



Public Notice

U.S. ARMY CORPS OF ENGINEERS

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Subject: Public Notice of Permit Application

Action ID: NWO-2018-01193-BIS

Comments Period: August 6, 2018 – August 27, 2018

SUBJECT: The U.S. Army Corps of Engineers, Omaha District, (Corps) is evaluating a permit application to improve a one mile section of the Sheyenne Diversion Channel, which would result in impacts to approximately 6.8 acres of waters of the United States, including wetlands. This notice is to inform interested parties of the proposed activity and to solicit comments. This notice may also be viewed at the Corps web site at

<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/NorthDakota/PublicNotices.aspx>

AUTHORITY: This application is being evaluated under Section 404 of the Clean Water Act for the discharge of dredged or fill material in waters of the United States.

APPLICANT: Southeast Cass Water Resource District
Attn: Ms. Carol Harbeke Lewis, Sec/Treas
1201 Main Avenue West
West Fargo, North Dakota 58078

LOCATION: The mile-long, 6.8 acre, project site is located in the Sheyenne Diversion Channel in the W½ of Section 6, Township 138 North, Range 49 West, Latitude 46.79806° North, Longitude -96.92597° West, Cass County, North Dakota and can be seen on the West Fargo South USGS Topographic Quadrangle. The project is located between 52nd Avenue West and 64th Avenue South, and one mile west of Sheyenne Street.

PROJECT DESCRIPTION: The applicant proposes to utilize 2,900 cubic yards of clay, filter fabric and 11,000 cubic yards of Class II riprap to restore the design grade of one mile of the channel. In addition, the applicant proposes to remove silt and sediment that has built up on the channel slopes. The top of the riprap will be placed at design grade. Based on the available information, the overall project purpose is to restore the channel to its original cross section and elevation. The purpose of the riprap is to prevent further deterioration due to frequent and extended use. The attached drawings provide additional project details.

ADDITIONAL INFORMATION:

Environmental Setting. The Sheyenne River Diversion is a Federal Flood Control Project constructed by the Corps of Engineers, St. Paul District, in the early 1990s. The channel is surrounded by farm fields and sporadic farmsteads, but the area is systematically being converted to residential subdivisions. Two and a-half miles of channel south of this project were stabilized during original construction. The section currently proposed to be stabilized was included in the original design; however, it was not completed prior to close-out of the

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construction contract. The stabilized portion of channel is not devoid of vegetation and it is expected the section proposed to be riprapped would react in the same manner.

Alternatives. No alternatives analysis was provided with the application, nor is one necessary prior to issuance of a public notice. The analysis required by the 404(b)(1) Guidelines would likely include the current alternative, No Action (does not mean that no work would be done, only that no work requiring authorization would occur) and Other On-Site Designs. Off-site Alternatives will not be considered as the project is site specific. Additional information concerning project alternatives may be available from the applicant or their agent. Other alternatives may develop during the review process for this permit application. All reasonable project alternatives, in particular those which may be less damaging to the aquatic environment, will be considered.

Mitigation. The Corps requires that applicants consider and use all reasonable and practical measures to avoid and minimize impacts to aquatic resources. If the applicant is unable to avoid or minimize all impacts, the Corps may require compensatory mitigation. No mitigation has been proposed by the applicant.

OTHER GOVERNMENTAL AUTHORIZATIONS: Water quality certification or a waiver, as required under Section 401 of the Clean Water Act must be obtained from the North Dakota Department of Health, Division of Water Quality. A copy of this notice has been forwarded to the Department with a request for certification, if appropriate.

HISTORIC PROPERTIES: Based on the available information, the Corps preliminary determination of effect is that this project 'has little likelihood to cause effect' because all work will occur in a channel constructed by the Corps (St. Paul District) in the early 1990s. The Corps would have been required to comply with Section 106 of the National Historic Preservation Act at that time. The Corps will consider all comments in response to this public notice and consultation with the State Historic Preservation Officer will occur, if necessary.

ENDANGERED SPECIES: The project is located within the historic and/or current known ranges of the endangered Whooping crane (*Grus americanis*) and Gray wolf (*Canis lupus*) and the threatened Northern long-eared bat (*Myotis septentrionalis*). No critical habitat has been designated in Cass County. Our preliminary determination is that the proposed activity will have 'no effect' on the Northern long-eared bat. There are no trees, caverns or structures in the project area that provide suitable habitat. The project 'may affect' the Whooping crane and Gray wolf; however, the project is located in an area consisting of farmed fields that are slowly being replaced with rural, residential subdivisions. To reach a determination of 'not likely to adversely affect' Federally-listed endangered or threatened species the Corps proposes to include special conditions in a permit, if issued, requiring work to stop if any species are observed in the area. The condition would require both the Corps and US Fish and Wildlife Service to be notified, and construction would not be allowed to resume until the individuals have left the area and the permittee receives written notice to proceed from the Corps. The Corps will initiate consultation with the US Fish and Wildlife Service, pursuant to Section 7 of the Endangered Species Act, as appropriate.

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ESSENTIAL FISH HABITAT: The proposed project would not adversely affect Essential Fish Habitat (EFH) as defined in the Magnuson-Stevens Fishery Conservation and Management Act.

The above determinations are based on information provided by the applicant and our preliminary review.

EVALUATION FACTORS: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the described activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the described activity, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the described activity will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people. The activity's impact on the public interest will include application of the Section 404(b)(1) guidelines promulgated by the Administrator, Environmental Protection Agency (40 CFR Part 230).

The Corps is soliciting comments from the public, Federal, State, and local agencies and officials, Indian tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

SUBMITTING COMMENTS: Written comments, referencing Public Notice NWO-2018-1193-BIS must be submitted to the office listed below on or before **August 27, 2018**.

Toni Erhardt, Project Manager
US Army Corps of Engineers, Omaha District
North Dakota Regulatory Office
3319 University Drive
Bismarck, North Dakota 58504-7565

Email: Toni.R.Erhardt@usace.army.mil

The Corps is particularly interested in receiving comments related to the proposal's probable impacts on the affected aquatic environment and the secondary and cumulative effects. Anyone may request, in writing, that a public hearing be held to consider this application.

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Requests shall specifically state, with particularity, the reason(s) for holding a public hearing. If the Corps determines that the information received in response to this notice is inadequate for thorough evaluation, a public hearing may be warranted. If a public hearing is warranted, interested parties will be notified of the time, date, and location. Please note that all comment letters received are subject to release to the public through the Freedom of Information Act. If you have questions or need additional information please contact the applicant or the Corps' project manager Toni Erhardt at the above address, by phone at (701) 255-0015, extension 2003 or by email to Toni.R.Erhardt@usace.army.mil.

Attachments: 15 pages

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SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS - 2018

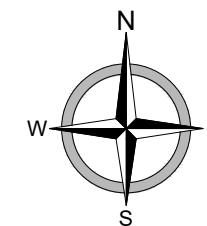
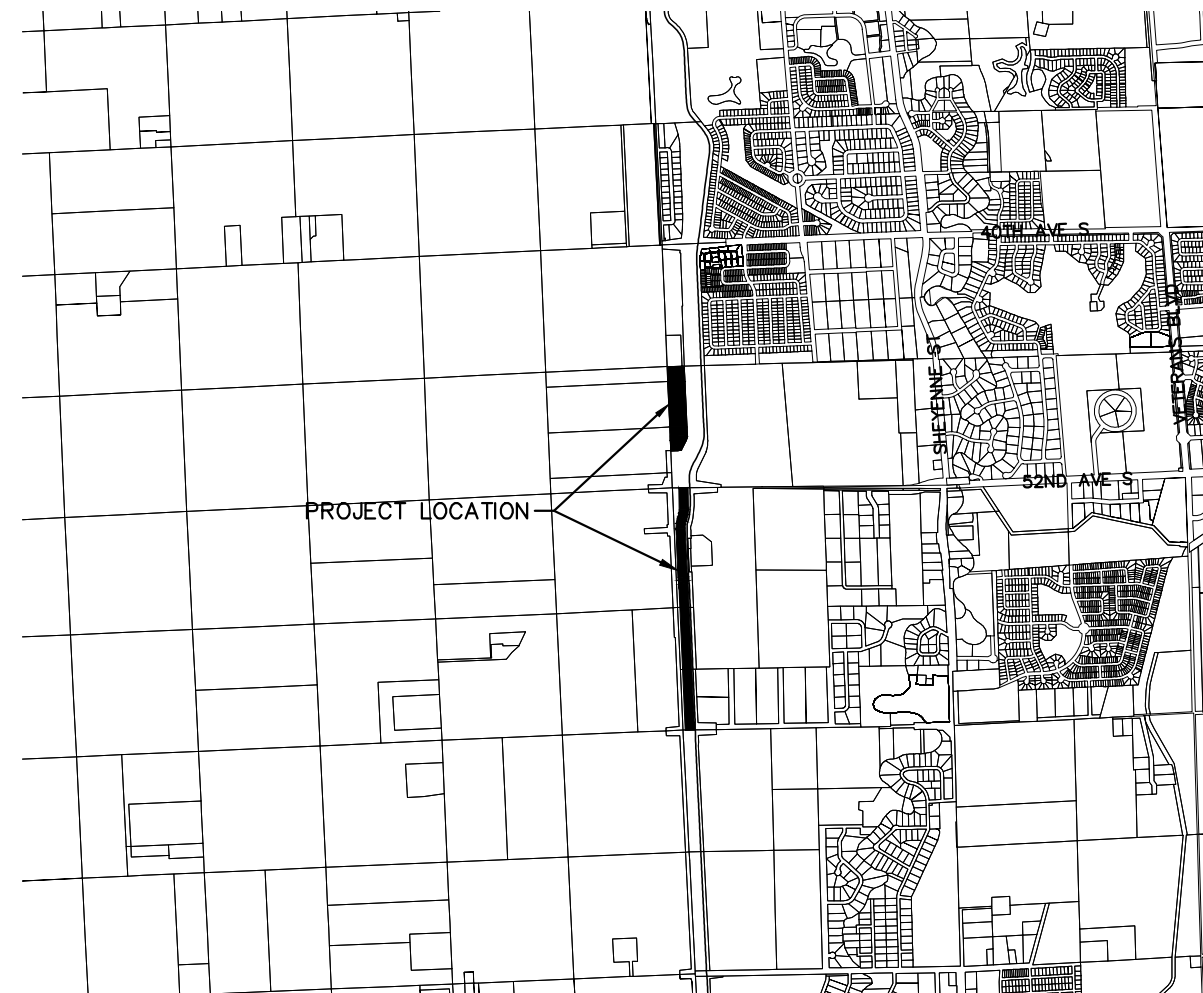


SOUTHEAST CASS WATER RESOURCE DISTRICT



CASS COUNTY, NORTH DAKOTA

VICINITY MAP



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RECORD:	----
PROJECT No.	19647
MANAGER:	CLE
DESIGNER:	BOB
DRAFTER:	RJK
REVIEWER:	KRL

