY AFTER DISTURBANCE (UNLESS THE GROUND IS FROZEN OR SNOW COVERED) BY SURFACE ROUGHENING, TEMPORARY SEEDING, OR OTHER APPROVED METHOD FOUND UNDER THE PERMIT.
- PERMANENT SITE STABILIZATION WILL OCCUR FOLLOWING FINISH GRADING OF THE SITE. THE SITE IS AN ABANDONED COAL MINE RECLAMATION PROJECT; NO TOPSOIL EXISTS PRIOR TO RECLAMATION-RELATED CONSTRUCTION ACTIVITIES. THEREFORE, THE TOPSOIL PRESERVATION REQUIREMENT WILL NOT BE MET. THE SITE CONSISTS OF MINE SPOIL MATERIAL CLASSIFIED AS MINE PITS AND DUMPS - SOIL TYPE 502 ON USDA SOIL SURVEY MAPS. AFTER FINAL GRADE IS ACHIEVED, AGRICULTURAL LIME WILL BE APPLIED AT A RATE TO BE DETERMINED BY SOIL TESTS. THE AGRICULTURAL LIME, ALONG WITH 5 TONS OF MULCH WILL BE INCORPORATED INTO THE UPPER ONE (1) FOOT OF THE MINE SPOIL TO PRODUCE A GROWING MEDIUM AS OUTLINED IN PROJECT SPECIFICATION 02400. AFTER A PERIOD OF TIME TO ALLOW FOR NEUTRALIZATION AND MULCH DECOMPOSITION, THE SITE WILL BE PREPARED FOR SEEDING. AGRICULTURAL LIME, FERTILIZER, SEED AND CRIMPED MULCH WILL BE APPLIED AS OUTLINED IN PROJECT SPECIFICATION 02700. FOLLOWING APPLICATION OF SEED, WATTLES SHALL BE INSTALLED IN CONSTRUCTED CHANNELS AS SHOWN ON THE PLAN.

11. ALL AREAS DISTURBED BEYOND CONSTRUCTION LIMITS SHOWN ON THIS PLAN MUST BE SEED AND STABILIZED USING A MIXTURE THAT INCLUDES SPECIES SIMILAR AND COMPATIBLE WITH THE SURROUNDING VEGETATION.

OTHER POLLUTION CONTROLS:

- THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE FREE OF ALL WASTES GENERATED BY CONSTRUCTION ACTIVITIES. SOLID, HAZARDOUS, AND SANITARY WASTES GENERATED ON SITE SHALL BE TREATED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS.

INSPECTIONS:

- A QUALIFIED INDIVIDUAL PROVIDED BY THE CONTRACTOR, DIVISION, OR ENGINEER SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT REACHED "FINAL STABILIZATION" ONCE EVERY 7 DAYS AND WITHIN 24 HOURS FROM THE END OF A STORM PRODUCING PRECIPITATION 0.5 INCHES OR GREATER.
- AN INSPECTION AND MAINTENANCE CHECKLIST WILL BE PROVIDED BY THE ENGINEER AND INCLUDED IN THIS SWPPP FOR EACH CONTROL MEASURE PRIOR TO CONSTRUCTION.
- INSPECTIONS SHALL INCLUDE:
 - ALL SILT FENCES, WATTLES, AND ALL OTHER EROSION CONTROL DEVICES.
 - AREAS DISTURBED BY CONSTRUCTION ACTIVITY OR USED FOR STORAGE OF MATERIALS WHICH ARE EXPOSED TO PRECIPITATION.
 - POLLUTION CONTROL MEASURES TO ENSURE PROPER OPERATION.
 - OUTFALLS TO DETERMINE EFFECTIVENESS IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS.
 - TEMPORARY AND PERMANENT SEEDING AREAS.
 - LOCATION WHERE VEHICLES AND EQUIPMENT ENTER AND EXIT THE SITE FOR EVIDENCE OF OFF-SITE TRACKING.
- INSPECTION REPORTS SHALL INCLUDE: DATE, NAME, AND TITLE/POSITION OF THE INSPECTOR; WEATHER INFORMATION; LOCATION OF SEDIMENT/POLLUTANT DISCHARGE; CONTROL MEASURES (A) REQUIRING MAINTENANCE, (B) THAT HAVE FAILED, AND (C) THAT ARE NEEDED; AND CORRECTIVE ACTIONS REQUIRED INCLUDING CHANGES/UPDATES TO THE SWPPP.
- SITE INSPECTION REPORTS SHALL BE PROPERLY SIGNED AND CERTIFIED BY THE PERSON CONDUCTING THE INSPECTION.
- THE FINDINGS OF EACH INSPECTION SHALL BE RECORDED AND KEPT AT THE SITE IN A PROJECT FILE. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND AND HAVE THEM COMPLETED WITHIN 3 WORKING DAYS OF THE INSPECTION.
- THE SWPPP MAY BE REVISED BASED ON FINDINGS FROM THE INSPECTIONS THAT DEEM BMPs INEFFECTIVE OR WHERE CHANGES AT THE SITE EFFECT DISCHARGE TO EXISTING WATER BODIES. REVISIONS SHALL BE MADE WITHIN 7 DAYS OF THE INSPECTIONS. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS.
- COPIES OF INSPECTION REPORTS SHALL BE RETAINED WITH THE SWPPP FOR 3 YEARS FROM DATE PERMIT COVERAGE TERMINATES.

