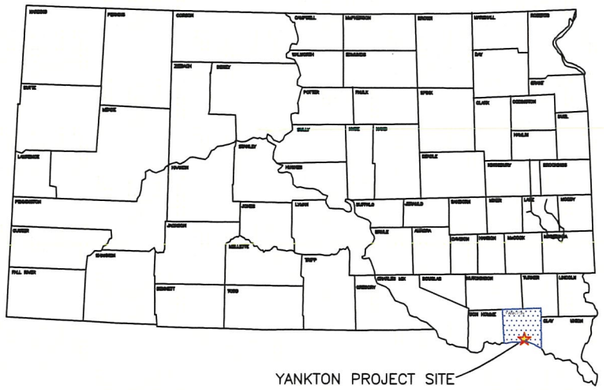
PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	1	41
COVER SHEET		

2021 - 003
23rd STREET PAVEMENT IMPROVEMENT
WEST OF WEST CITY LIMITS ROAD



PROJECT SITE 2021 – 003

23rd STREET PAVEMENT
CITY OF YANKTON, SOUTH DAKOTA
SE 1/4 SEC 2 T93N, R56W

INDEX OF SHEETS

Registered Professional Engineer
REG. No.
12456
ADAM J.
HABERMAN
4-14-2021
SOUTH DAKOTA

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	2	40
LEGEND OF SYMBOLS		

LEGEND OF SYMBOLS

EXISTING FIRE HYDRANT

EXISTING VALVE & BOX

EXISTING TEE

EXISTING REDUCER

EXISTING SLEEVE

EXISTING CROSS

EXISTING WATER MANHOLE

EXISTING SANITARY MANHOLE

EXISTING JUNCTION BOX

1400 EXISTING CONTOURS

8" S VCP EX. SANITARY SEWER (SIZE/TYPE/MATERIAL)

MATERIAL FOR LINES:

VCP	VITRIFIED CLAY PIPE
PVC	SOLID WALL POLYVINYL CHLORIDE PIPE
DIP	DUCTILE IRON PIPE
RCP	REINFORCED CONCRETE PIPE
CIP	CAST IRON PIPE

8"W EXISTING WATER MAIN & SIZE

18"SS EXISTING STORM SEWER & SIZE

2"G GAS MAIN & SIZE

TEL UNDERGROUND TELEPHONE

UP UNDERGROUND POWER

OP OVERHEAD POWER

F FIBER OPTIC

UTV UNDERGROUND CABLE TV

OTV OVERHEAD CABLE TV

WS WATER SERVICE

8"S GRAVITY SANITARY SEWER (TYPE/SIZE)

SFM FORCE MAIN SANITARY SEWER

WATER SHUTOFF

8"W WATER MAIN & SIZE

CLEAN OUT

CAP END

PROPOSED MANHOLE

CONSTRUCTION PLATE MARKER

V PROPOSED VALVE & BOX

T PROPOSED TEE

X PROPOSED CROSS

R PROPOSED REDUCER OR INCREASER

S PROPOSED SLEEVE

H PROPOSED FIRE HYDRANT

B90 PROPOSED 90° BEND

B45 PROPOSED 45° BEND

B22 PROPOSED 22 1/2° BEND

B11 PROPOSED 11 1/4° BEND

SJP PROPOSED S.J. PLUG

MJP PROPOSED M.J. PLUG

Y PROPOSED WYE

VTC VEHICLE TRACKING CONTROL

INLET PROTECTION

WOOD FENCE

CHAIN LINK FENCE

CENTERLINE

PROPERTY LINE

CONC. CURB & GUTTER

PROPOSED APPROACH

PROPOSED SIDEWALK

18"SS STORM SEWER & SIZE

PROPOSED DROP INLET

PROPOSED B1 INLET

D PROPOSED STORM SEWER JUNCTION BOX

1400 PROPOSED CONTOURS

#4 TEST HOLE AND NUMBER

STREET LIGHT

TRAFFIC SIGNAL LIGHT

PEDESTRIAN SIGNAL LIGHT

GUY ANCHOR

POWER POLE

UTILITY CLOSURE

F FIBER OPTIC VAULT BOX

SIGN

SPRINKLER HEAD

CONTROL POINT

GAS METER

MAILBOX

HEDGE, BRUSH, SHRUBS, WOODS

30" DECIDUOUS TREE & SIZE

8" CONIFEROUS TREE & SIZE

Registered Professional Engineer
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SOUTH DAKOTA

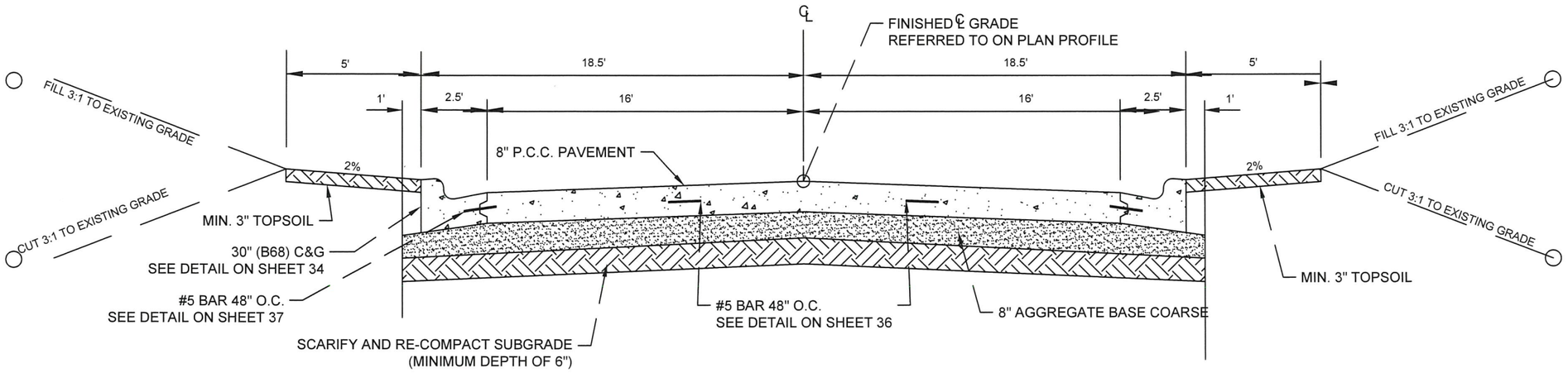
PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	3	41
ESTIMATE OF QUANTITIES		

	GENERAL ITEMS		
1	MOBILIZATION	1	LS
2	INCIDENTAL	1	LS
	TRAFFIC CONTROL		
3	TRAFFIC CONTROL SIGNS	122	SF
4	TYPE 3 BARRICADE	13	EA
5	TRAFFIC CONTROL MISCELLANEOUS	1	LS
	EROSION CONTROL		
6	SEEDING, MULCHING, FERTILIZER	1	LS
7	VEHICLE TRACKING CONTROL	1	EA
8	INLET SEDIMENT CONTROL	4	EA
9	SILT FENCE	100	LF
10	CLASS A RIP-RAP	10	TON
	REMOVALS AND GRADING		
11	SAW EXISTING CONCRETE	42	LF
12	REMOVAL OF CONCRETE PAVEMENT	13	SY
13	REMOVAL OF CURB & GUTTER	6	LF
14	REMOVE STORM SEWER PIPE	49	LF
15	UNCLASSIFIED FILL	1	LS
16	UNDERCUTTING	100	CY
17	TOPSOIL	1	LS
18	WATER FOR EMBANKMENT OR GRANULAR MATERIAL	100	KGAL

	SANITARY SEWER		
19	CONNECT TO EXISTING MANHOLE	1	EA
20	F&I 48" MANHOLE 6' TO 8'	1	EA
21	F&I 48" MANHOLE 8' TO 10'	1	EA
22	F&I 48" MANHOLE 10' TO 12'	2	EA
23	F&I 48" MANHOLE 12' TO 14'	1	EA
24	F&I 48" MANHOLE 14' TO 16'	1	EA
25	F&I 48" MANHOLE 16' TO 18'	2	EA
26	8" BOOT FOR MANHOLE	20	EA
27	MANHOLE FRAME & COVER	8	EA
28	8" PVC SANITARY SEWER PIPE 6'-8' DEEP	505	LF
29	8" PVC SANITARY SEWER PIPE 8'-10' DEEP	320	LF
30	8" PVC SANITARY SEWER PIPE 10'-12' DEEP	216	LF
31	8" PVC SANITARY SEWER PIPE 12'-14' DEEP	361	LF
32	8" PVC SANITARY SEWER PIPE 14'-16' DEEP	311	LF
33	8" PVC SANITARY SEWER PIPE 16'-18' DEEP	283	LF
34	8" SEWER BEDDING MATERIAL	1996	LF
35	8" SANITARY SEWER CAP	2	EA
36	8" SANITARY SEWER RESTRAINED JOINT PIPE	84	LF
37	16" SANITARY SEWER CASING PIPE	50	LF
38	SANITARY SEWER DEWATERING	1	LS
	STORM SEWER		
39	F&I SF 10'x4' TYPE S INLET (4'-6' DEEP)	2	EA
40	F&I SF 5'x3' TYPE S INLET (2'-4' DEEP)	2	EA
41	TYPE S FRAME & COVER	4	EA
42	F&I 48" ARCH RCP, CLASS 3	62	LF
43	F&I 15" ARCH RCP, CLASS 3	63	LF
44	F&I 48" ARCH RCP FLARED END SECTION	2	EA
45	F&I 15" ARCH RCP FLARED END SECTION	2	EA
46	STORM SEWER BEDDING MATERIAL	125	LF
	SURFACING		
47	6" AGGREGATE BASE COURSE	6072	SY
48	B68 CURB & GUTTER	1550	LF
49	8" PCC FILLET	910	SF
50	8" PCC PAVEMENT	5325	SY
51	8" PCC VALLEY GUTTER	384	SF
52	INSERT STEEL BARS IN PCC PAVEMENT	27	EA
53	6" APPROACH PAVEMENT	891	SF
54	GEOTEXTILE FABRIC	100	SY

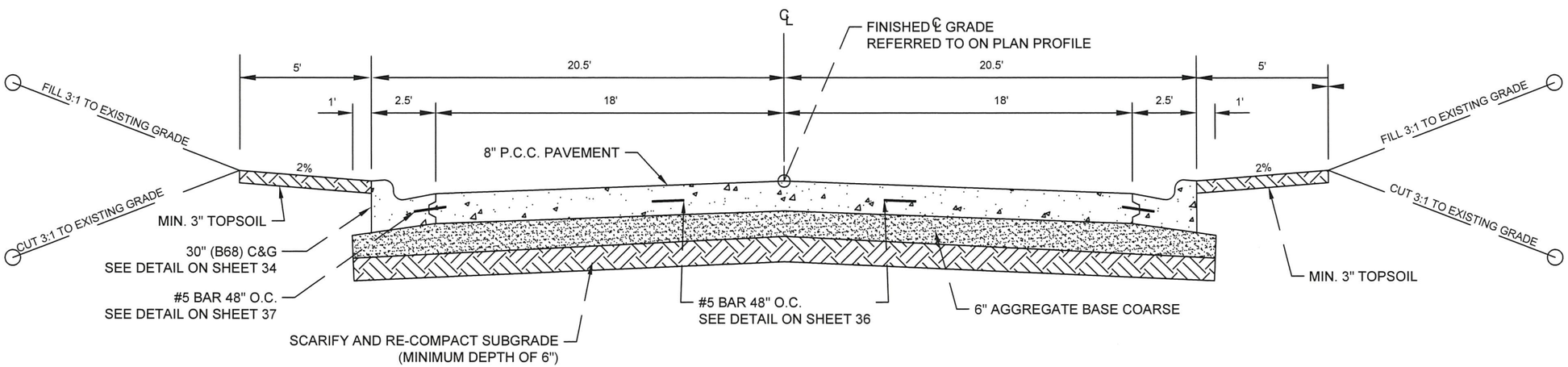
PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	4	41
TYPICAL SECTION		

TYPICAL STREET DETAIL
COLTON AVENUE



Registered Professional Engineer
REG. No.
12456
ADAM J.
HABERMAN
4-14-2021
SOUTH DAKOTA

TYPICAL STREET DETAIL
23rd STREET
Sta. 1+00 to Sta. 13+57



GENERAL NOTES

SPECIFICATIONS TO BE USED

City of Yankton Standard Specifications and the South Dakota Department of Transportation (SDDOT) Standard Specifications for Roads and Bridges 2015 Edition and Required Provisions, Supplemental Specifications, and/or Special Provisions as included in the Proposal.