G-002

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LEGEND

- BENCHMARK
- IRON MONUMENT FOUND
- EXISTING GAS LINE MARKER
- EXISTING GAS GATE VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING LIGHT POLE W/SIGN
- EXISTING GUY WIRE
- EXISTING TRAFFIC SIGNAL ARM
- EXISTING SIGN
- EXISTING CULVERT W/FLARED END SECTION (F.E.S.)
- EXISTING FLARED END SECTION (F.E.S.)
- EXISTING CURB STOP
- EXISTING HYDRANT W/GATE VALVE
- EXISTING GATE VALVE
- EXISTING FITTINGS
- EXISTING PLUG
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER CLEANOUT
- EXISTING STORM SEWER CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- EXISTING WATER MAIN
- EXISTING WATER SERVICE W/CURB STOP
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCEMAIN
- EXISTING SANITARY SEWER SERVICE
- EXISTING STORM SEWER
- EXISTING STORM SEWER FORCEMAIN
- EXISTING STEAM PIPE
- EXISTING AIR CONDITIONER
- EXISTING UTILITY PEDESTAL
- EXISTING UTILITY MANHOLE
- ABBREVIATIONS:**
- C = COMMUNICATION
- E = ELECTRICAL
- F = FIBER OPTIC
- T = TELEPHONE
- TV = TELEVISION
- TRANS = TRANSFORMER
- U = UTILITY (UNKNOWN UTILITY)
- EXISTING UNDERGROUND COMMUNICATIONS
- EXISTING UNDERGROUND FIBER
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD TELEPHONE
- EXISTING UNDERGROUND TELEVISION
- EXISTING OVERHEAD TELEVISION
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD POWER
- EXISTING BARBED WIRE FENCE
- EXISTING CHAIN LINK/STEEL FENCE
- EXISTING PVC/WOOD FENCE
- EXISTING SHRUB
- EXISTING STUMP
- EXISTING TREE/TREE CLUSTER
- EXISTING SPRINKLER HEAD
- EXISTING CLUSTER BOX UNIT (CBU)
- EXISTING CURB AND GUTTER
- CURB AND GUTTER REMOVAL & REPLACEMENT
- REMOVE EXISTING SURFACE
- EXISTING ASPHALT SURFACE
- EXISTING CONCRETE SURFACE
- EXISTING DECORATIVE COLORED CONCRETE
- EXISTING GRANULAR SURFACE
- EXISTING SIDEWALK/MULTI-USE PATH (UNKNOWN SURFACE)
- EXISTING LANDSCAPING
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- EXISTING WETLANDS
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- NEW FLARED END SECTION (F.E.S.)
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- NEW INFLOW CURB AND GUTTER (HIGHBACK)
- NEW OUTFLOW CURB AND GUTTER (HIGHBACK)
- NEW CURB PAINT
- NEW ASPHALT SURFACE
- NEW CONCRETE SURFACE
- NEW CONCRETE APPROACH/DRIVEWAY
- NEW DECORATIVE COLORED CONCRETE
- NEW GRANULAR SURFACE
- NEW CRUSHED CONCRETE SURFACE
- NEW CONCRETE SIDEWALK/MULTI-USE PATH
- NEW DETECTABLE WARNING PANEL
- NEW RIPRAP
- NEW PERMANENT POOL
- NEW LANDSCAPING
- MILLING - 2" UNIFORM
- MILLING - 2" TAPERED
- ASPHALT PATCH
- LEVELING COURSE
- OVERLAY
- CHIPSEAL AND FOG COAT
- NEW CONCRETE VALLEY GUTTER
- NEW MEDIAN NOSE APRON
- NEW ADA RAMP W/WARNING PANEL
- NEW CLUSTER BOX UNIT (CBU)
- NEW LARGE DECIDUOUS TREE
- NEW SMALL DECIDUOUS TREE
- NEW SHRUB
- NEW LARGE EVERGREEN TREE
- NEW SMALL EVERGREEN TREE

- DRAINAGE BREAK LINE
- EXISTING DRAINAGE DIRECTION
- FINISHED DRAINAGE DIRECTION & SLOPE
- FINISHED GRADE
- EXISTING CONTOUR ELEVATION
- FINISHED CONTOUR ELEVATION
- GRADE ELEVATIONS**
- ABBREVIATIONS:**
- BOC = BACK OF CURB
- BOW = BACK OF WALK
- CB# = STORM SEWER CATCH BASIN
- CL = CENTERLINE
- CO# = SANITARY SEWER CLEANOUT
- CS# = CONTROL STRUCTURE
- DIA = DIAMETER
- ECC = EDGE OF CRUSHED CONCRETE
- EG = EXISTING GRADE
- EOC = EDGE OF CONCRETE
- EOP = EDGE OF PAVEMENT
- EOW = EDGE OF WALK
- EG = EXISTING GRADE
- EX = EXISTING
- FES = FLARED END SECTION
- FG = FINISHED GRADE
- FL = FLOWLINE
- HP = HIGH POINT
- INV = INVERT
- LP = LOW POINT
- MATCH = MATCH
- M# = STORM SEWER MANHOLE
- MT# = STORM SEWER TEE MANHOLE
- MM# = STORM SEWER MULTI-MANHOLE
- MC = MIDPOINT OF CURVE
- PC = POINT OF CURVATURE
- PRC = POINT OF REVERSE CURVE
- PT = POINT OF TANGENCY
- RIM = RIM OF STRUCTURE
- S# = SANITARY SEWER MANHOLE
- S.B. ELEV. = STOP BOX ELEVATION
- S.S. ELEV. = SANITARY SEWER SERVICE INVERT
- STA = ALIGNMENT STATION
- TOC = TOP OF CONCRETE
- TOP = TOP OF PAVEMENT
- TOP = TOP OF PIPE
- TOW = TOP OF WALK
- TR# = SANITARY TELEVISION RISER
- GRASS BUFFER
- PERMANENT STABILIZATION AREA
- SEDIMENTATION CONTROL WATTLE
- SEDIMENTATION CONTROL FENCE
- ROCK CHECK
- STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- INLET PROTECTION DEVICE

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LEGEND
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
LEGEND

DATE:	04.27.18
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PROJECT No.	19647
MANAGER:	CLE
DESIGNER:	BOB
DRAFTER:	RJK
REVIEWER:	KRL

FILE LOCATION: R:\Civil\3D Projects\19647\DRAWINGS\DESIGN\19647-PP.dwg

CLEARING AND GRUBBING/DEMOLITION:

1. THE CONTRACTOR SHALL EXERCISE CARE IN THEIR CONSTRUCTION OPERATIONS TO ENSURE THAT TREES, SHRUBS, FENCES, BUILDINGS AND GRASSES WITHIN THE RIGHT-OF-WAY AND CONSTRUCTION EASEMENT NOT DESIGNATED FOR REMOVAL ARE NOT DISTURBED. ANY CHANGE TO THESE ITEMS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

UTILITIES:

1. NOT ALL UTILITIES MAY BE SHOWN. PRIOR TO DIGGING, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL FOR UTILITY LOCATES AND TO IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE THEIR ACTIVITIES AND SCHEDULE ALL UTILITY RELOCATIONS. UTILITY LOCATES CAN BE REQUESTED FROM "NORTH DAKOTA ONE CALL".
2. CONTRACTOR MAY NEED TO WORK IN CONJUNCTION WITH UTILITY COMPANIES DURING CONSTRUCTION. CONTRACTOR MUST NOTIFY ENGINEER PRIOR TO DOING WORK WITH ANY AND ALL UTILITY COMPANIES. THERE SHALL BE NO CHANGE ORDERS FOR SCHEDULING CONFLICTS WITH UTILITY COMPANIES
3. THE CONTRACTOR SHALL LOCATE ALL BURIED UTILITIES ON THE SITE PRIOR TO DIGGING AND SHALL PROTECT THEM DURING CONSTRUCTION.

CONSTRUCTION LIMITS:

1. THE CONTRACTOR SHALL LIMIT WORK TO WITHIN THE CONSTRUCTION EASEMENTS AND RIGHT OF WAY SHOWN ON THE PLANS. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE EXPENSE FOR WORK DONE OUTSIDE OF PROJECT RIGHT-OF-WAY.
2. CONTRACTOR VEHICLES, EQUIPMENT, AND MATERIALS SHALL BE STORED WITHIN THE SITE.

SIGNS AND DELINEATORS:

1. ALL EXISTING SIGNS, DELINEATORS, MAILBOXES, AND BRIDGE END MARKERS WITHIN THE SITE SHALL BE REMOVED, SALVAGED, AND RESET. ANY ITEMS REMOVED SHALL BE NEATLY STOCKPILED ON THE PROJECT RIGHT-OF-WAY AND ARE TO REMAIN THE PROPERTY OF THE OWNER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
2. ANY DAMAGED SIGNS SHALL BE REPLACED AT CONTRACTORS EXPENSE.
3. THE CONTRACTOR SHALL INSPECT ALL SIGNS, DELINEATORS, AND MAIL BOXES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DAMAGES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES IDENTIFIED AFTER CONSTRUCTION BEGINS.

HAUL ROADS:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE THE SUITABILITY OF ROUTES WITH THE AGENCY HAVING CONTROL OF THE ROADS AND ACQUIRE THEIR APPROVAL PRIOR TO SUBMITTING A BID AND DOING THE WORK.
2. ANY DAMAGE TO ROADS AS A RESULT OF HAULING SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER.
3. TEMPORARY HAUL ROADS AND RAMPS REQUIRED SHALL BE INCIDENTAL TO THE PROJECT.

CHANNEL APPEARANCE:

1. THE FINAL CONSTRUCTED CHANNEL SECTION SHALL FORM NEAT LINES WHEN VIEWED FROM ONE END OF A MILE TO THE OTHER END OF A MILE.
2. WAVINESS, BUMPS, OR DIVOTS SHALL NOT EXCEED MORE THAN 0.2' FROM THE DESIRED CHANNEL PROFILE.

PROJECT SCHEDULE:

1. CHANNEL CONSTRUCTION SHALL BEGIN AT THE DOWNSTREAM END AND PROCEED UPSTREAM.

PROJECT MAINTENANCE:

1. THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING PRIOR TO COMMENCING WORK ON THIS SITE.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR CHANNEL MAINTENANCE, WEED CONTROL, EROSION CONTROL AND REPAIR, RE-GRADING BOTTOM AND RE-GRADING SIDE SLOPES UNTIL SEED IS ESTABLISHED. THIS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. IT SHOULD BE THE INTENT TO ESTABLISH SEED GROWTH AS SOON AS CHANNEL AREAS ARE COMPLETED.
3. CONTRACTOR IS RESPONSIBLE FOR WEED CONTROL WITHIN THE PROJECT SITE THROUGHOUT DURATION OF PROJECT AND IT SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. THIS MAY REQUIRE TILLING OR SPRAYING THE PROJECT SITE.

DISPOSAL NOTES:

1. NO MATERIAL, OTHER THAN SOIL, SHALL BE WASTED ON THE SITE OR IN THE DESIGNATED SPOIL AREA.
2. REMOVED PIPES, BRIDGE DECKS, BRIDGE PIERS, EXISTING WEIR MATERIALS, TREES, ROOTS, PLASTIC, WOOD, METAL, TIRES AND OTHER CONSTRUCTION MATERIAL OR DEBRIS SHALL BE PROPERLY DISPOSED OF OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE PROJECT UNLESS OTHERWISE SPECIFIED.
3. ANY REMOVED ITEMS NOT SALVAGED AS SHOWN ON THE PLANS BECOME THE PROPERTY OF THE CONTRACTOR AND ARE THE CONTRACTOR'S RESPONSIBILITY ONCE OFF THE SITE.
4. NO MATERIAL MAY BE BURIED OR BURNED ON SITE.
5. NO MATERIAL SHALL BE DISPOSED WITHIN THE DIVERSION CHANNEL. ALL SOIL SHALL BE DISPOSED OF ON DESIGNATED SPOIL AREAS.

SURVEY NOTES:

1. CONTRACTOR REQUESTED SURVEYS CONDUCTED AFTER CONSTRUCTION IS COMPLETE FOR THE PURPOSE OF VERIFYING EXCAVATION AND EMBANKMENT QUANTITIES SHALL BE AT THE CONTRACTOR'S EXPENSE.
2. ENGINEER REQUIRES A 48 HOUR NOTICE FOR ANY CONTRACTOR REQUESTED SURVEY. CONTRACTOR SHALL COORDINATE WITH RPR FOR SCHEDULING.

TRAFFIC CONTROL:

1. THE CONTRACTOR SHALL PROVIDE, IMPLEMENT, INSTALL, MAINTAIN, AND REMOVE ALL NECESSARY TRAFFIC CONTROL DEVICES AS REQUIRED BY THE CONTRACTOR'S CONSTRUCTION MEANS AND METHODS.
2. THE CONTRACTOR SHALL PROVIDE, MAINTAIN, AND REMOVE TEMPORARY APPROACHES, CROSSINGS, AND INTERSECTIONS AS NECESSARY DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL PROVIDE A METHOD OF PROTECTING TRAFFIC AND PEDESTRIANS FROM CONSTRUCTION AREAS AND SHALL ALLOW ACCESS TO ALL AREAS BY FIRE, POLICE, AND OTHER EMERGENCY PERSONNEL.