MAINTENANCE:

- THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES IN PROPER OPERATION CONDITION FOR THE DURATION OF THE PROJECT. IF A MEASURE IS NO LONGER NEEDED AS DETERMINED BY THE DIVISION OR ENGINEER, IT SHALL BE REMOVED.
- MAINTENANCE INCLUDES CLEANING, REPAIRING, OR REPLACING AS REQUIRED.
- SEDIMENT SHALL BE REMOVED FROM SILT FENCES, WATTLES, AND OTHER CONTROL MEASURES WHEN IT HAS REACHED ONE-HALF OR MORE OF THE EXPOSED HEIGHT OF THE BMP.
- SEDIMENT ACCUMULATING OFF-SITE SHALL BE REMOVED AND RETURNED TO THE SITE FOR PROPER DISPOSAL BY THE CONTRACTOR.

SEQUENCE OF ACTIVITIES:

CONSTRUCTION IS PLANNED TO COMMENCE IN THE FALL OF 2015 WITH A POSSIBLE WINTER SHUTDOWN (WEATHER DEPENDENT). GENERAL SEQUENCES OF MAJOR ACTIVITIES INCLUDE:

- INSTALLING SILT FENCE AND WATTLES DOWNSLOPE OF PROPOSED DISTURBANCE AREAS INCLUDING THE STAGING AREA.
- ESTABLISHING THE STAGING AREA, INCLUDING STRIPING AND STOCKPILING COVERSIL AND ESTABLISHMENT OF CONTAINMENT AREAS.
- CLEARING AND GRUBBING OF LARGE VEGETATION.
- COMMENCING DEWATERING OF WATER-FILLED PITS.
- COMMENCING BACKFILLING OF THE PITS AND REGRADING OF THE HIGHWALLS AND SPOIL PILES.
- EXCAVATING AND SPOT GRADING OF OUTLYING AREAS.
- FINISH GRADING DISTURBED AREAS.
- TREATING SUBGRADE SOILS WITH LIME AND MULCH.
- REESTABLISHING AFFECTED FENCE.
- PERFORMING REVEGETATION PROCEDURES, INCLUDING DISKING, APPLYING LIME AND FERTILIZER, SEEDING WITH THE APPROPRIATE SEED MIX, AND MULCHING.
- REMOVING SILT FENCE FROM DOWNSLOPE OF THE RECLAIMED STAGING AREA; OTHER, BIODEGRADABLE BMPs WILL REMAIN IN PLACE WHILE THE SITE STABILIZES AND VEGETATION IS ESTABLISHED.
- REMOVING OF TEMPORARY PERIMETER CONTROLS ONCE ALL UPSTREAM AREAS ARE FINALLY STABILIZED.