UTILITIES

Location and protection of all underground utilities is the Contractors responsibility. The Contractor will be required to coordinate work with the utility companies. Existing utilities and service lines that coincide with proposed underground main locations are to be located in advance by the contractor such that proposed underground mains can be adjusted to avoid conflict.

Utility locations are coordinated by calling: 1-800-781-7474 or dial 811

SEQUENCE OF OPERATIONS

The Contractor shall use the following sequence of operations that are listed on the traffic control sheets unless an alternate is approved by the Engineer. An alternate sequence must be submitted in writing a minimum of one week prior to the preconstruction meeting.

23rd Street is to remain closed, unless otherwise directed by the Engineer to provide temporary access.

ACCEPTANCE TESTING

The City will be responsible for taking the first acceptance test and a backup test if required. All subsequent tests required due to failures will be paid by the Contractor by deducting the cost from the pay request.

INCIDENTAL WORK

All salvageable materials shall be taken out intact and stockpiled within the right-of-way to the satisfaction of the Engineer. The Contractor shall perform salvage operations in a manner that will prevent damage to the salvageable materials.

Salvable materials will be picked up by the City.

All concrete removed from the existing structures and other disposable material shall be disposed of in accordance with the Notes Regarding Waste Disposal Site

TRAFFIC CONTROL NOTES

TRAFFIC CONTROL

The unit quantity for Traffic Control was determined and based on the proposed sequence of operations. Any change in sequence requested by and primarily for the benefit of the Contractor which increases the quantity, will be at the contractor's expense.

TRUCK ROUTES

The Contractor shall only haul materials in and out of the construction site on the streets shown in the traffic control plans. All fully loaded trucks delivering materials or hauling out removals shall only utilize the streets labeled as "Primary Haul Route." Empty or lightly loaded trucks may utilize "Secondary Haul Routes" with the permission of the Engineer.

EROSION CONTROL NOTES

DEWATERING AND EROSION CONTROL

Pumping required for the removal of surface water from the work area and/or depressions will be considered incidental to other pay items and not paid for separately. The Contractor shall be responsible for obtaining the required erosion control permits from the South Dakota Department of Environment and Natural Resources.

SITE MAINTENANCE

The Contractor is to keep the project site properly maintained and graded to drain storm water. No standing water is permitted on site. A penalty of $500/day will be assessed each day standing water is not removed from site. All regulations pertaining to Storm Water Pollution Prevention will be enforced. Direct discharge of storm water into the storm sewer system is not acceptable.

SILT FENCE NOTES

1. CONSTRUCTION

The work covered by this section consists of furnishing all labor and equipment and the performance of all operations in connection with the construction, maintenance and removal of the silt fence for the control of siltation on the project, complete and in accordance with the plans and standard plates. The Contractor shall be responsible for accomplishing the required construction work on this project in such a manner as to effectively minimize and control water pollution which might be caused by soil erosion from the project. It is intended that these features be maintained in appropriate functional condition from initial construction stages to final completion of the project.

After rainfall events, the Contractor shall take all necessary precautions to prevent silt from being carried away when water is being pumped off of the project site.

In addition to the details shown in the plans, other provisions for controlling erosion may be incorporated.

2. MATERIALS

A. Steel Fence Posts

The steel line posts for field fence shall have a cross section of one and one-half inches by one and one-half inches. The average weight shall be less than 1.33 pounds per linear foot. Paint for steel fence posts shall be the manufacturers standard paint finish.

B. Silt Fabric

The approved brands of engineering fabrics for silt fence are listed below:

Manufacturer/Distributor	Brand Name
Amoco Fabrics & Fibers Co.	Silt Stop
Carthag Mills	FX-325
Linq Industries Fabrics	GTF 400 EO
Mirafi Division of Nocolon	700 XG
Webtec, Inc.	Econofence with netting

3. BACKFILL

All compaction of backfill shall be accomplished with a mechanical tamper or pneumatic tamper. All compacting equipment shall be operated according to the manufacturers recommendations.

4. PAYMENT

Payment shall be based on the lineal foot of silt fence satisfactorily constructed and measured from outside of the end posts. The work completed in accordance with the plans and specifications at the applicable contract price in the bid schedule which price shall constitute full compensation for furnishing all materials, equipment, labor, and tools necessary for completion of the work. The unit price shall also include removing muck from behind the silt fence after rain events and removing the silt fence when it is no longer needed.

Refer to Standard Plates 734.04 – Low flow silt fence.

VEHICLE TRACKING CONTROL

1. CONSTRUCTION

The work covered by this section consists of furnishing all labor and equipment and the performance of all operations in connection with the construction of temporary vehicle tracking control on the project, complete and in accordance with the plans and standard plates. The Contractor shall be responsible for accomplishing the required construction work on this project in such a manner as to effectively minimize and control water pollution which might be caused by vehicular tracking of soil.
It is intended that these features be maintained in appropriate functional condition whenever vehicles come or go from the construction site where there is dirt exposed.
In addition to the details shown in the plans, other provisions for controlling erosion may be incorporated. See detail

2. MATERIALS

Aggregate base course shall be used for the temporary vehicular tracking control surface. If necessary 11/2" to 3" rock shall be used for stabilization underneath of the service gravel.

3. LABOR AND EQUIPMENT

All necessary labor and equipment shall be supplied to clean up any dirt or gravel off of the paved roadway surfaces at the end of each day. The contractor shall also remove any service gravel that has dirt mixed in with it from the project site when the tracking control is no longer necessary. Clean service gravel can be incorporated into the base material for the roadbed.

4. PAYMENT

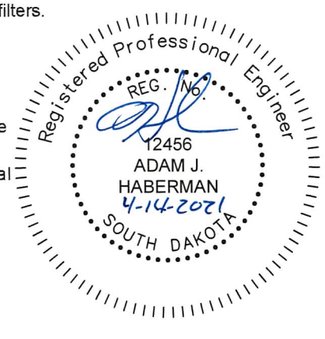
Unit price for "Temporary Vehicle Tracking Control" shall be the amount paid for each site where the engineer requires the use of the temporary vehicle tracking control for however long it is needed. The Contractor will be charged $50.00 for each day that dirt is not cleaned off of the street after it is placed or tracked onto the pavement.

INLET SEDIMENT CONTROL

Refer to Standard Plates 734.11. Drop inlet sediment filters.

STREET SWEEPING

The contractor shall be responsible for maintaining a clean and well-kept work site. Adjacent streets shall be swept clean of construction debris at the Engineer's request. Street sweeping shall be considered incidental to the project. No separate payment will be made.



PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	6	41
GENERAL NOTES		

REMOVAL NOTES

GENERAL NOTES

The Contractor will be required to raze, remove and dispose of all buildings and foundations, structures, fences, advertising signs, and other obstructions of which any portion are on the right-of-way or Temporary Easements except Utilities and those for which other provisions have been made for removal, in accordance with Section 110 of the Standard Specifications.

The removal and disposal of all buildings, foundations and other obstructions not removed under Incidental Work or on a unit basis shall be considered as subsidiary work to the other Contract Items and no separate payment will be made for their removal and disposal.

REMOVAL OF EXISTING CONCRETE PAVEMENT

Payment for concrete removal is included in the contract unit price per square yard for "Removal of Concrete Pavement". Payment shall be at the contract unit price per square yard, regardless of variations in thickness. Joints shall be sawed wherever existing concrete is to be connected to new construction.

When asphalt is laid over concrete pavement, removal of the asphalt surfacing shall be incidental to the unit price for "Removal of Concrete Pavement".

WASTE DISPOSAL SITE

Contractor shall dispose of broken concrete and asphalt generated by this project at the city stockpile site located at 23rd and Kellen Gross Drive. No tipping fee will be assessed to Contractor for broken concrete and asphalt disposed of at this site Concrete and asphalt is to be kept separate from earth material during the removal process. Concrete and asphalt may be mixed.

Asphalt contaminated with soil during the removal process or concrete containing reinforcing steel or contaminated with soil must be disposed of at the Yankton rubble site, 23rd and Kellen Gross Drive. Disposal fees shall be the Contractors responsibility, and considered incidental to other pay items.

The Contractor will be required to use a state permitted solid waste disposal facility. The Contractor can obtain a list of permitted solid waste disposal facilities in the Yankton area or discuss proper disposal of construction and demolition debris by contacting Waste Management Program at 1-(605)-773-3153.

Construction/demolition debris may not be disposed of within the ROW

UNCLASSIFIED FILL

Unclassified Fill will be paid for on a lump sum basis. The bid item for "Unclassified Fill" shall include removing the existing material to a depth of 14 inches below the new road surface shown on the typical sections. Estimated quantities in cubic yards are shown below.

Estimate of 531 cu yds. of fill shall be hauled into the appropriate areas. Any fill shall be furnished by the City of Yankton from the designated stockpile located at 23rd and Kellen Gross Drive. The contractor will be responsible for loading and hauling the unclassified fill from the stockpile to the project location.

Any unsuitable excess material is to be hauled to City property located at 33rd and Douglas Ave.

Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Cut-Fill	Full	1.00	1.30	87689.59	1439.49	1970.78	531.29

GENERAL UTILITY NOTES

SANITARY SEWER MANHOLE

The Contractor shall drill into the existing sanitary sewer manhole with an 8" boot. The flowline in the manhole shall be reconstructed and modified as necessary to provide a smooth flow transition in the manhole, created a smooth monolithic channeled flowline.

Each unit price shall include all materials and labor to furnish & install each manhole. Measurement shall be made on a per each basis based on depth under item "48" Manhole X' to X' Deep".

SANITARY SEWER CASING PIPE & WEST CITY LIMITS ROAD CROSSING

The sanitary sewer main crossing beneath West City Limits Road shall be constructed using a jack and bore system to avoid pavement removal. The 8" PVC sanitary sewer pipe shall be installed in a 16" steel casing pipe with a wall thickness of 0.250". The pipe slope tolerance will be -0.1% to +0.25% from the design 0.5%.

The launch pit will be on the west side of West City Limits Road and the receiving pit shall be on the east side of West City Limits Road to avoid applying lateral pressure on the existing manhole during the jack bore process.

PAVING & RESTORATION NOTES

GEOTEXTILE FABRIC FOR SUBGRADE STABILIZATION

Geotextile fabric shall be installed at locations designated by the engineer underneath the granular base course. The bid item GEOTEXTILE FABRIC has been established to pay for all labor, equipment and material to install the fabric.

Pay quantities for the geotextiles will be paid for at the contract price per square yard in place. Measurement for payment excludes the geotextile used for overlapping as well as seam overlaps. Installation shall be in accordance with the manufacturer's recommendations. Overlap shall be a minimum of 24". The end of the roll shall overlaps shall be 3' min.

The contractor shall not drive equipment directly on top of the geotextile. Should the geotextile be torn or punctured, the damaged area shall be repaired or replaced by the contractor at no expense to the owner. The repair shall consist of a patch of the same type of geotextile a minimum of 3' from the edge of any part of the damaged area. Geotextile fabric that conforms to the requirements listed in the SDDOT Standard Specifications, Sections 831, will be acceptable for this project. The contractor shall provide a certificate of compliance verifying that the material meets the specification prior to the installation of the fabric.

AGGREGATE BASE COURSE

Aggregate Base Course will be supplied by the City of Yankton. Material can be obtained at City stockpile site located at 23rd and Kellen Gross Dr. This material is to be weighed before leaving landfill. The Contractor is to supply his own personnel and equipment to load trucks. Landfill hours are from 8am to 3:45pm. This material to be used under all newly placed concrete /asphalt and to maintain access to intersecting streets and driveways as needed. Unit price shall constitute full compensation for personnel and equipment to load, haul, and place material. Aggregate Base Course shall be compacted to 95% of standard proctor density.