EXCAVATION/EMBANKMENT - IMPORT QUANTITIES:

1. EXCAVATION - CHANNEL QUANTITY SHOWN ON BID PROPOSAL BASED ON SURVEY CROSS SECTIONS TAKEN EVERY 400'.
2. AFTER BIDDING AND PRIOR TO COMMENCING CONSTRUCTION, UPDATED SURVEY CROSS SECTIONS WILL BE TAKEN EVERY 50' TO ALLOW FOR MORE ACCURATE CAD SURFACE. THIS WILL BE THE FOUNDATION FOR DETERMINING QUANTITIES. CROSS SECTIONS WILL BE TO TOP OF DIKES, BOTH SIDES OF CHANNEL.
3. AFTER SILT AND MUCK REMOVAL, 50' SURVEY CROSS SECTIONS WILL BE TAKEN TO TOP OF DIKES, BOTH SIDES OF CHANNEL. THIS SURFACE WILL BE COMPARED TO PRE-CONSTRUCTION SURFACE TO DETERMINE EXCAVATION - CHANNEL QUANTITIES.
4. AFTER EMBANKMENT - IMPORT HAS BEEN PLACED, 50' SURVEY CROSS SECTIONS WILL BE TAKEN TO TOP OF DIKES, BOTH SIDES OF CHANNEL. THIS SURFACE WILL BE COMPARED TO SURFACE TAKEN AFTER SILT AND MUCK REMOVAL TO DETERMINE EMBANKMENT - IMPORT QUANTITIES.
5. SURVEYING WILL BE DONE BY ENGINEER. SURVEYING WILL BE COORDINATED WITH CONTRACTOR. SURVEYING EXPECTED TO BE DONE IN MULTIPLE PHASES. CONTRACTOR TO INFORM ENGINEER WHEN CONTRACTOR IS READY FOR SURVEYING OF EXCAVATION AND EMBANKMENT WORK.

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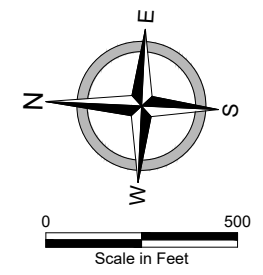
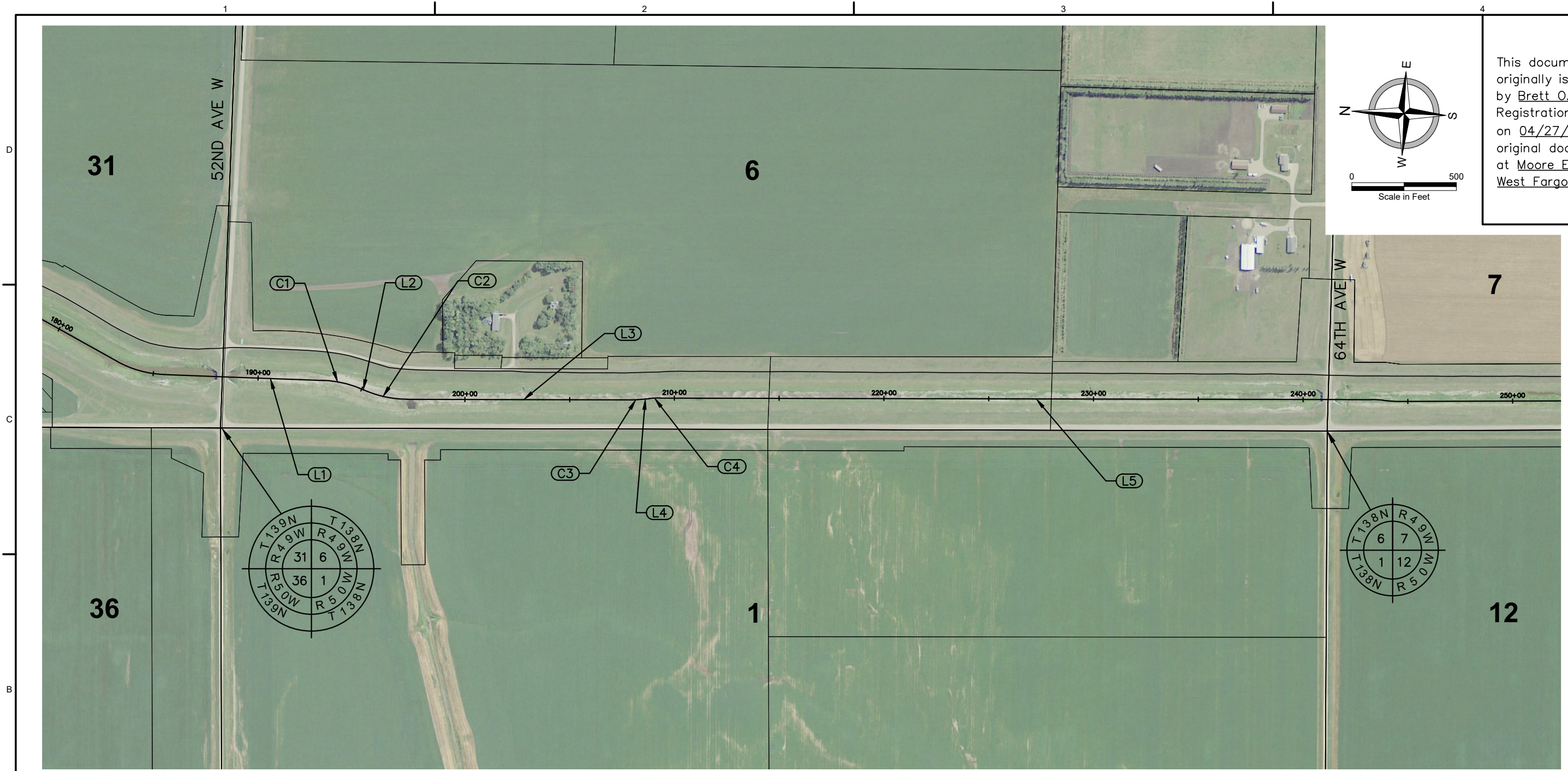
GENERAL NOTES
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
 GENERAL NOTES

DATE:	04.27.18
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PROJECT No.	19647
MANAGER:	CLE
DESIGNER:	BOB
DRAFTER:	RJK
REVIEWER:	KRL

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FILE LOCATION: R:\Civil 3D Projects\19647\DRAWINGS\DESIGN\19647-PP.dwg



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SURVEY LAYOUT
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
 SURVEY LAYOUT

ALIGNMENT LINE AND CURVE TABLE

Number	Length	Radius	Delta	Bearing	Start Sta.	End Sta.	Start Northing/Easting	End Northing/Easting
L1	481.87	N/A	N/A	S0°32'56"E	188+31.95	193+13.82	435369.62/2863644.48	434887.77/2863649.10
C1	174.61	500.06	20°00'22"	S9°27'14"W	193+13.82	194+88.42	434887.77/2863649.10	434716.41/2863620.56
L2	42.54	N/A	N/A	S19°27'25"W	194+88.42	195+30.96	434716.41/2863620.56	434676.30/2863606.40
C2	191.81	500.06	21°58'37"	S8°28'07"W	195+30.96	197+22.77	434676.30/2863606.40	434487.75/2863578.32
L3	1067.58	N/A	N/A	S2°31'12"E	197+22.77	207+90.34	434487.75/2863578.32	433421.21/2863625.26
C3	52.38	500.06	6°00'05"	S5°31'14"E	207+90.34	208+42.72	433421.21/2863625.26	433369.10/2863630.30
L4	38.74	N/A	N/A	S8°31'16"E	208+42.72	208+81.46	433369.10/2863630.30	433330.78/2863636.04
C4	52.00	500.06	5°57'29"	S5°32'32"E	208+81.46	209+33.46	433330.78/2863636.04	433279.05/2863641.06
L5	3187.79	N/A	N/A	S2°33'47"E	209+33.46	241+21.26	433279.05/2863641.06	430094.44/2863783.61

RIGHT-OF-WAY

RIGHT-OF-WAY BOUNDARIES SHALL BE MARKED BY THE OWNER PRIOR TO CONSTRUCTION.
 THERE IS NO "TEMPORARY CONSTRUCTION EASEMENT" FOR THIS PROJECT SO ALL WORK MUST BE CONTAINED WITHIN DIVERSION CHANNEL.

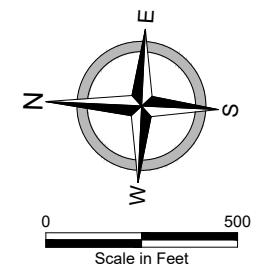
BENCHMARK LIST

VERTICAL DATUM: NGVD 1925 HORIZONTAL DATUM: NAD83 SOUTH ZONE			
NO.	DESCRIPTION	LOCATION	ELEV.
1	CHISELED SQUARE	SOUTH OF 64TH AVE TOP CENTER OF SOUTH SIDE BOX CULVERT	911.94
2	CHISELED SQUARE	NORTH OF 64TH AVE WEST END TOP ϕ OF NORTH BOX CULVERT	911.94
3	CHISELED SQUARE	SOUTH OF 52ND AVE TOP CENTER OF SOUTH SIDE BOX CULVERT	910.40

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REVIEWER:	KRL

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GENERAL LAYOUT AND EROSION CONTROL PLAN
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
 GENERAL LAYOUT AND EROSION CONTROL PLAN

EROSION CONTROL NOTES:

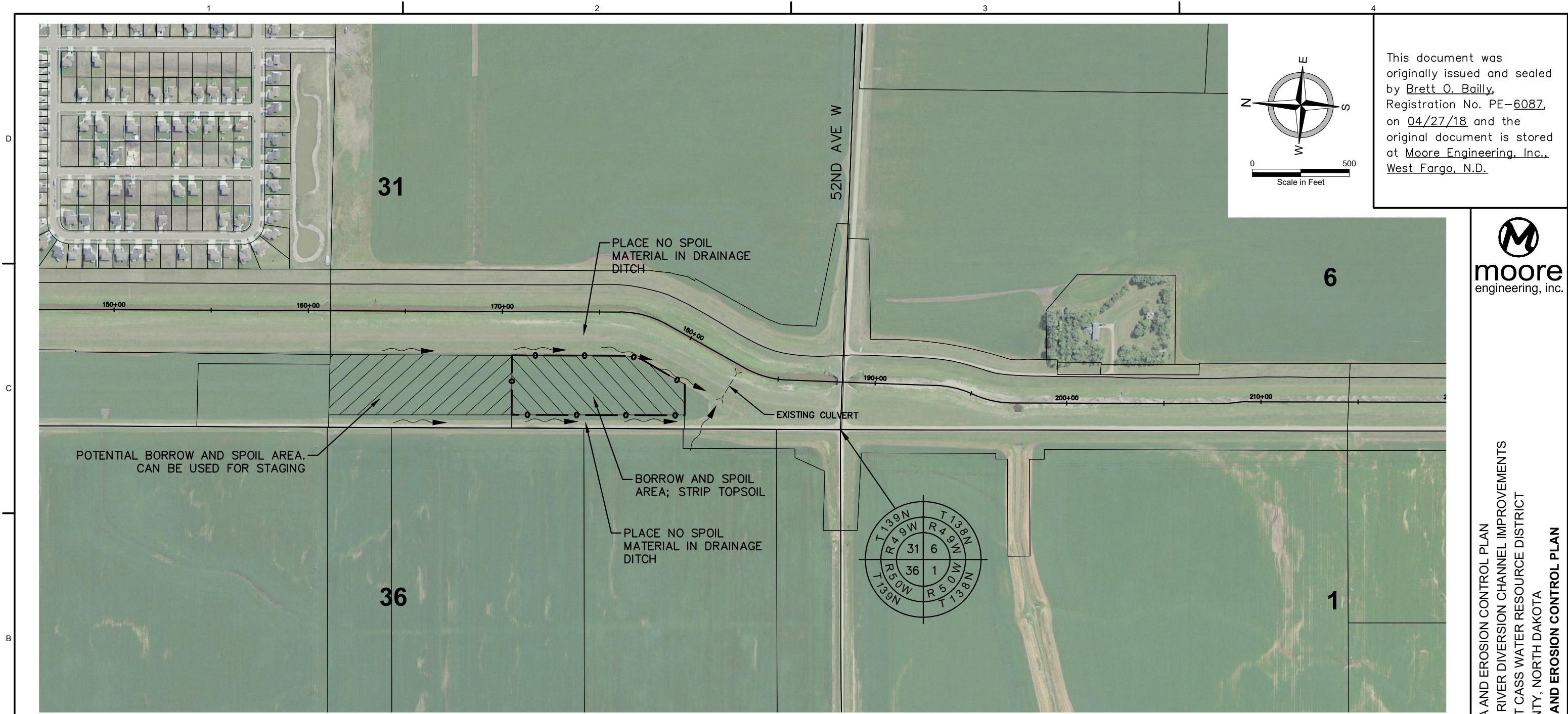
1. WORK MAY NOT START UNTIL NOTICE OF INTENT (NOI) HAS BEEN SUBMITTED TO THE NORTH DAKOTA DEPARTMENT OF HEALTH AND 7 BUSINESS DAYS HAVE PASSED.
2. PERMIT No. NDR10-0000 SHALL BE USED AS A GUIDE FOR STORM WATER MANAGEMENT ON THIS PROJECT.
3. CONTRACTOR SHALL DESIGNATE AN EROSION CONTROL SUPERVISOR WHO WILL BE IN CONTROL OF REVIEWING AND MODIFYING THE SWPPP, CONDUCTS THE REQUIRED SITE INSPECTIONS, AND PREPARES THE INSPECTION REPORTS AS PER NDR10-0000 OR AS STATED IN THE PLANS.
4. CONTRACTOR IS RESPONSIBLE FOR THE DAY-TO-DAY OPERATION OF THE SWPPP AND SHALL NOTIFY THE ENGINEER IF ANY PROBLEMS ARISE.
5. SITE INSPECTIONS ARE REQUIRED EVERY 14 DAYS OR AFTER A RAINFALL EVENT GREATER THAN 0.25 INCHES IN 24 HOURS. ALL INSPECTIONS MUST BE DOCUMENTED IN THE SWPPP. CONTRACTOR SHALL PROVIDE ENGINEER WITH A COPY OF EACH INSPECTION REPORT. CONTRACTOR SHALL PROVIDE ON-SITE RAIN GAUGE TO MEASURE RAINFALL TOTALS.
6. THE RECEIVING WATER IS THE SHEYENNE RIVER. BMP'S SHALL BE USED TO MINIMIZE ANY SEDIMENT FROM PROJECT SITE INTO THE RECEIVING WATERS.
7. ALL AREAS NOT WORKED IN FOR 14 DAYS SHALL BE TEMPORARY MULCHED. THIS WORK IS PART OF STORM WATER MANAGEMENT AND WILL NOT BE PAID FOR AS ADDITIONAL WORK.
8. TRACKED SEDIMENT SHALL BE REMOVED FROM ALL ROADS AT THE END OF EACH WORK DAY. IF SEDIMENT TRACKING IS SEVERE, A CONSTRUCTION ENTRANCE SHALL BE INSTALLED IN ACCORDANCE WITH NDR10-0000 OR AS SHOWN IN THE PLANS.
9. TEMPORARY ROCK CHECKS SHALL BE INSTALLED PRIOR TO STARTING WORK IN ANY AREA OF THE PROJECT. THEY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS.
10. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING PROJECT SITE DUST. WATERING PROJECT SITE AS WELL AS WATERING THE HAUL ROADS MAY BE NEEDED.

EROSION CONTROL NOTES:

11. CONTRACTOR IS RESPONSIBLE FOR NON-HAZARDOUS WASTE BROUGHT TO AND STORED AT THE SITE. ALL TRASH AND DEBRIS SHALL BE PICKED UP DAILY AND DISPOSED OF IN PROPER CONTAINERS. NO MATERIAL IS ALLOWED TO BE BURIED ON SITE. ALL OIL, GAS, AND OTHER PETROLEUM PRODUCTS SHALL BE STORED IN SEALED CONTAINERS WITH PROPER LABELS.
12. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY SPILL.
13. ALL ITEMS THAT ARE REQUIRED BY NDR10-0000 OR AS SHOWN IN THE PLANS AS PART OF STORM WATER MANAGEMENT SHALL BE PAID FOR BY THE STORM WATER MANAGEMENT PAY ITEM UNLESS A SEPARATE BID ITEM IS SPECIFIED.
14. ALL CULVERTS SHALL HAVE RIPRAP INSTALLED UPSTREAM AND DOWNSTREAM OF THEM WITHIN 3 DAYS OF BEING INSTALLED.
15. CONTRACTOR IS RESPONSIBLE FOR MAKING SURE SUBCONTRACTORS STAY IN COMPLIANCE WITH STORM WATER MANAGEMENT GUIDELINES.
16. ALL EQUIPMENT SHALL ARRIVE ON-SITE IN A CLEAN, OPERABLE MANNER. EXCESS DIRT, VEGETATION, OIL, GREASE, OR ANY OTHER CONTAMINANTS SHALL BE CLEANED OFF PRIOR TO ENTERING PROJECT SITE.
17. CONTRACTOR SHALL MAINTAIN A STOCKPILE OF APPROPRIATE BMP'S ON-SITE FOR USE IN EMERGENCY SITUATIONS. THE STOCKPILE SHOULD INCLUDE EROSION CONTROL BLANKET, SILT FENCE, SPARE RIPRAP, STRAW WADDLES, AND SEEDING MATERIAL
18. CONTRACTOR IS ENCOURAGED TO INSTALL PERMANENT STABILIZATION IN STAGES AS PORTIONS OF THE PROJECT REACH FINAL GRADES.
19. AT THE COMPLETION OF THE PROJECT, PERMANENT GRASS SEEDING SHALL BE INSTALLED. PERMANENT SEEDING IS PAID FOR BY A BID ITEM AND IS NOT PART OF STORM WATER MANAGEMENT.

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PROJECT No.	19647
MANAGER:	CLE
DESIGNER:	BOB
DRAFTER:	RJK
REVIEWER:	KRL



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SPOIL AREA AND EROSION CONTROL PLAN
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
 SPOIL ARE AND EROSION CONTROL PLAN

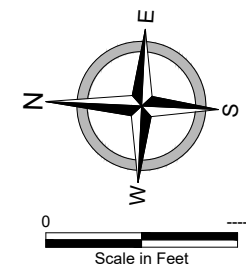
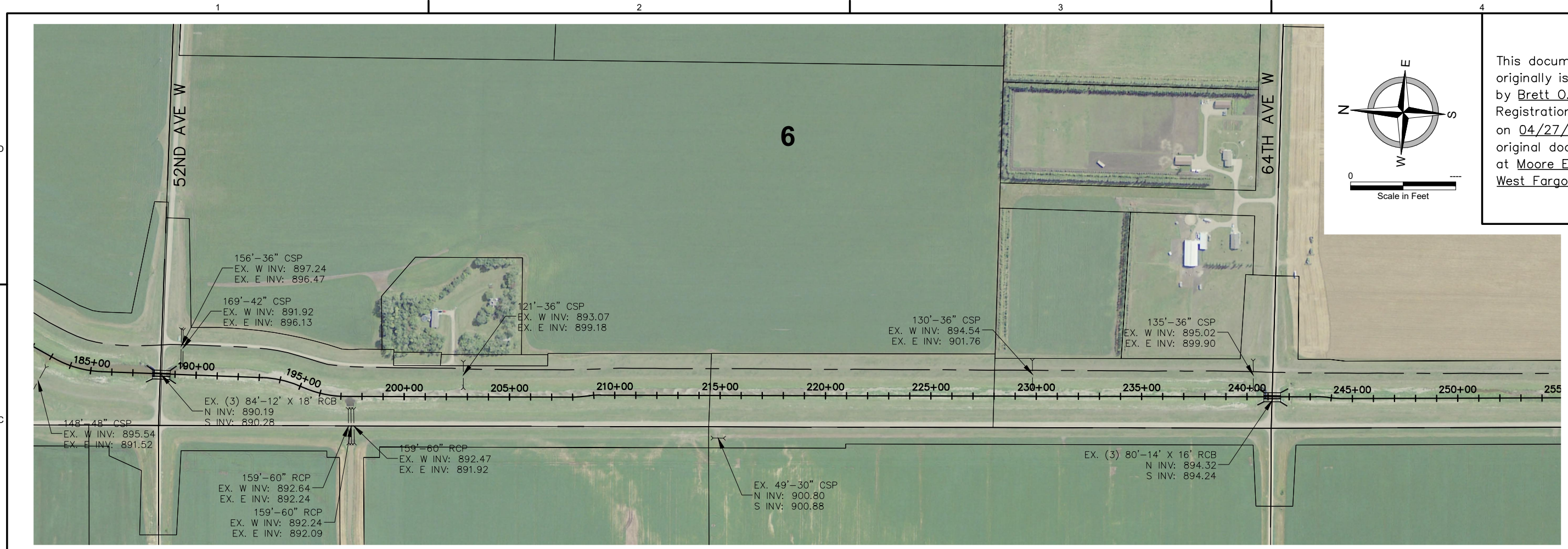
NOTES:

1. TOPSOIL FROM SPOIL AREA SHALL BE STRIPPED AND STOCKPILED PRIOR TO PLACING ANY SPOIL MATERIAL. CONTRACTOR SHALL PROTECT STOCKPILE FROM EROSION BY MEANS OF CONTRACTOR'S BMP'S. THIS MAY INCLUDE INSTALLATION OF SILT FENCE AND TYPE III PERMANENT GRASS SEEDING. LOCATION OF TOPSOIL STOCKPILE TO BE APPROVED BY ENGINEER.
2. DRAINAGE OF THE SPOIL AREA SHALL BE CLEAR AND FREE OF OBSTRUCTIONS AT THE COMPLETION OF THE PROJECT. THE NATURAL OUTLET OF THE SPOIL AREA IS A CULVERT IN THE EAST CORNER. THE INVERT OF THE CULVERT WILL BE DETERMINED IN THE FIELD AND ALL SITE RUNOFF SHALL BE ABLE TO DRAIN TO THIS CULVERT. (SEE NOTE 4 BELOW)
3. THE SPOIL AREA SHALL NOT HAVE STEEPER THAN 5:1 SIDE SLOPES WHEN THE SPOIL IS PLACED. THE NORTH END OF THE SPOIL AREA SHALL NOT EXCEED A 10:1 SLOPE. SPOIL STOCKPILE HEIGHT SHALL NOT EXCEED FOUR (4) FEET FROM EXISTING GROUND.
4. CONTRACTOR SHALL PILE SPOIL MATERIAL IN A MANNER THAT ALLOWS FOR ADEQUATE SITE DRAINAGE. THE TOP OF THE PILE SHALL BE FREE OF DEPRESSIONS AND HOLES. THE SPOIL PILE TOP SHALL HAVE A 2-3% SLOPE FROM THE CENTER OF THE SPOIL PILE TO THE SIDE SLOPE.
5. THE ENTIRE SPOIL AREA ARE SHALL BE SEEDED AT THE COMPLETION OF THE PROJECT. A TYPE III SEED MIXTURE SHALL BE USED TO SEED THIS AREA.
6. ENGINEER SHALL DESIGNATE SPECIFIC SPOIL SITES IN THE FIELD. CONTRACTOR WILL NOT BE ALLOWED TO SPOIL MATERIAL OVER ENTIRE SITE.
7. SPOIL AREA AND POTENTIAL SPOIL AREA CAN BE USED FOR STAGING. ANY RIPRAP STOCKPILED HERE MUST BE REMOVED PRIOR TO PROJECT COMPLETION AS THIS PROPERTY WILL BE FARMED IN THE FUTURE.
8. CONTRACTOR SHALL EXPECT TO BORROW AND SPOIL MATERIAL FROM OVERLAPPING AREAS. CONTRACTOR IS RESPONSIBLE FOR UTILIZING BORROW AREA DESIGNATED BY THE ENGINEER TO THE FULLEST EXTENT POSSIBLE BEFORE PLACING SPOIL MATERIAL IN IT'S PLACE. IF CONTRACTOR FEELS THAT ALL THE BORROW MATERIAL HAS BEEN EXHAUSTED FROM DESIGNATED BORROW AREA, CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE A NEW SITE FROM WITHIN THE DESIGNATED BORROW AREA.
9. THE BORROW HOLE SHALL NOT HAVE STEEPER THAN 3:1 SIDE SLOPES WHEN THE BORROW PIT IS BEING ACTIVELY USED IF AT THE END OF THE PROJECT THERE IS STILL A BORROW HOLE DUE TO THE LACK OF SPOIL MATERIAL TO FILL IT IN, THE BORROW HOLE SIDE SLOPES SHALL BE SHAPED TO BE A 4:1 AND HAVE A MINIMUM DEPTH OF 5 FEET.
10. THE ENTIRE SPOIL AREA SHALL BE SEEDED AT THE COMPLETION OF THE PROJECT. A TYPE III SEED MIXTURE SHALL BE USED TO SEED THIS AREA. IF TOPSOIL IS SPREAD OVER THE BORROW SITE AS CALLED FOR IN THE PLANS OR DIRECTED BY THE ENGINEER, THIS AREA SHOULD BE SEEDED AS WELL WITH A TYPE III SEED MIXTURE.