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ISSUED:

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CHKD. BY:

PC

DRAWN BY:

DRT

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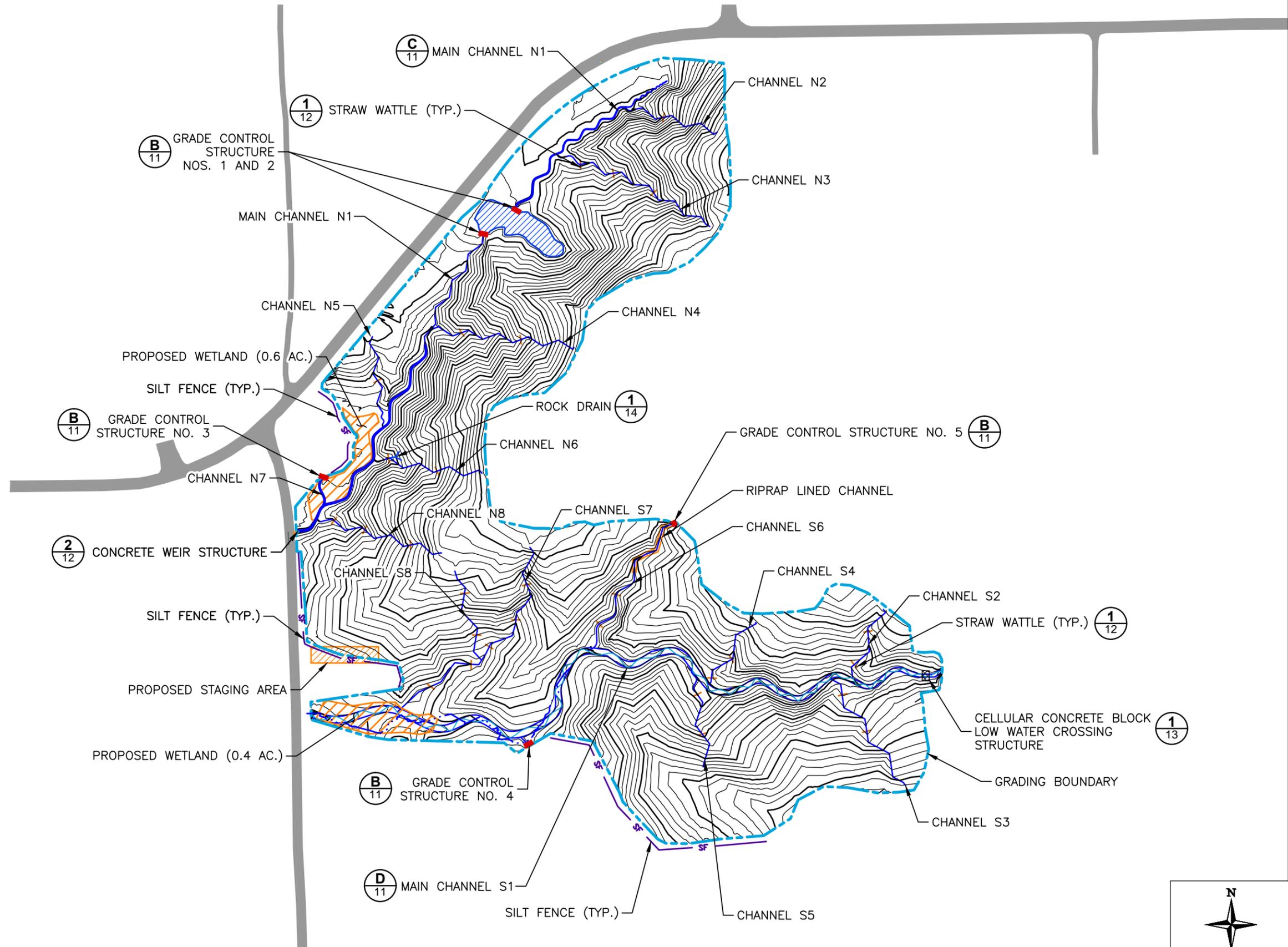
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VANDERBEEK-LANGSTRAAT
AML RECLAMATION PROJECT

SWPPP DESCRIPTION

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)



FILE: 21A-VL-SWPP201408

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ISSUED: 7/23/2015

CHKD. BY: MD

DRAWN BY: PC

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SWPPP DESIGN

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