SURFACING THICKNESS DIMENSIONS

Except as hereinafter set forth, plans square yards will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans square yards will not be varied to achieve the required elevation.

8" NONREINFORCED CONCRETE PAVEMENT

The Coarse Aggregate shall be Crushed Ledge Rock.

The fine aggregates may require screening as determined by the Engineer.

The concrete mix shall be Class A40 concrete paving mix when slip form construction is used and Class A45 when formed construction is used.

Portland Cement Concrete Pavement shall have a minimum cement content of 600 pounds per cubic yard.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to bring the base course to final grade prior to placement of the concrete.

A construction joint shall be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

There will be no direct payment for trimming of the Base Course for PCC pavement. The trimming will be considered incidental to the related items required for PCC pavement. Trimming shall be performed as required by Section 380.3c of the Standard Specifications.

An automated paving machine such as a Bidwell, or equivalent, shall be required for main line paving. An air or vibratory screed will not be allowed for main line paving.

MANHOLE FRAME & COVER

All costs for adjustment of the sewer manhole frame and lid to finished grade including removal and repair upper courses of brick or concrete, grouting, water-proofing and adjustment rings shall be incidental to the contract unit price per each for "Manhole Frame & Cover".

All existing rims & covers will be replaced with Neenah R1733 frame and lid. The lids shall contain concealed pick holes and be equipped with a self-sealing gasket type covers.

MANHOLE EXTERNAL FRAME SEAL

The furnishing and installing of the manhole frame seal shall be paid for under replace and adjust manhole frame and lid bid item. Furnishing and installing of the complete manhole frame seal and all appurtenances necessary shall be included to the contract unit price per each for "Manhole Frame & Cover" (See section 210 of the City of Yankton standard specifications for sanitary sewer mains, service lines and appurtenances for approved products list).

Registered Professional Engineer
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4-14-2021
SOUTH DAKOTA

STEEL BAR INSTALLATION

The Contractor shall install Steel No. 5x24" epoxy coated deformed tie bars into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor steel bars in the drilled holes.

The steel bars shall be cut at the specified length by sawing and shall be free from burring or other deformations. Shearing will not be permitted.

Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type 1, Grade 3 (equivalent to AASHTO M235, Type 1, Grade 3).

The diameter of the drilled holes in the existing concrete pavement for the steel bars shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. Holes drilled into the existing concrete pavement shall be located at mid-depth of the slab and true and normal. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturers designated rate and be equipped with an automatic shut-off. The pump shall shut off when any of the components are not being metered at the designated rate. Fill the drilled holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Care shall be taken to prevent epoxy form running out of the horizontal holes prior to steel bar insertion. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed.

Cost for the epoxy resin adhesive, steel bars, drilling of holes, applying the adhesives, installing the steel bars into the drilled holes and all other items incidental to the installation of the steel bars shall be included in the contract unit price per each for "Install Steel Bar in Concrete Pavement".

Steel bars shall be installed at the following locations:

LOCATION	#5 BARS EACH
13+57 – 20.5'R TO 20.5'L	23
TOTAL	23

CONCRETE JOINT SEALER

Concrete Joint Sealer shall be hot poured elastic joint sealer and shall conform to section 870 of the Standard Specifications. Payment for concrete joint sealer shall be incidental to PCC Pavement and no separate payment shall be made.

CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, Sidewalks, Valley Gutters, and Fillets shall be cured. All concrete shall be cured in accordance with section 380.3.M2 of the 2015 SDDOT Standard Specifications for Roads and Bridges except as modified in this note. All concrete shall be cured with a White Pigmented Linseed Oil Base Emulsion Compound when cured using the Impervious Membrane Method. Curing compound material shall be in accordance with section 821.1.

SALVAGING, STOCKPILING, AND PLACING TOPSOIL

Existing vegetation shall be salvaged, incorporated and placed with the topsoil as far as practicable.

The areas to be covered with topsoil to a depth of +/- 3 inches comprise all newly graded areas. Material shall be free of rock and debris.

The estimated amounts of salvaged topsoil required to cover the designated areas to the specified depth are as follows:

Table of Topsoil	Cu.Yd.
23rd STREET	275

SEEDING

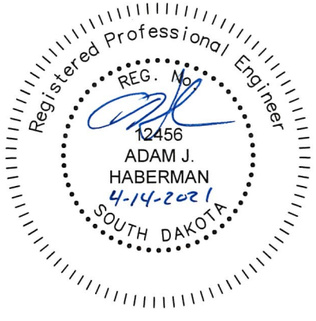
All grass areas disturbed by construction are to be hydro-mulched. Lump sum price will be for all areas disturbed by Contractor. Price shall also include the cost for fertilizer and fiber mulch, refer to SD-DOT Standard Specs 2015 Edition section 730. The following will be provided, by the Contractor, for use on the project unless an alternate is approved by the Engineer. Topsoil not seeded within 14 days of being placed shall have the top 2" tilled and regraded prior to seeding.

The estimated amount of area to be seeded: 1.13 acres

SEED MIXTURE	PURE LIVE SEED/ 1000 FT. SQ.
Kentucky Bluegrass	1 pound
Perennial Rye Grass	1 pound
Park Kentucky Bluegrass	1 pound

FERTILIZER AND MULCHING

Fertilizer shall be a guaranteed analysis of 12-24-6. Rate applied shall be 3.2 lbs. per 1000 S.F. All areas shall be wood fiber mulched at a rate of 50 lbs./1000 S.F. with tackifier at a rate of 1.5lbs./1000 S.F. Method of payment will be incidental to the seeding lump sum bid price. Refer to SD-DOT Specs. 2015 Edition-section 731 and 732 for additional requirement for fertilizer and fiber mulch.



PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	8	41
TRAFFIC CONTROL		

LEGEND

- PRIMARY HAUL ROUTE
- SECONDARY HAUL ROUTE
- PROJECT AREA
- TRAFFIC DRUMS
- TRAFFIC LANE DIVIDER

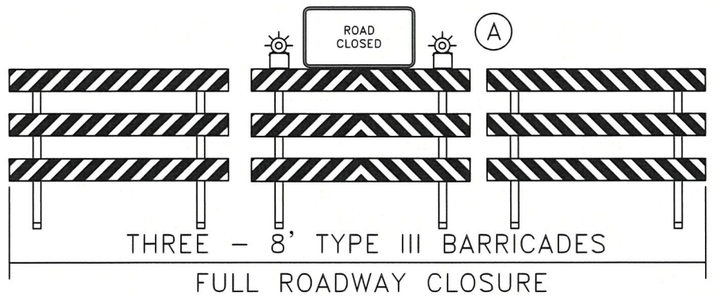
PEDESTRIAN TRAFFIC CONTROL
TRAFFIC CONTROL DEVICES FOR SIDEWALK CLOSURES AND PEDESTRIAN DETOURS SHALL BE PAID FOR UNDER TRAFFIC CONTROL MISC.
(SDDOT STANDARD PLATE #634.33 MAY BE USED AS A GUIDE FOR THESE SITUATIONS, SHOWN ON SHEET 66)

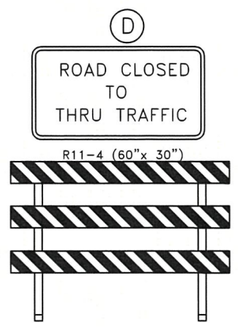
TRAFFIC CONTROL
SIGNAGE & DETOURS
PRIMARY & SECONDARY HAUL ROUTES

SCALE: 1" = 350'

ITEMIZED LIST FOR TRAFFIC CONTROL BID ITEM					
SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	Sq. Ft. PER AMAOUNT	SUB TOTAL
R11-2	48" x 30"	ROAD CLOSED	2	10	20
R3-1	24" x 24"	NO RIGHT TURN (SYMBOL)	1	4	4
R3-2	24" x 24"	NO LEFT TURN (SYMBOL)	1	4	4
W20-1	48" x 48"	ROAD WORK AHEAD	1	16	16
W20-3	48" x 48"	ROAD CLOSED TO THRU TRAFFIC	2	16	32
W20-5	48" x 48"	RIGHT LANE CLOSED AHEAD	1	16	16
W4-2	48" x 48"	LANE ENDS	1	16	16
W6-4	18" x 12"	TWO WAY TRAFFIC	3	1.5	4.5
G20-2	36" x 18"	END ROAD WORK	2	4.5	9
				TOTAL	121.5
---	---	TYPE III BARRICADES	13	EACH	13

LIST OF OTHER TRAFFIC CONTROLS FOR ROAD CONSTRUCTION		
BID ITEM	DESCRIPTION	QUANTITY
TRAFFIC CONTROL MISC.	TYPE I & II BARRICADES, CONES, VERTICAL PANELS, DRUMS, BARRICADE WARNING LIGHTS, DELINEATORS. WATCHMAN, TUBULAR MARKERS, AND INSTALLATION OF CITY SIGNS.	LUMP SUM



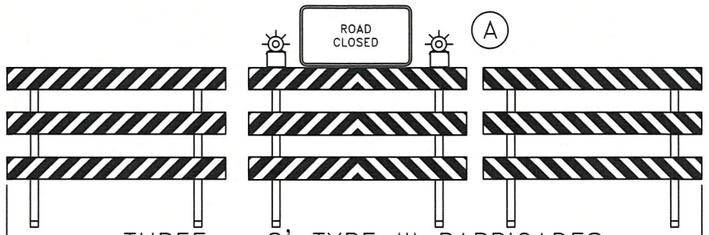


PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	9	41
TRAFFIC CONTROL		

LEGEND

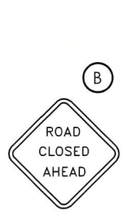
- PRIMARY HAUL ROUTE
- SECONDARY HAUL ROUTE
- PROJECT AREA
- TRAFFIC DRUMS
- TRAFFIC LANE DIVIDER

SCALE: 1" = 60'



PEDESTRIAN TRAFFIC CONTROL
TRAFFIC CONTROL DEVICES FOR SIDEWALK CLOSURES AND PEDESTRIAN DETOURS SHALL BE PAID FOR UNDER TRAFFIC CONTROL MISC.
(SDDOT STANDARD PLATE #634.33 MAY BE USED AS A GUIDE)

TURNING LANE CLOSURE & LANE SHIFT
THE WEST CITY LIMITS ROAD TURNING LANE SHALL BE USED TO DIVERT TRAFFIC FROM THE SOUTH BOUND LANE AWAY FROM CONSTRUCTION ACTIVITES. THE 23rd STREET INTERSECTION AND ALL PRIVATE ENTRANCES MUST REMAIN OPEN AND ACCESSIBLE FOR NORTH BOUND AND SOUTH BOUND TRAFFIC.