DATE:	04.27.18
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PROJECT No.	19647
MANAGER:	CLE
DESIGNER:	BOB
DRAFTER:	RJK
REVIEWER:	KRL

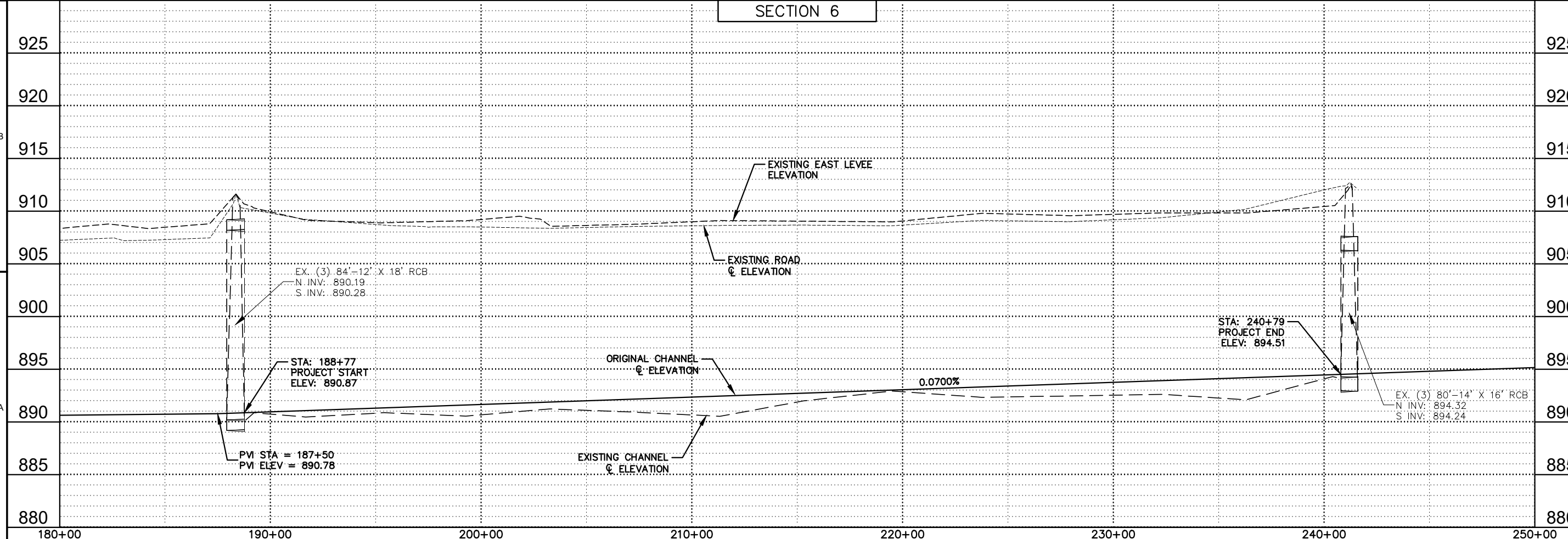
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SECTION 6



PLAN AND PROFILE
SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
SOUTHEAST CASS WATER RESOURCE DISTRICT
CASS COUNTY, NORTH DAKOTA
SECTION 8

DATE:	04.27.18
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PROJECT No.	19647
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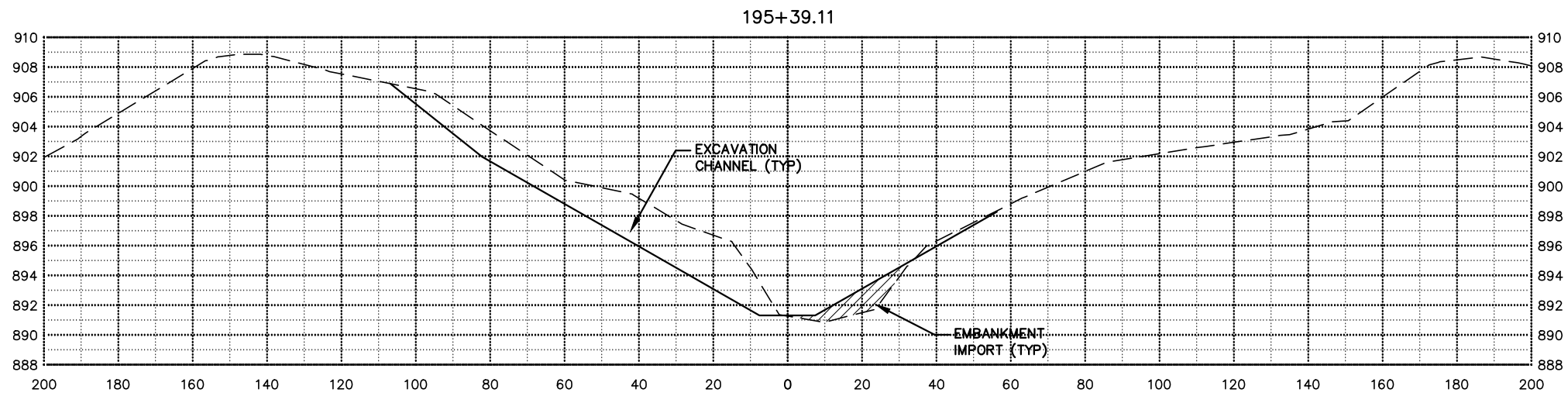
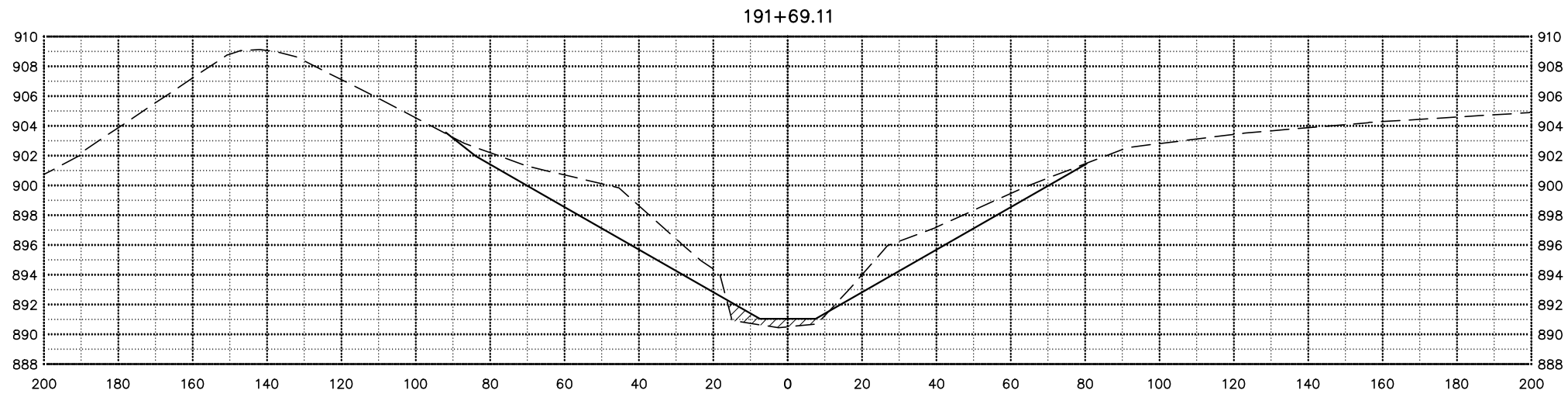
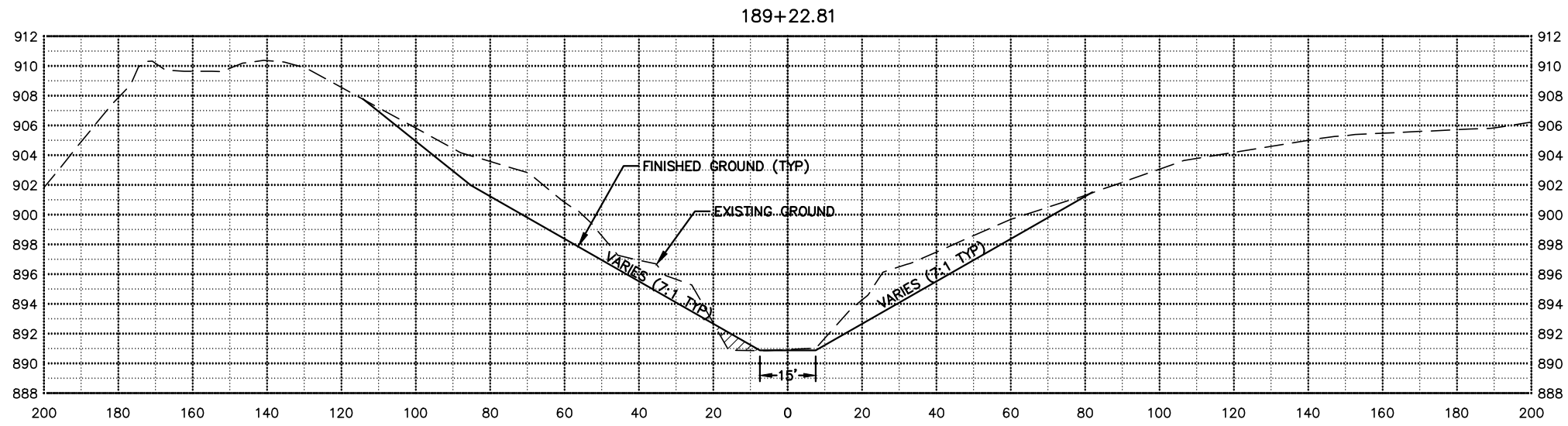
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CROSS SECTIONS
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
 CROSS SECTIONS

DATE:	04.27.18
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PROJECT No.	19647
MANAGER:	CLE
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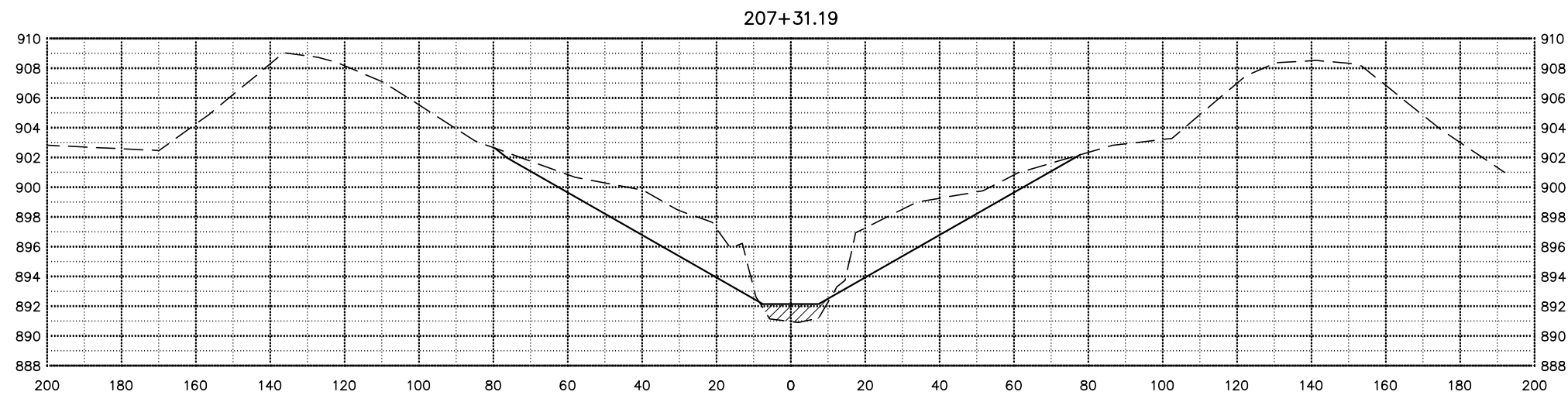
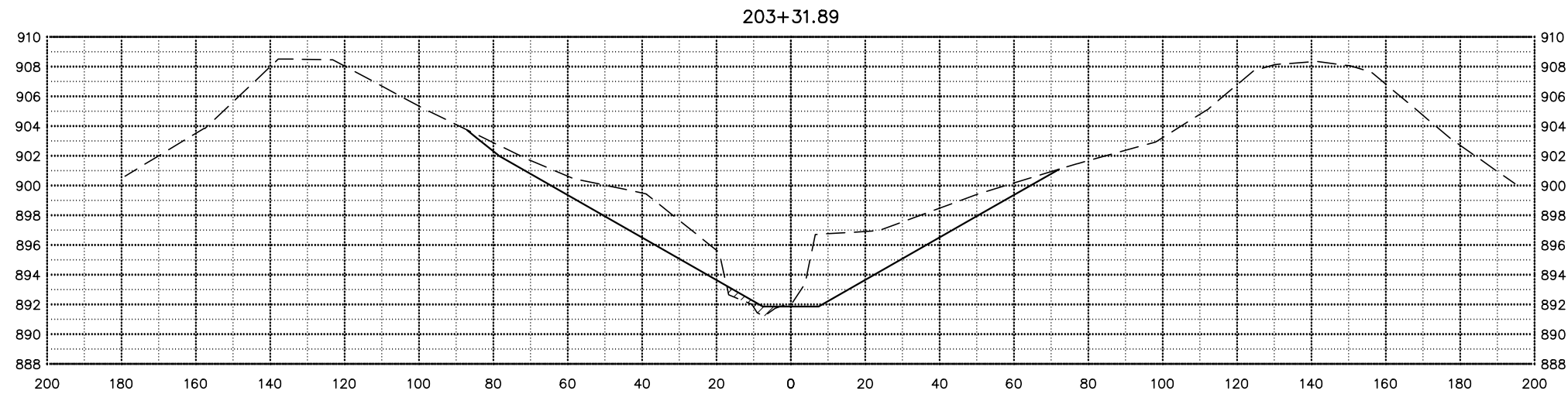
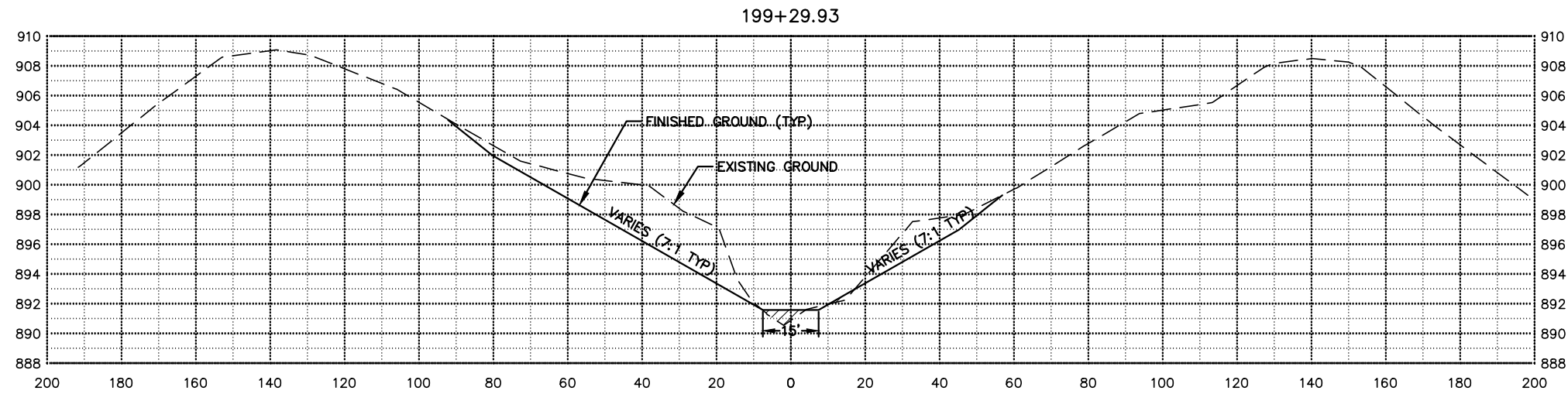


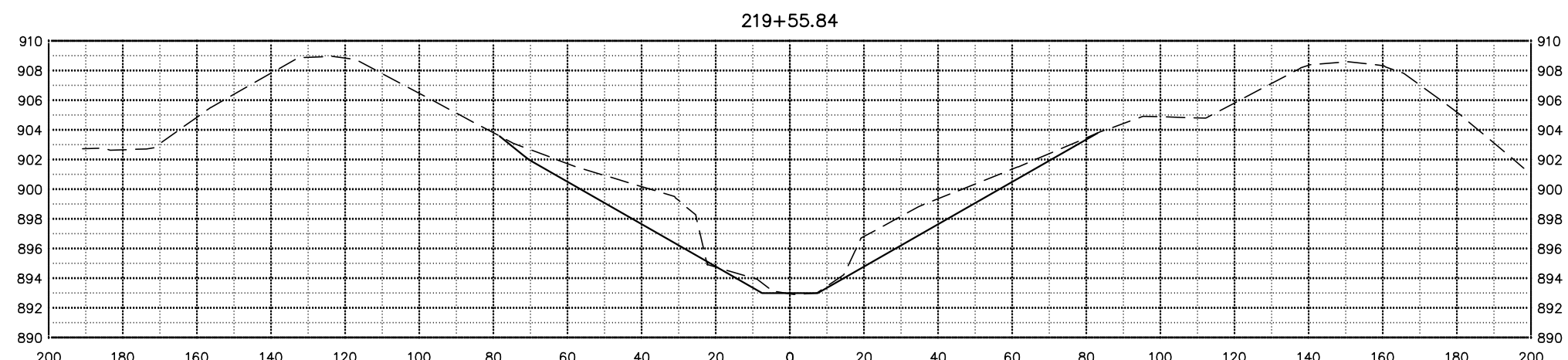
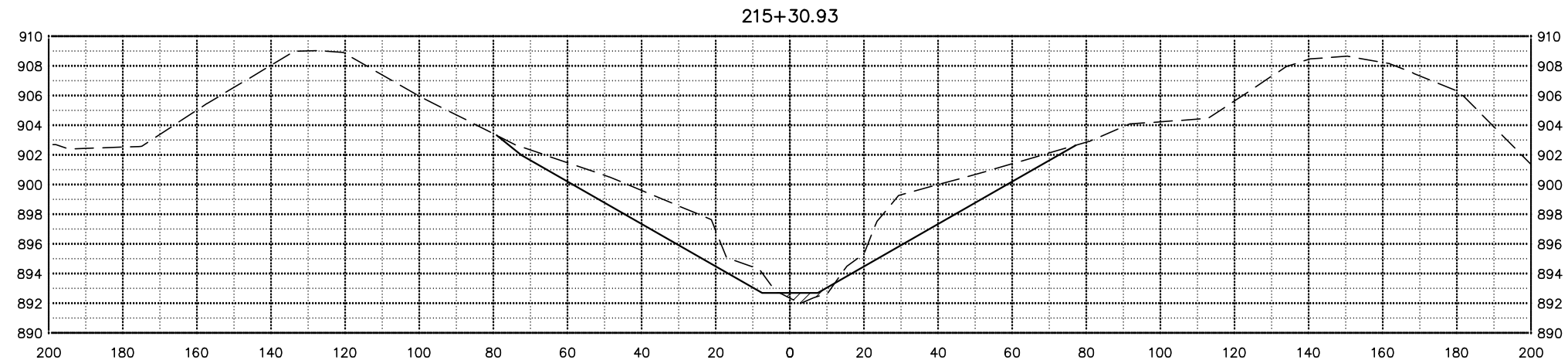
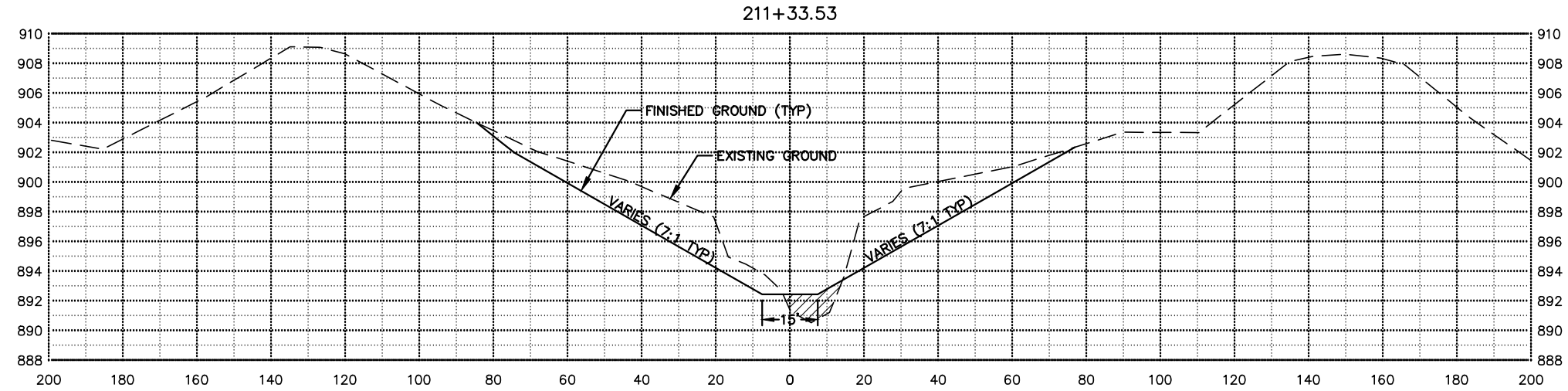
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PROJECT No.	19647
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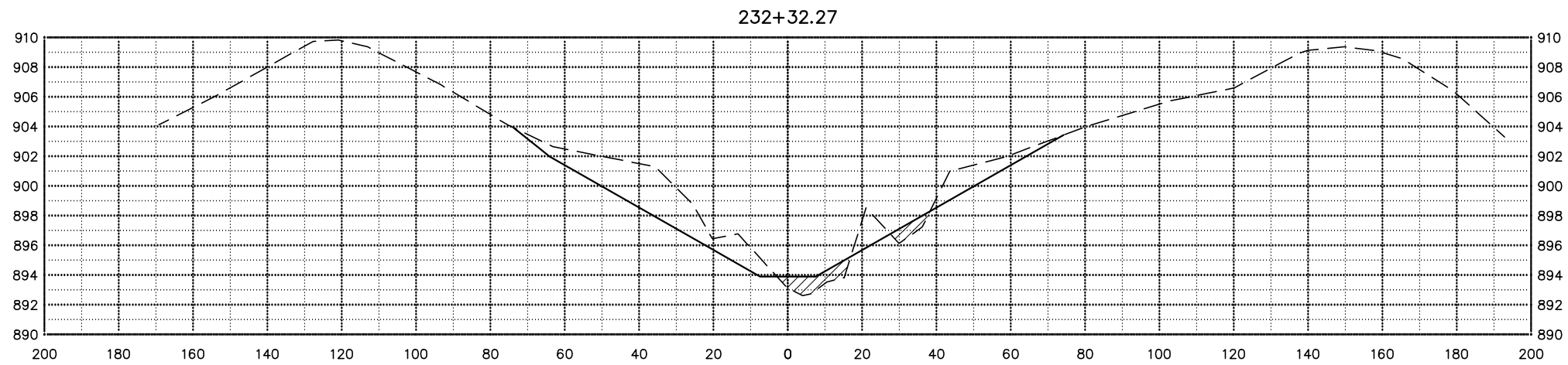
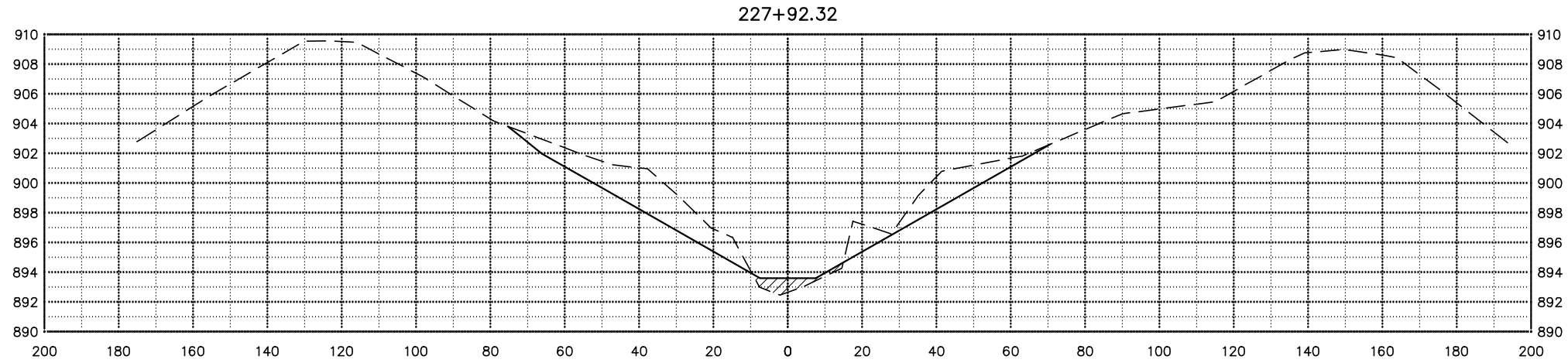
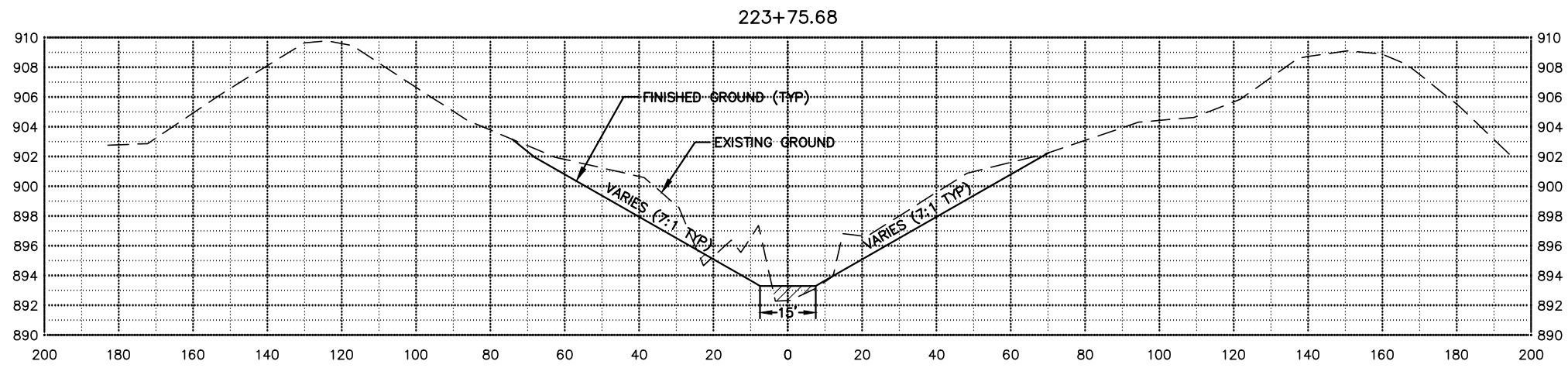