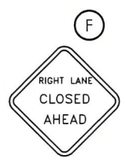


W20-3 (48" x 48")

R3-1 (24" x 24")

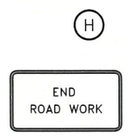
R3-2 (24" x 24")

W20-1 (48" x 48")

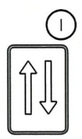


W20-5 (48" x 48")

W4-2 (48" x 48")



G20-2 (36" x 18")



W6-4 (12" x 18")

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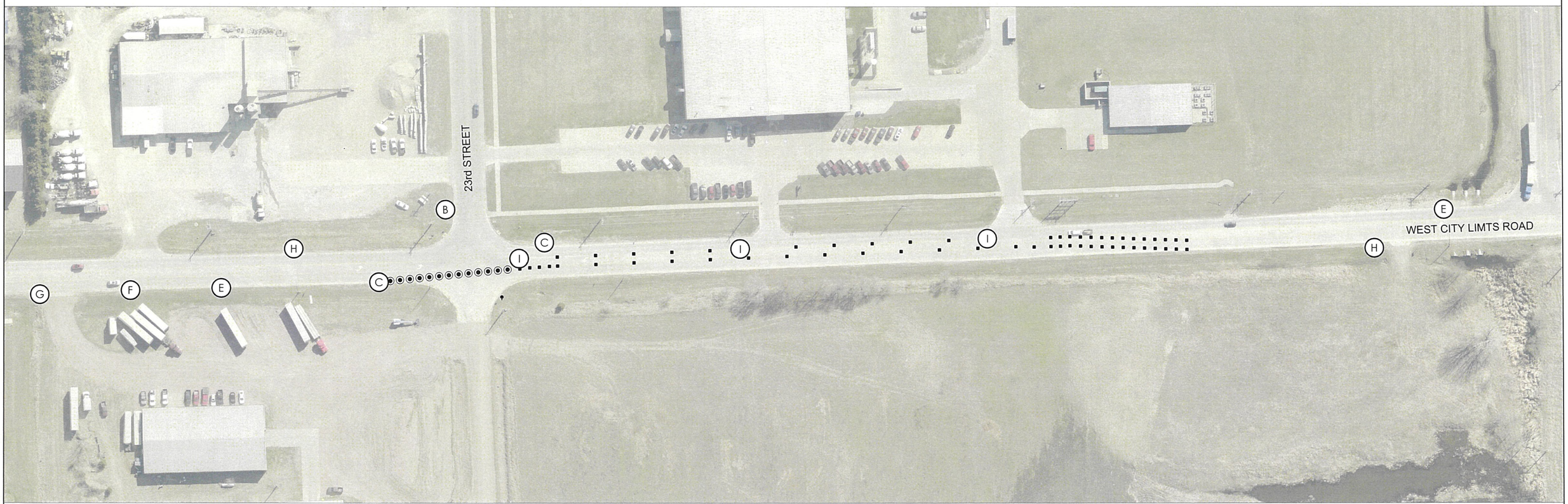

STORM WATER POLLUTION PREVENTION PLAN

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)*

❖ **SITE DESCRIPTION (4.2 1)**

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☐ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☒ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area** 1.3 acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 1.1 acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 5%
- **Soil Properties:** AASHTO Soil Classification **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Missouri River **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Special sequencing requirements** (see sheet).
- **Install stabilized construction entrance(s).**
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install utilities, storm sewers, curb and gutter.**
- **Install inlet and culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Complete final paving and sealing of concrete.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities**.

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☒ Temporary or Permanent Seeding
  - ☐ Sodding
  - ☐ Planting
  - ☐ Mulching (Straw or Cellulose Fiber)
  - ☐ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☐ Roughened Surface (e.g. tracking)
  - ☐ Gabions-Gabion Mattress
  - ☐ Other
- **Structural Temporary Erosion and Sediment Controls**
  - ☒ Silt Fence
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☐ Straw Wattles or Rolls
  - ☐ Diversion Channels/Swales
  - ☐ Channel Liners (TRM)
  - ☐ Stone Rip Rap Sheet
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☒ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection
  - ☒ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Other
- **Wetland Avoidance**

  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☒ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**

  Storm water management will be handled by temporary controls outlined in Section 3 above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**

    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**

    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**

    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- **Maintenance and Inspection Practices(Continued)**
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
  - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
  - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
  - The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☒ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☒ Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☐ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☐ Cleaning Solvents
- ☒ Wood
- ☒ Cure
- ☐ Texture
- ☒ Chemical Fertilizers
- ☐ Other

❖ **(4.2 2.c.(2))**

➢ **Material Management Spill Prevention**

- Housekeeping
  - Only needed products will be stored on-site by the contractor.
  - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
  - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➢ **Product Specific Practices (6.8)**

- Petroleum Products
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Fertilizers
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

➢ **Product Specific Practices (6.8) (Continued)**

- Paints
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- Concrete Trucks
  Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➢ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as booms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➢ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.

➢ **Spill Response (4.2 2 c.(2)) (Continued)**

- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

➢ A reportable spill is a quantity of 25 gallons or more or any spill of oil which: 1) violates water quality standards, 2) produces a "sheen" on a surface water, or 3) causes a sludge or emulsion must be reported immediately to the National Response Center .

➢ Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the SD DENR.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	12	41
SWPPP		

❖ CERTIFICATIONS

➢ Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ City of Yankton

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature. (See the General Permit, Section 6.7.1.C.)

➢ Prime Contractor

This section is to be executed by the General Contractor after the award of the contract and at least 15 days prior to the beginning of construction. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature. (See the General Permit, Section 6.7.1.a .or b.)

❖ CONTACT INFORMATION

➢ Contractor Information:

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field: Cell: Fax:

➢ City Project Engineer

- Name: Brad Moser
- Business Address: 416 Walnut St.
- Job Office Location
- City: Yankton State: SD Zip: 57078
- Office Phone: 605 668-5255 Field: Cell: Fax:

➢ SD DENR Contact Spill Reporting

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ SD DENR Contact for Hazardous Materials.

- (605) 773-3153

➢ National Response Center Hotline

- (800) 424-8802.

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	13	40
EROSION CONTROL		

LEGEND

- INLET PROTECTION
- VTC -VEHICLE TRACKING CONTROL
- SF -LOW FLOW SILT FENCE

SCALE: 1" = 40'

23rd STREET

23rd STREET

VTC

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PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	14	41
UTILITY PLAN		

LEGEND

- Ⓢ - PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER

MH#8 STA. 1+19.08 - 0.00'
1 EA - F&I 48" MANHOLE 10' TO 12' DEEP
2 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

MH#7 STA. 3+50.00 - 0.00'
1 EA - F&I 48" MANHOLE 8' TO 10' DEEP
2 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

MH#6 STA. 5+78.01 - 0.00'
1 EA - F&I 48" MANHOLE 6' TO 8' DEEP
4 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

STA. 0+77.00 - 0.00' to MH#8
40 LF - 8" PVC SANITARY SEWER PIPE 10'-12' DEEP
40 LF - 8" SEWER BEDDING MATERIAL

MH#8 TO MH#7
167 LF - 8" PVC SANITARY SEWER PIPE 8'-10' DEEP
63 LF - 8" PVC SANITARY SEWER PIPE 10'-12' DEEP
230 LF - 8" SEWER BEDDING MATERIAL

MH#7 TO MH#6
198 LF - 8" PVC SANITARY SEWER PIPE 6'-8' DEEP
26 LF - 8" PVC SANITARY SEWER PIPE 8'-10' DEEP
224 LF - 8" SEWER BEDDING MATERIAL

MH#6 TO STA. 6+19.21 - 0.00'
39 LF - 8" PVC SANITARY SEWER PIPE 6'-8' DEEP
39 LF - 8" SEWER BEDDING MATERIAL

MATCH LINE

SCALE: 1"= 40'

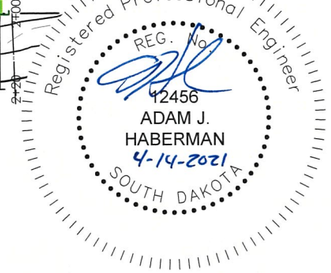
STA. 1+19.08 - 0.00'
MH #8 (11.01' DEEP)
RIM - 1251.98
INV. (E)(8") - 1240.97
INV. (W)(8") - 1241.01

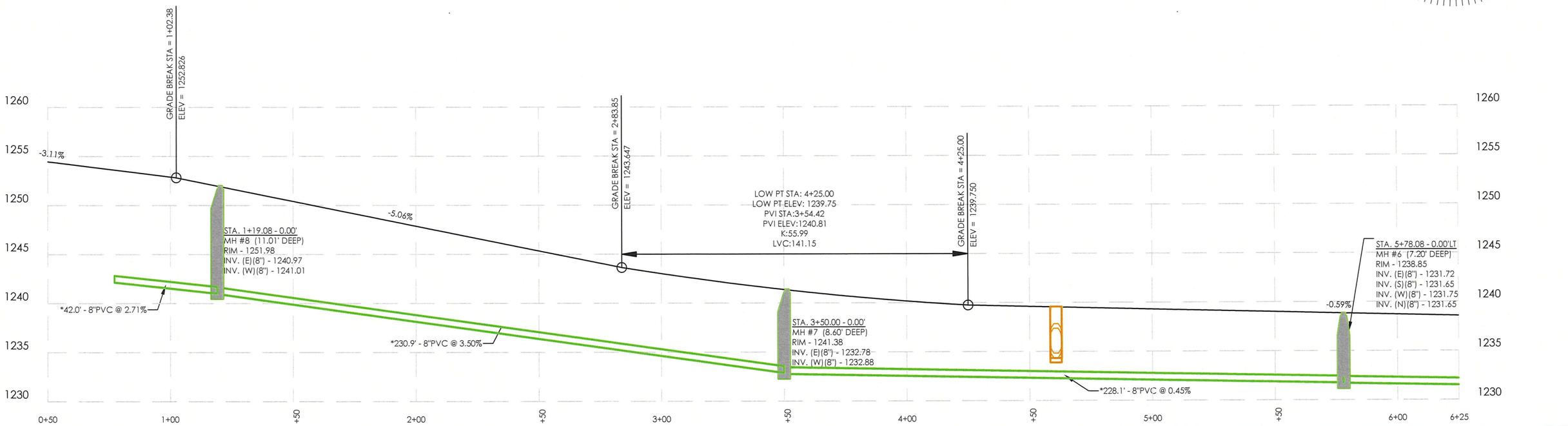
STA. 3+50.00 - 0.00'
MH #7 (8.60' DEEP)
RIM - 1241.38
INV. (E)(8") - 1232.78
INV. (W)(8") - 1232.88

STA. 4+60.78 - 22.84'LT
DI #1 - 10' Type S (4.75' DEEP)
RIM - 1239.56
INV. (S)(58") - 1234.81
INV. (N)(58") - 1234.81

STA. 4+60.70 - 22.83'RT
DI #2 - 10' Type S (5.21' DEEP)
RIM - 1239.56
INV. (N)(58") - 1234.35
INV. (S)(58") - 1234.35

STA. 5+78.08 - 0.00'LT
MH #6 (7.20' DEEP)
RIM - 1238.85
INV. (E)(8") - 1231.72
INV. (S)(8") - 1231.65
INV. (W)(8") - 1231.75
INV. (N)(8") - 1231.65





PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	15	41
UTILITY PLAN		

LEGEND

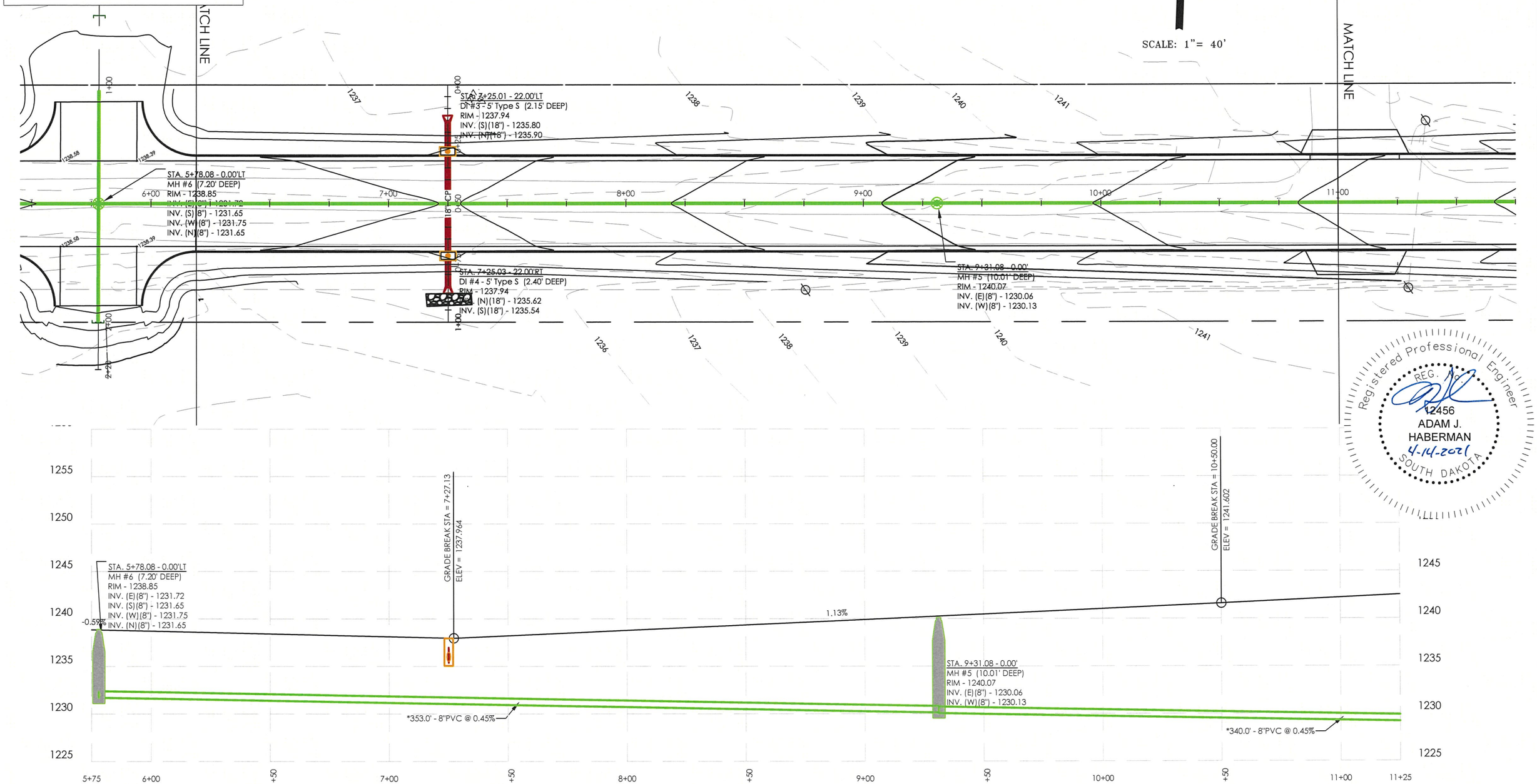
- (S) - PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER

STA. 6+19.21 - 0.00' TO MH#5
174 LF - 8" PVC SANITARY SEWER PIPE 6'-8' DEEP
127 LF - 8" PVC SANITARY SEWER PIPE 8'-10' DEEP
9 LF - 8" PVC SANITARY SEWER PIPE 10'-12' DEEP
310 LF - 8" SEWER BEDDING MATERIAL

MH#5 STA. 2+31.10 - 0.00'
1 EA - F&I 48" MANHOLE 10' TO 12' DEEP
2 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

MH#5 TO STA. 11+00 - 0.00'
104 LF - 8" PVC SANITARY SEWER PIPE 10'-12' DEEP
63 LF - 8" PVC SANITARY SEWER PIPE 12'-14' DEEP
167 LF - 8" SEWER BEDDING MATERIAL

SCALE: 1"= 40'



Registered Professional Engineer
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SOUTH DAKOTA

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	16	41
UTILITY PLAN		

LEGEND

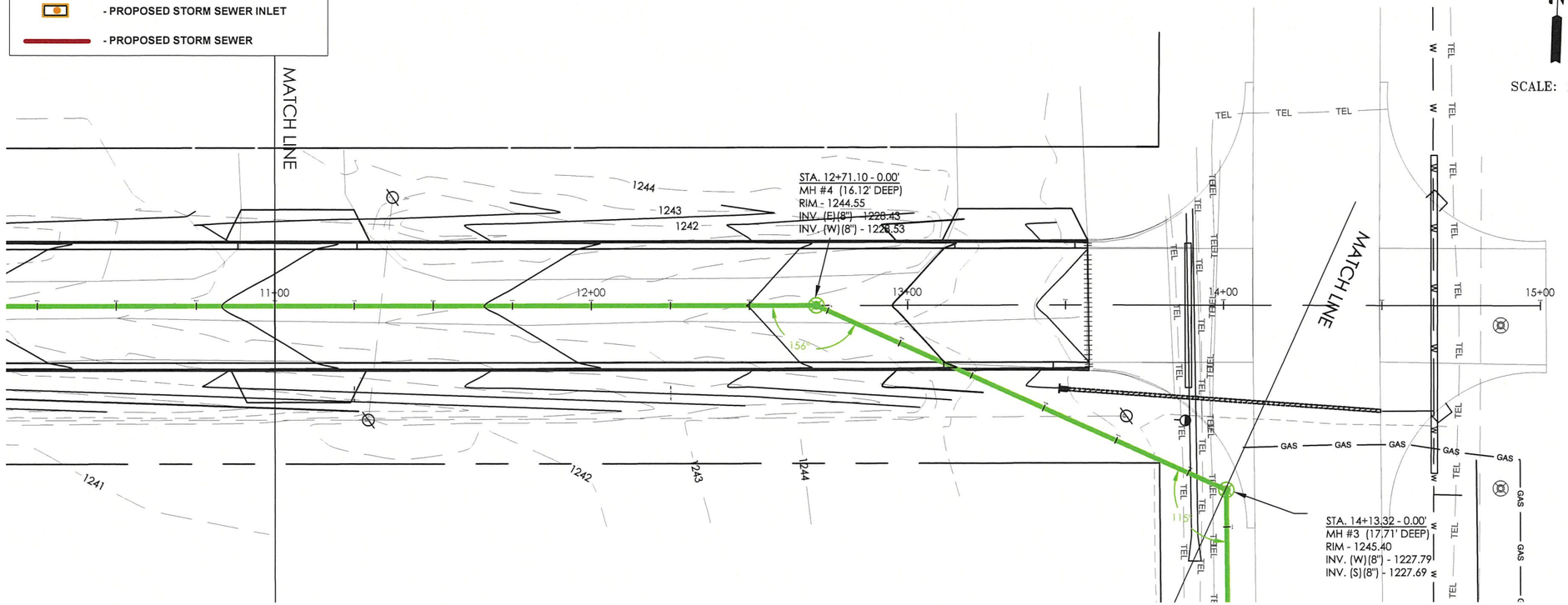
- (S) - PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER

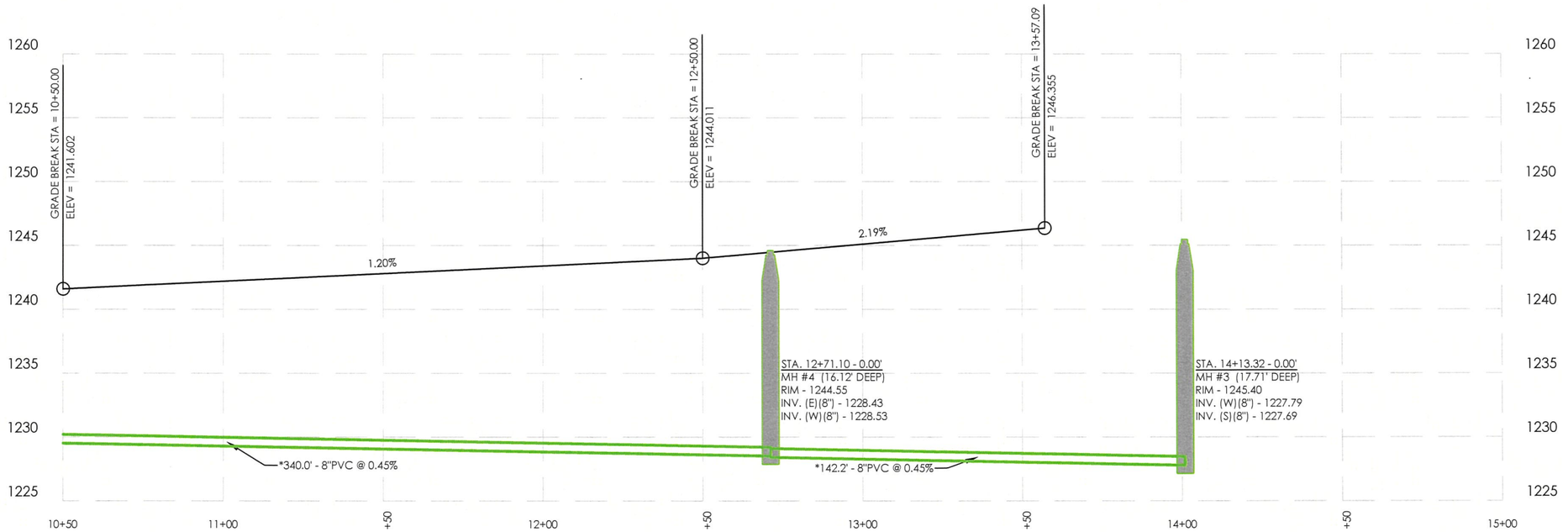
STA. 11+00 - 0.00' to MH#4
61 LF - 8" PVC SANITARY SEWER PIPE 12'-14' DEEP
108 LF - 8" PVC SANITARY SEWER PIPE 14'-16' DEEP
169 LF - 8" SEWER BEDDING MATERIAL

MH#4 STA. 12+71.10 - 0.00'
1 EA - F&I 48" MANHOLE 16' TO 20' DEEP
2 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

MH#4 TO MH#3
138 LF - 8" PVC SANITARY SEWER PIPE 16'-18' DEEP
138 LF - 8" SEWER BEDDING MATERIAL

SCALE: 1"= 40'





PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	17	41
UTILITY PLAN		

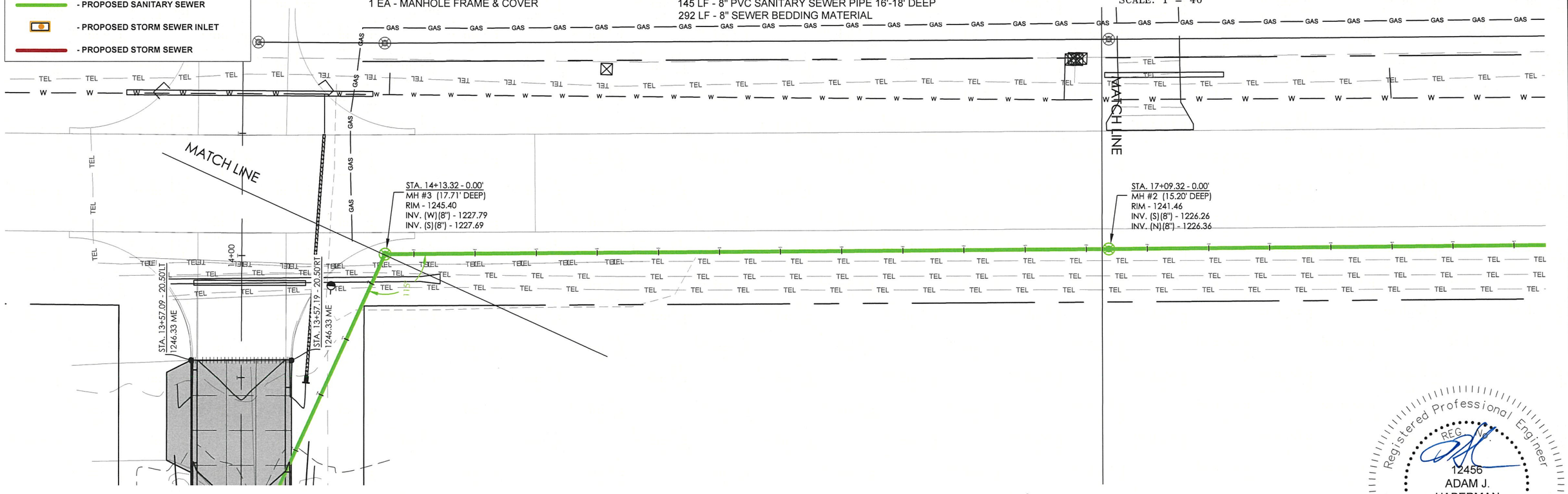
LEGEND

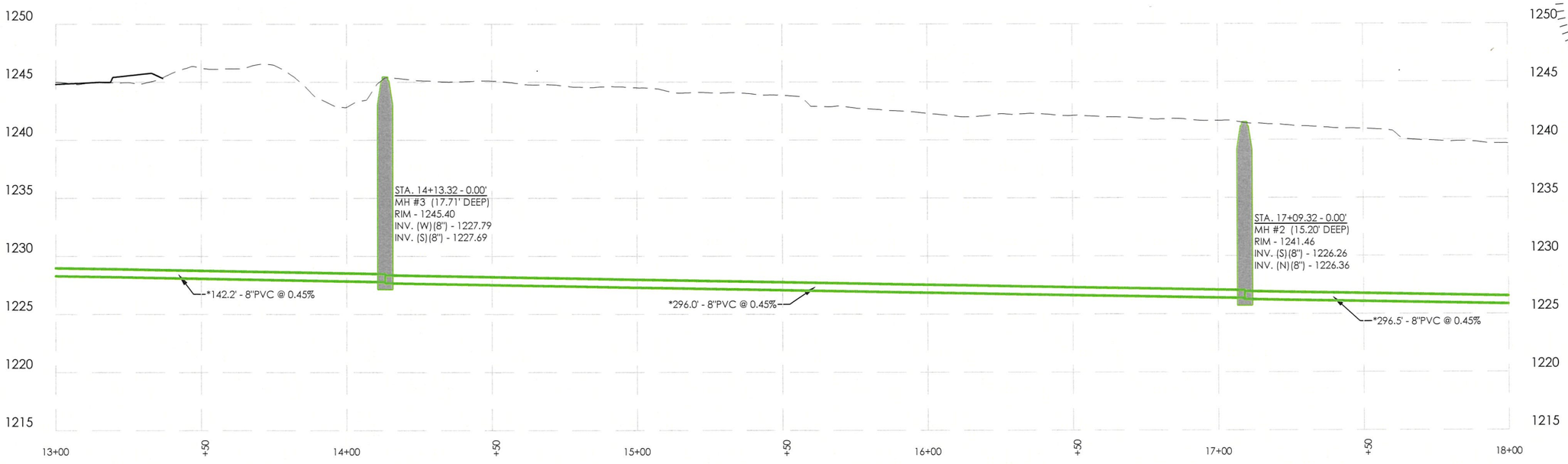
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER

MH#3 STA. 14+13.32 - 0.00'
1 EA - F&I 48" MANHOLE 18' TO 20' DEEP
2 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

MH#3 TO MH#2
147 LF - 8" PVC SANITARY SEWER PIPE 14'-16' DEEP
145 LF - 8" PVC SANITARY SEWER PIPE 16'-18' DEEP
292 LF - 8" SEWER BEDDING MATERIAL

SCALE: 1"= 40'





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PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	18	41
UTILITY PLAN		

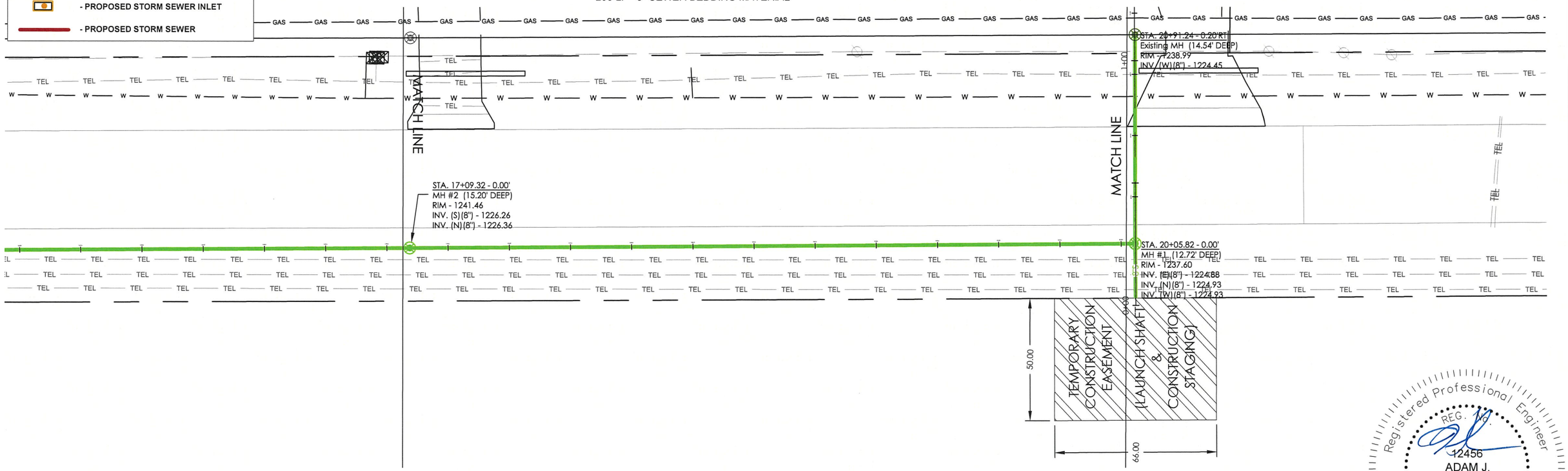
LEGEND

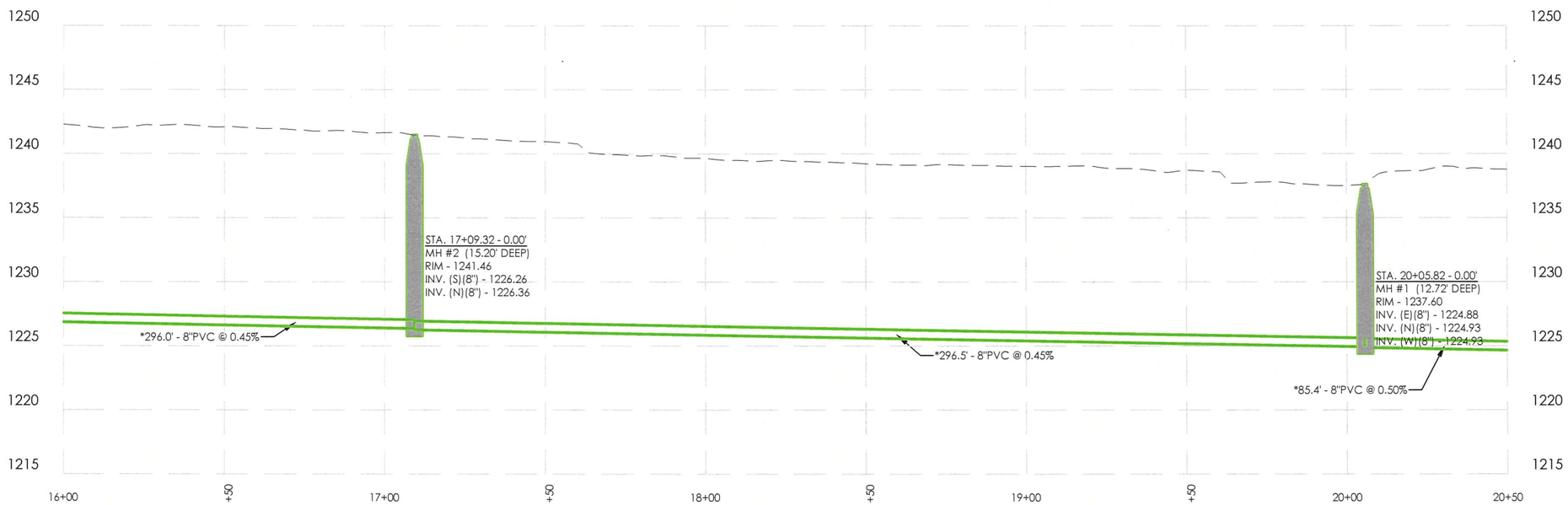
- Ⓢ - PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER

MH#2 STA. 17+09.32 - 0.00'
1 EA - F&I 48" MANHOLE 14 to 16' DEEP
2 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

MH#2 TO MH#1
237 LF - 8" PVC SANITARY SEWER PIPE 12'-14' DEEP
56 LF - 8" PVC SANITARY SEWER PIPE 14'-16' DEEP
293 LF - 8" SEWER BEDDING MATERIAL

SCALE: 1"= 40'





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PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	19	41
UTILITY PLAN		

LEGEND

- (S) - PROPOSED SANITARY SEWER MANHOLE
- - PROPOSED SANITARY SEWER
- - PROPOSED STORM SEWER INLET
- - PROPOSED STORM SEWER

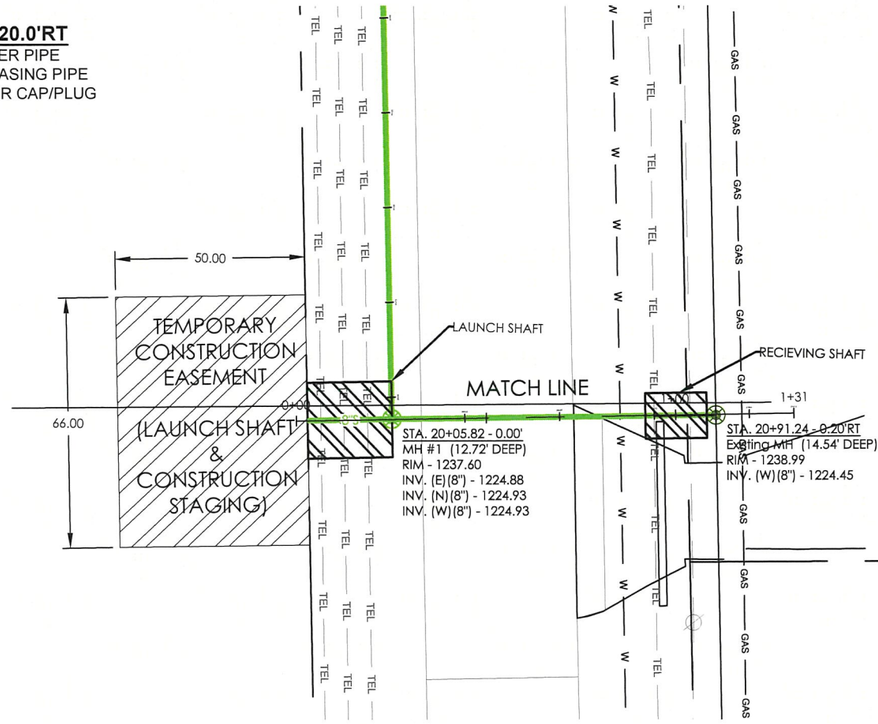
MH#1 STA. 20+05.82 - 0.00'
1 EA - F&I 48" MANHOLE 12' TO 14' DEEP
3 EA - 8" BOOT FOR MANHOLE
1 EA - MANHOLE FRAME & COVER

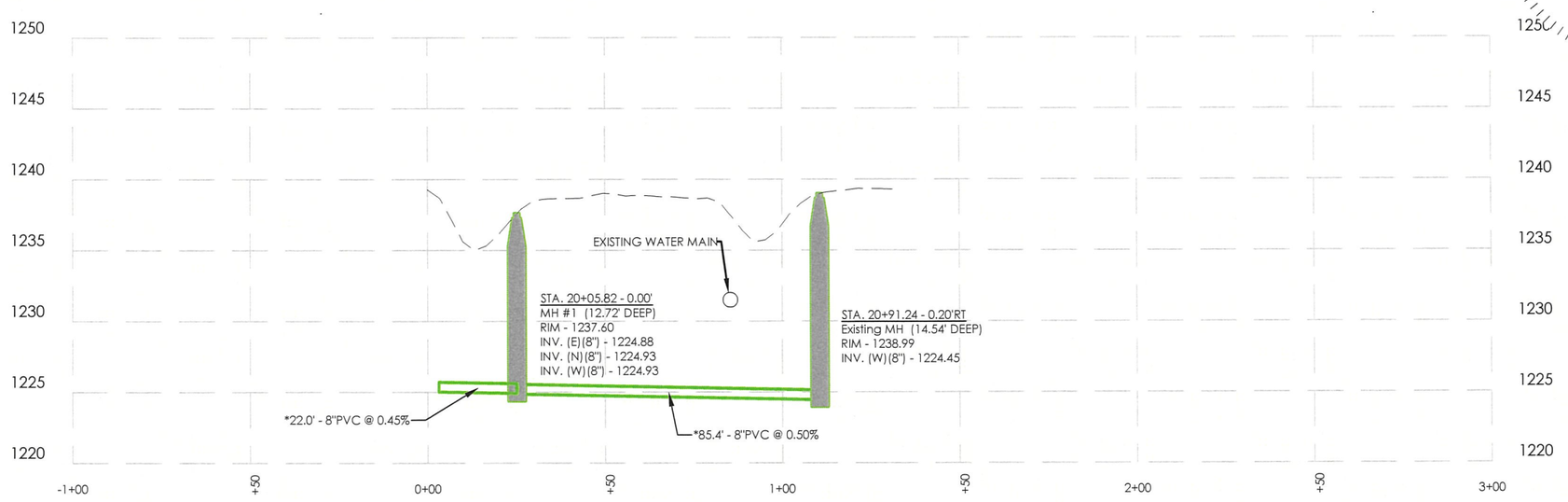
MH#1 TO STA. 20+05.82-20.0'RT
20 LF - 8" PVC SANITARY SEWER PIPE
20 LF - 8" SANITARY SEWER CASING PIPE
1 EA - 8" PVC SANITARY SEWER CAP/PLUG

EXISTING MH TO MH#1
84 LF - 8" PVC SANITARY SEWER PIPE
84 LF - 8" SANITARY SEWER CASING PIPE

Existing MH STA. 20+91.24 - 0.20'RT
1 EA - CONNECT TO EXISTING MANHOLE
1 EA - 8" BOOT FOR MANHOLE

SCALE: 1"= 40'





***NOTE**
THE SANITARY SEWER MAIN FROM THE EXISTING MANHOLE TO MH#1 MUST BE INSTALLED USING AN APPROVED BORING METHOD. NO EXISTING PAVEMENT ON WEST CITY LIMITS ROAD SHALL BE REMOVED.