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CROSS SECTIONS
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 CASS COUNTY, NORTH DAKOTA
 CROSS SECTIONS

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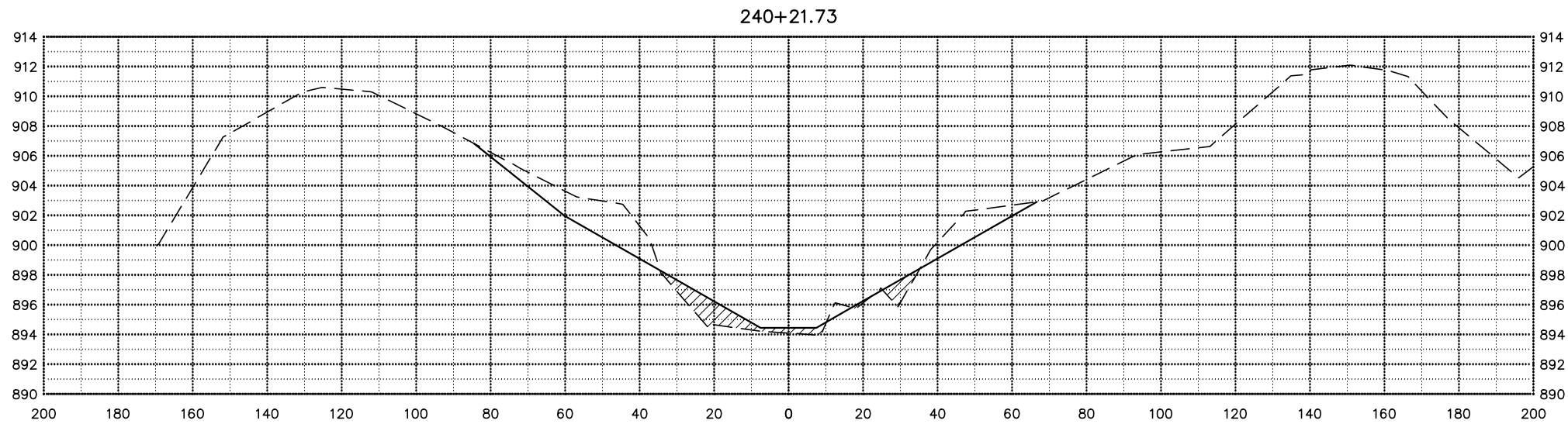
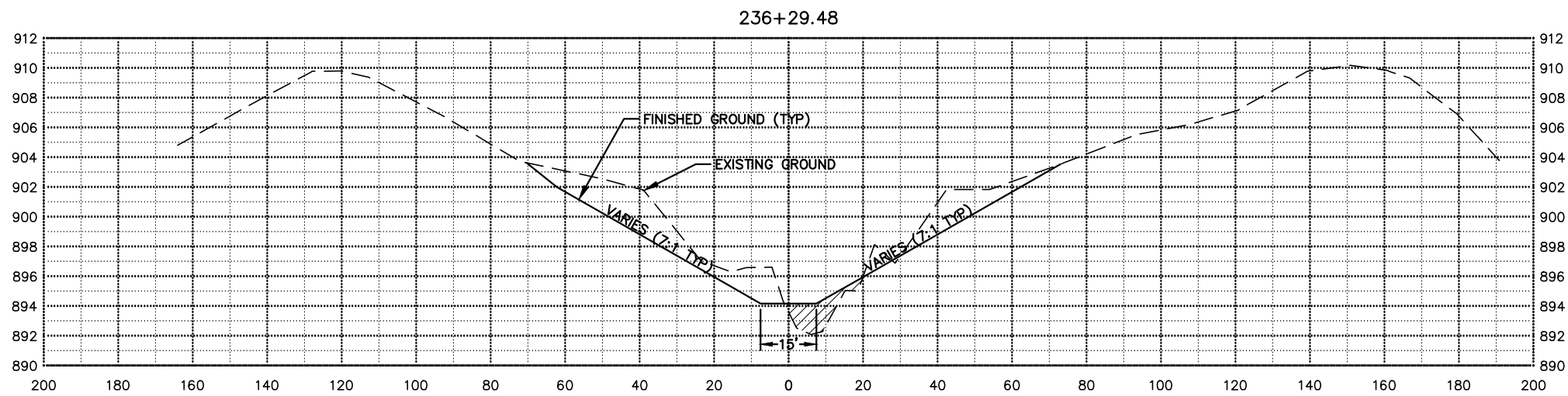
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EARTHWORK VOLUMES						
Station	Cut Area	Fill Area	Cut Vol	Fill Vol	Total Cut	Total Fill
189+22.81	258.08	7.50	0.00	0.00	0.00	0.00
191+69.11	212.21	15.03	2145.05	102.76	2145.05	102.76
195+39.11	245.06	30.65	3222.53	309.90	5367.59	412.66
199+29.93	214.55	7.48	3215.23	280.03	8582.82	692.68
203+31.89	268.26	5.68	3593.94	97.91	12176.76	790.59
207+31.19	266.08	17.44	3951.08	170.90	16127.84	961.49
211+33.53	275.83	21.03	4037.63	286.57	20165.47	1248.07
215+30.93	230.64	5.50	3727.25	195.19	23892.72	1443.26
219+55.84	183.72	0.68	3260.42	48.62	27153.14	1491.88
223+75.68	183.96	10.38	2858.64	85.97	30011.78	1577.84
227+92.32	173.18	13.92	2755.59	187.46	32767.37	1765.30
232+32.27	165.44	25.16	2758.76	318.43	35526.13	2083.73
236+29.48	171.02	25.94	2474.89	375.92	38001.01	2459.65
240+21.73	113.18	43.57	2064.31	504.92	40065.32	2964.58

NOTE:
EARTHWORK VOLUMES DO NOT ACCOUNT FOR ADDITIONAL MUCK EXCAVATION (PAID AS EXCAVATION - CHANNEL) OR ADDITIONAL FILL MATERIAL (PAID AS EMBANKMENT - IMPORT) THAT REPLACES MUCK REMOVED, FIELD SURVEYS WILL BE USED TO MEASURE ACTUAL WORK.

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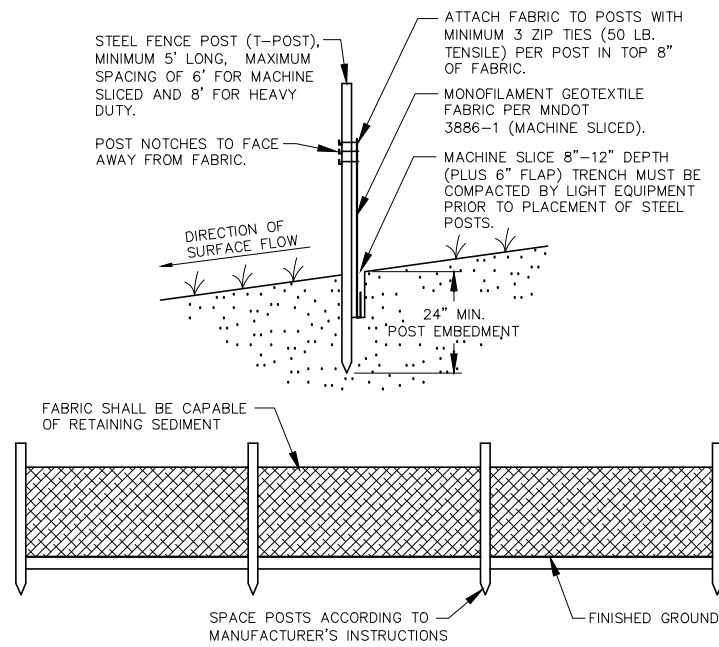