THE 8" PVC SANITARY SEWER CARRIER PIPE SHALL HAVE AN INSTALLATION TOLLERANCE OF -0.1% AND +0.25% FROM THE DESIGNED 0.5%.

VERIFY EXISTING MANHOLE INVERT ELEVATION.

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PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	20	41
UTILITY PLAN		

SCALE: 1"= 40'

LEGEND

- (S) - PROPOSED SANITARY SEWER MANHOLE
- - PROPOSED SANITARY SEWER
- - PROPOSED STORM SEWER INLET
- - PROPOSED STORM SEWER

DI#3 STA. 7+25.00-20.5'LT
1 EA - 5'x3' TYPE S INLET (2' DEEP)
1 EA - TYPE S FRAME & COVER

STA. 7+25.00-37.0'LT to STA. 7+25.02-37.0'RT
63 LF - F&I 15" ARCH RCP, CLASS 3
63 LF - STORM SEWER BEDDING MATERIAL
2 EA - F&I 15" ARCH RCP FLARED END SECTION

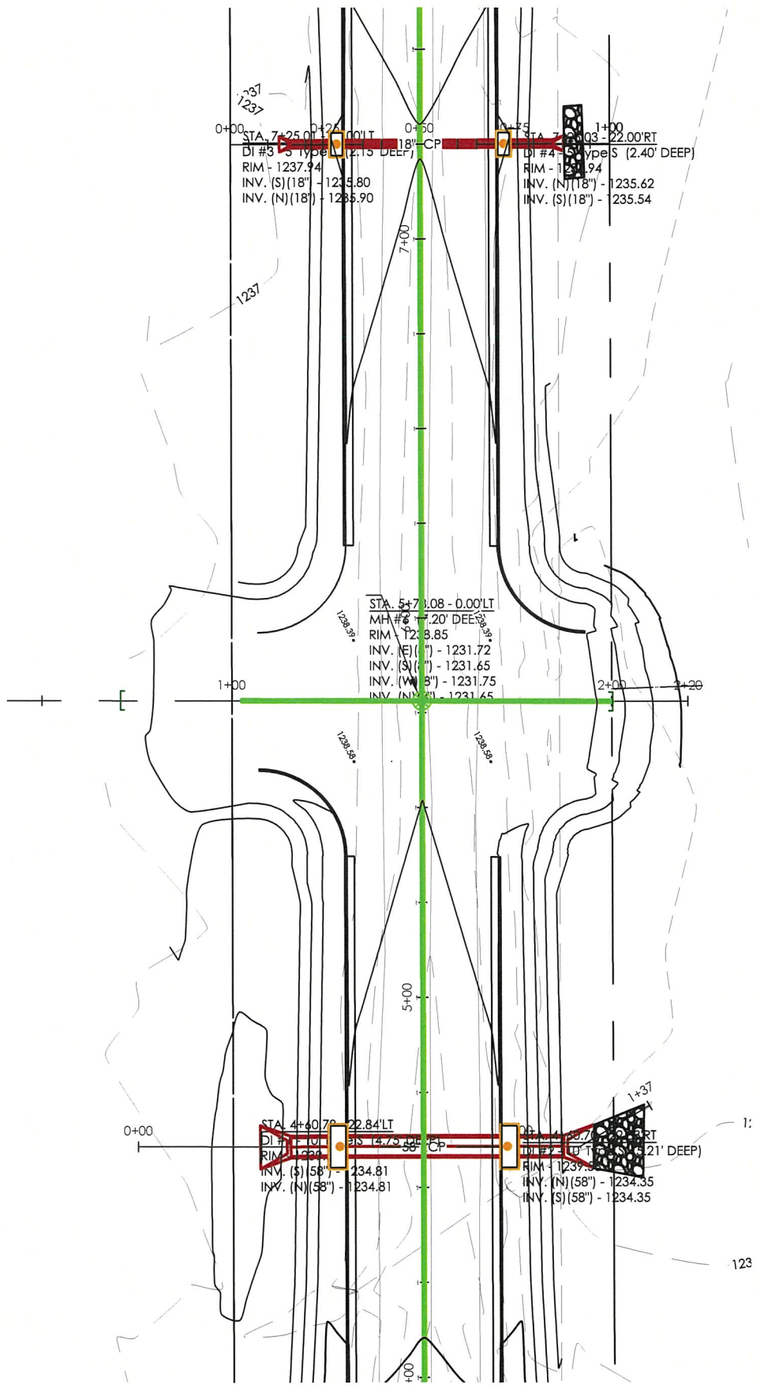
DI#4 STA. 7+25.02-20.5'RT
1 EA - 5'x3' TYPE S INLET (3' DEEP)
1 EA - TYPE S FRAME & COVER

STA. 5+78.01 - 80.00'LT TO 5+77.00 - 50.0'RT
94 LF - 8" PVC SANITARY SEWER PIPE 6'-8' DEEP
94 LF - 8" SEWER BEDDING MATERIAL
2 EA - 8" SANITARY SEWER CAP

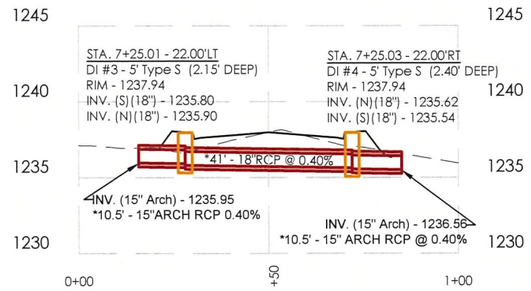
DI#1 STA. 4+60.70-20.5'LT
1 EA - 10'x4' TYPE S INLET (5' DEEP)
1 EA - TYPE S FRAME & COVER

STA. 4+60.00-42.0'LT to STA. 7+25.02-44.0'RT
62 LF - F&I 48" ARCH RCP, CLASS 3
62 LF - STORM SEWER BEDDING MATERIAL
2 EA - F&I 48" ARCH RCP FLARED END SECTION

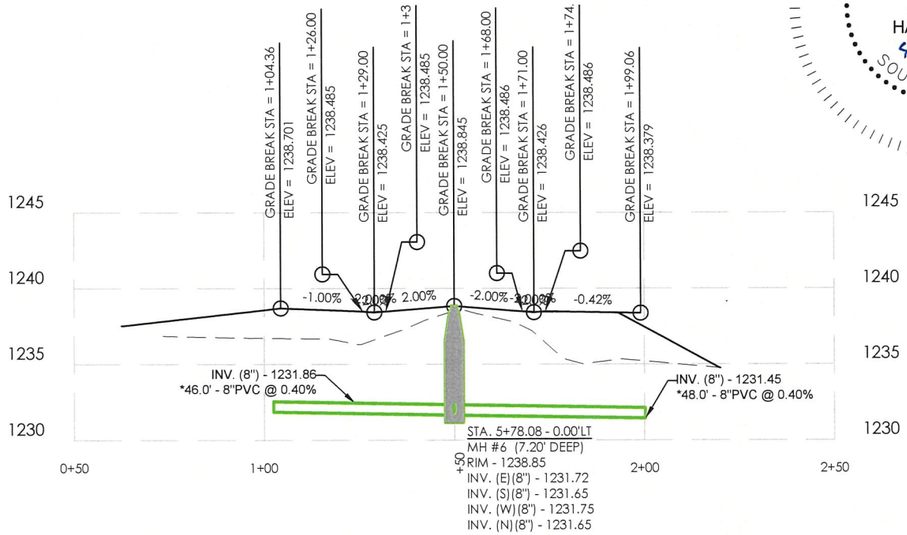
DI#2 STA. 4+60.70-20.5'RT
1 EA - 10'x4' TYPE S INLET (5' DEEP)
1 EA - TYPE S FRAME & COVER