CROSS SECTIONS
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SOUTHEAST CASS WATER RESOURCE DISTRICT
CASS COUNTY, NORTH DAKOTA
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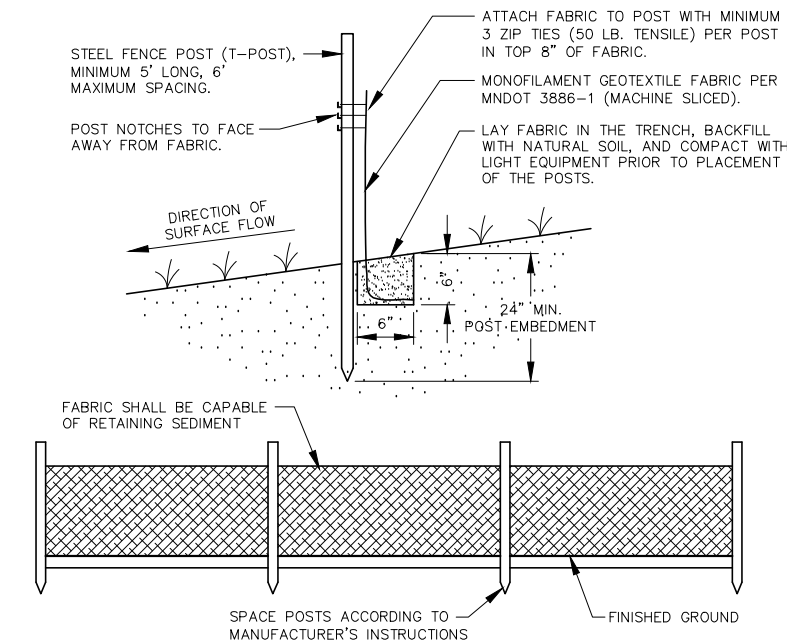
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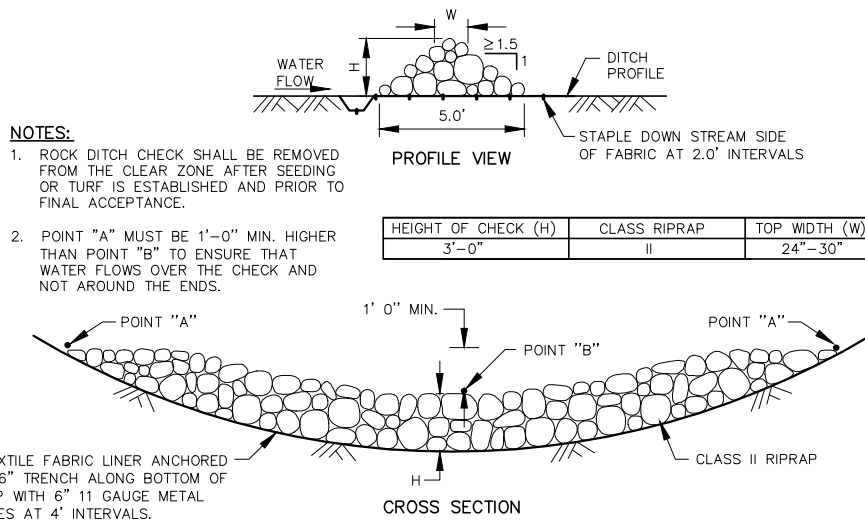
MACHINED SILT FENCE DETAIL
NO SCALE

- NOTES:**
1. INSPECT AND REPAIR AFTER EACH STORM EVENT, AND REMOVE SEDIMENT WHEN NECESSARY.
 2. REMOVED SEDIMENTS SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.



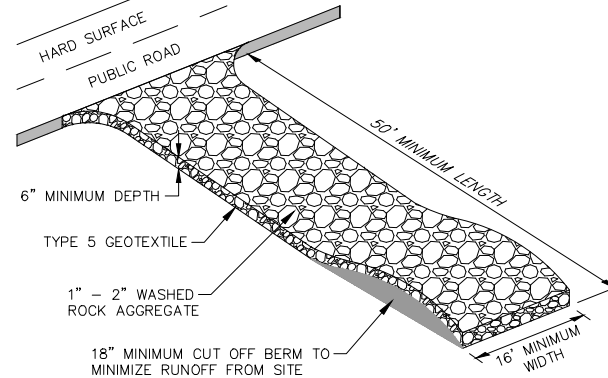
STANDARD SILT FENCE DETAIL
NO SCALE

- NOTES:**
1. INSPECT AND REPAIR AFTER EACH STORM EVENT, AND REMOVE SEDIMENT WHEN NECESSARY.
 2. REMOVED SEDIMENTS SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.



- NOTES:**
1. ROCK DITCH CHECK SHALL BE REMOVED FROM THE CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE.
 2. POINT "A" MUST BE 1'-0" MIN. HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE CHECK AND NOT AROUND THE ENDS.

TEMPORARY ROCK CHECK DETAIL
NO SCALE



- NOTES:**
1. ENTRANCE MUST BE MAINTAINED REGULARLY TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS.

CONSTRUCTION ENTRANCE DETAIL
NO SCALE

GENERAL SEDIMENT AND EROSION CONTROL PLAN:

1. ALL SILT FENCE MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN IT BECOMES NONFUNCTIONAL OR THE SEDIMENT REACHES 1/3 OF THE HEIGHT OF THE FENCE.
2. ALL SEDIMENT DEPOSITED BY CONSTRUCTION SITE EROSION INTO THE DIVERSION SHALL BE REMOVED WITHIN SEVEN (7) DAYS OF DISCOVERY.
3. TEMPORARY MULCH SHALL BE APPLIED WITHIN 21 DAYS ON AREAS WHERE EARTH MOVING ACTIVITIES HAVE TEMPORARILY CEASED. IF EARTH MOVING ACTIVITIES HAVE FINISHED, PERMANENT COVER SHALL BE APPLIED.
4. ALL SEDIMENT AND EROSION CONTROL REQUIREMENTS, PRACTICES AND DEVICES OUTLINED IN THE PLANS, SPECIFICATIONS, STORM WATER POLLUTION PREVENTION PLAN, OR REQUIRED BY FEDERAL, STATE, OR LOCAL REGULATIONS, SHALL BE CONSIDERED INCIDENTAL TO THE STORM WATER MANAGEMENT PAY ITEM UNLESS ALREADY ITEMIZED IN THE BID TABULATION SEPARATELY.
5. A TEMPORARY ROCK CHECK SHALL BE INSTALLED AT STA: 242+00 PRIOR TO CONDUCTING ANY WORK UPSTREAM OF THE ROCK CHECK. SILT BUILDUP BEHIND THE ROCK CHECK SHALL BE REMOVED PRIOR TO REACHING 1/2 THE HEIGHT OF THE ROCK CHECK. ROCK CHECK SHALL BE MAINTAINED AS NEEDED AND SHALL BE REMOVED AFTER THE UPSTREAM DISTURBED AREA HAS BEEN PERMANENTLY SEEDED, MULCHED, AND GROWTH HAS BEEN ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT PRIOR TO THE REMOVAL OF THE ROCK CHECK.
6. RIPRAP FROM TEMPORARY ROCK CHECK SHALL BE INCORPORATED INTO THE CHANNEL BOTTOM AFTER ROCK CHECK IS REMOVED.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING SURE CONTRACTOR IS IN COMPLIANCE WITH THE GENERAL STORMWATER DISCHARGE PERMIT AND THE SWPPP.

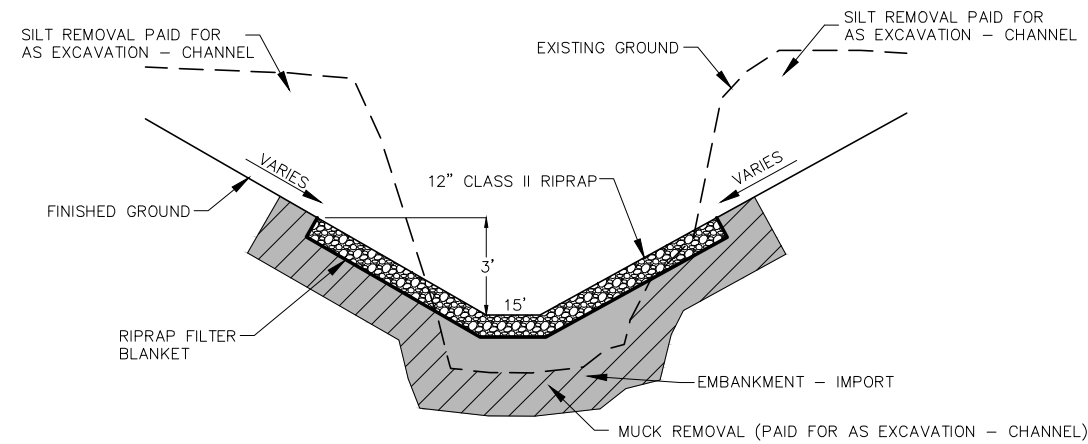
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EROSION CONTROL DETAILS
SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
SOUTHEAST CASS WATER RESOURCE DISTRICT
CASS COUNTY, NORTH DAKOTA
EROSION CONTROL DETAILS

DATE:	04.27.18
REVISED:	----
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REVISED:	----
RECORD:	----

PROJECT No.	19647
MANAGER:	CLE
DESIGNER:	BOB
DRAFTER:	RJK
REVIEWER:	KRL

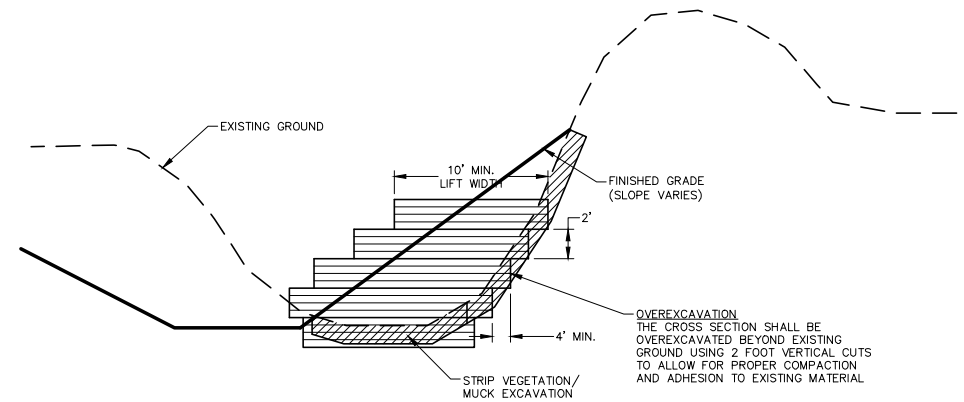


TYPICAL SECTION - RIPRAP DETAIL

NO SCALE
 STA: 189+00 (52ND AVE) TO STA: 242+00 (64TH AVE)

RIPRAP PAY LIMITS:

1. HEIGHT ABOVE CHANNEL BOTTOM - 3 FEET
2. CHANNEL BOTTOM WIDTH - 15 FEET
3. RIPRAP DEPTH - 1 FOOT



EMBANKMENT NOTES:

1. THE CROSS-SECTION SHALL BE OVEREXCAVATED BEYOND EXISTING GROUND USING 2 FOOT VERTICAL CUTS TO ALLOW FOR PROPER COMPACTION AND ADHESION TO EXISTING MATERIAL.
2. THE EMBANKMENT MATERIAL SHALL BE OBTAINED BY AN APPROVED BORROW PIT AND SHALL BE CLAY ONLY. THE EMBANKMENT MATERIAL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 6 INCHES IN DEPTH AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY A STANDARD PROCTOR TEST IN ACCORDANCE WITH ASTM D698. MOISTURE CONTENT SHALL BE MAINTAINED DURING COMPACTION BETWEEN 1% BELOW OPTIMUM AND 3% ABOVE OPTIMUM AS DETERMINED BY STANDARD PROCTOR.
3. ALL CONSTRUCTED EMBANKMENT LAYERS SHALL BE TIED INTO UNDISTURBED SOIL ALONG THE OVEREXCAVATION SLOPE BY CONSTRUCTING VERTICAL WALLS 2 FEET HIGH. ALL CONSTRUCTED EMBANKMENT LAYERS SHALL BE A MINIMUM OF 10 FEET WIDE. THE CROSS-SECTION SHALL BE OVERFILLED TO ALLOW FOR PROPER COMPACTION AND EXCAVATED TO FINAL GRADES AND SLOPES.
3. NO PAYMENT IS MADE FOR OVEREXCAVATION/OVERBUILD NEEDED TO FILL THE CHANNEL SLOPE AS PER THE DETAIL SHOWN.

TYPICAL SECTION - CHANNEL FILL DETAIL (EMBANKMENT)

NO SCALE

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TYPICAL SECTIONS
 SHEYENNE RIVER DIVERSION CHANNEL IMPROVEMENTS
 SOUTHEAST CASS WATER RESOURCE DISTRICT
 CASS COUNTY, NORTH DAKOTA
 TYPICAL SECTIONS

DATE:	04.27.18
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