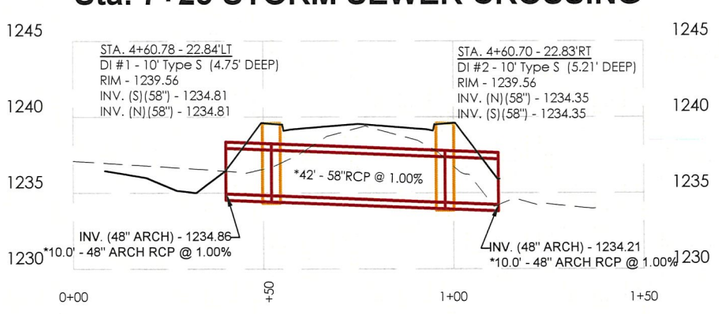
Sta. 7+25 STORM SEWER CROSSING



Sta. 7+25 STORM SEWER CROSSING



Sta. 7+25 STORM SEWER CROSSING



PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	21	41
PAVEMENT		

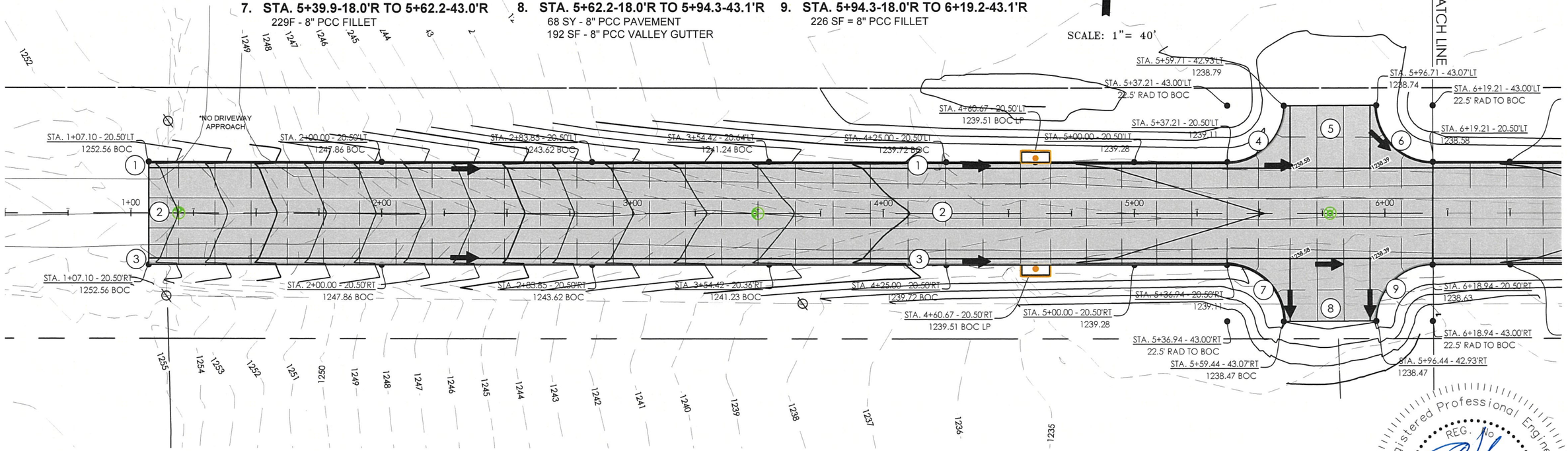
LEGEND

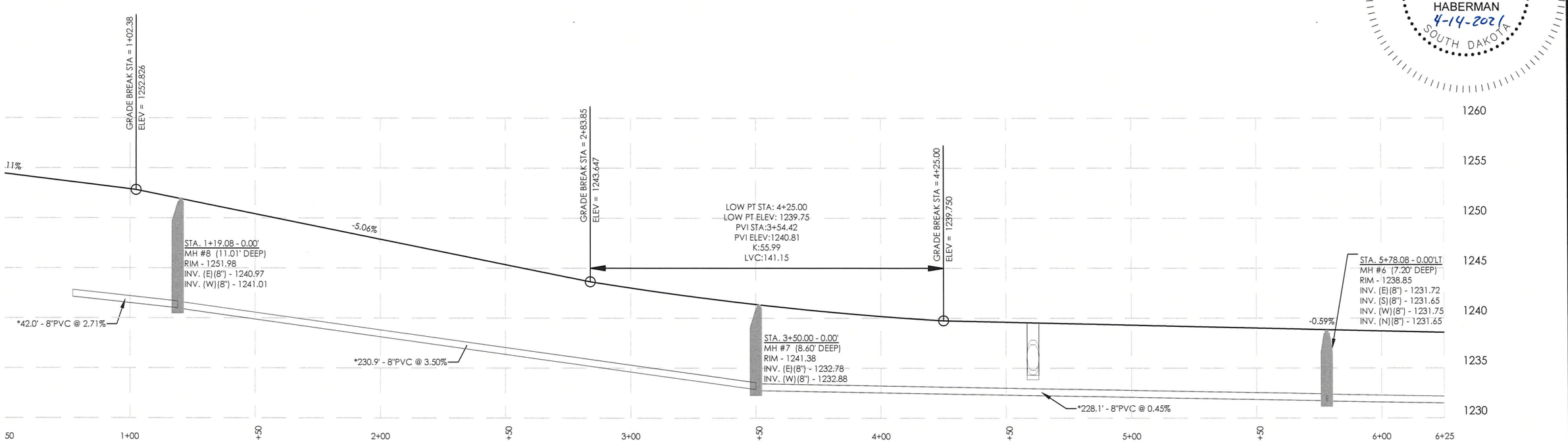
- 8" PCC PAVEMENT
- DRAINAGE FLOW DIRECTION

1. **STA. 1+07.1-20.5'L TO 6+00-20.5'L**
   493 LF - B68 CURB & GUTTER
2. **STA. 1+07.1-18.0'L TO 6+00-18.0'R**
   2048 SY - 8" PCC PAVEMENT
3. **STA. 1+07.1-20.5'R TO 6+00-20.5'R**
   493 LF = B68 CURB & GUTTER
4. **STA. 5+37.2-18.0'L TO 5+62.2-43.0'L**
   226 SF - 8" PCC FILLET
5. **STA. 5+62.2-67.9'L TO 5+94.3-18.0'L**
   68 SY - 8" PCC PAVEMENT
   192 SF - 8" PCC VALLEY GUTTER
6. **STA. 5+94.3-43.1' L TO 6+19.2-18.0'L**
   229 SF = 8" PCC FILLET
7. **STA. 5+39.9-18.0'R TO 5+62.2-43.0'R**
   229F - 8" PCC FILLET
8. **STA. 5+62.2-18.0'R TO 5+94.3-43.1'R**
   68 SY - 8" PCC PAVEMENT
   192 SF - 8" PCC VALLEY GUTTER
9. **STA. 5+94.3-18.0'R TO 6+19.2-43.1'R**
   226 SF = 8" PCC FILLET

SCALE: 1"= 40'

MATCH LINE





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PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	22	41
PAVEMENT		

LEGEND

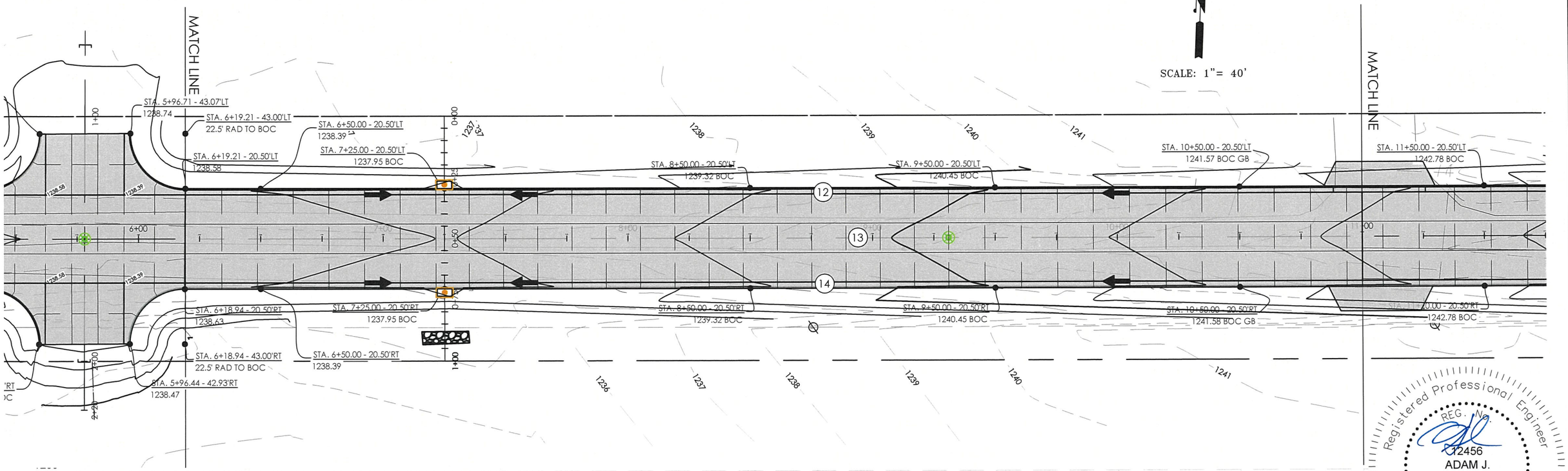
- 8" PCC PAVEMENT
- DRAINAGE FLOW DIRECTION

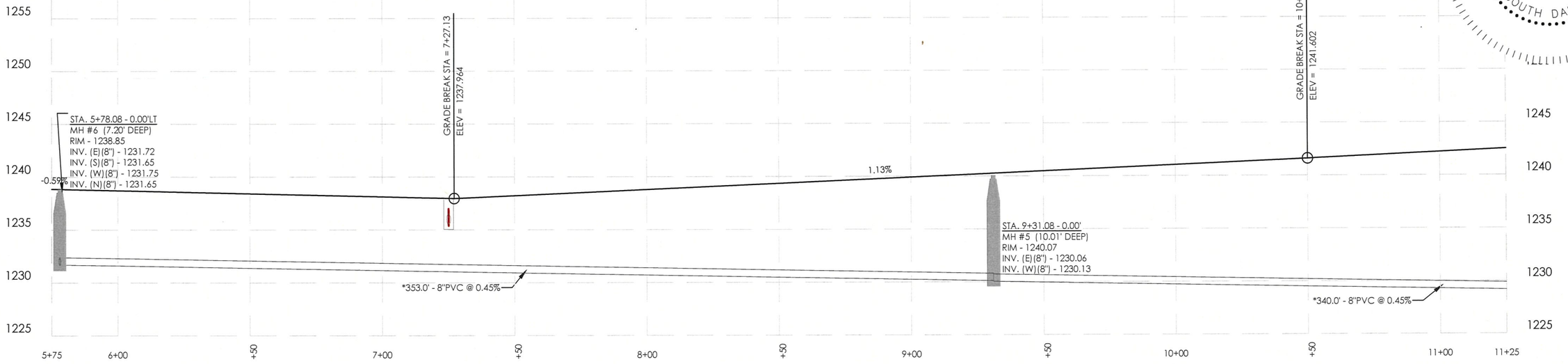
12. STA. 6+00-20.5'L TO 11+00-20.5'L
481 LF - B68 CURB & GUTTER

13. STA. 6+00-18.0'L TO 11+00-18.0'R
1924 SY - 8" PCC PAVEMENT

14. STA. 6+00-20.5'R TO 11+00-20.5'R
481 LF - B68 CURB & GUTTER

SCALE: 1"= 40'





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PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	23	41
PAVEMENT		

LEGEND

- 8" PCC PAVEMENT
- DRAINAGE FLOW DIRECTION

15. STA. 11+00-20.5'L TO 13+57-20.5'L
257 LF - B68 CURB & GUTTER

16. STA. 11+00-18.0'L TO 13+57-18.0'R
1029 SY - 8" PCC PAVEMENT

17. STA. 11+00-20.5'R TO 13+57-20.5'R
257 LF = B68 CURB & GUTTER

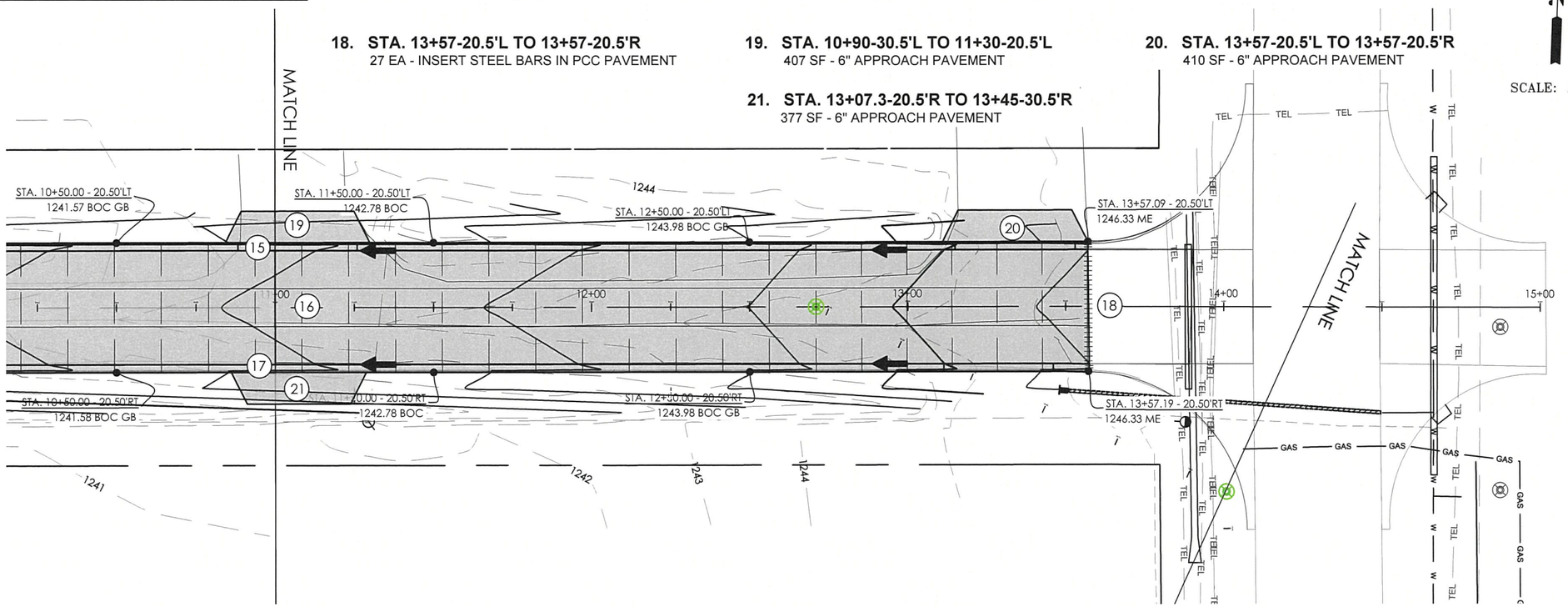
18. STA. 13+57-20.5'L TO 13+57-20.5'R
27 EA - INSERT STEEL BARS IN PCC PAVEMENT

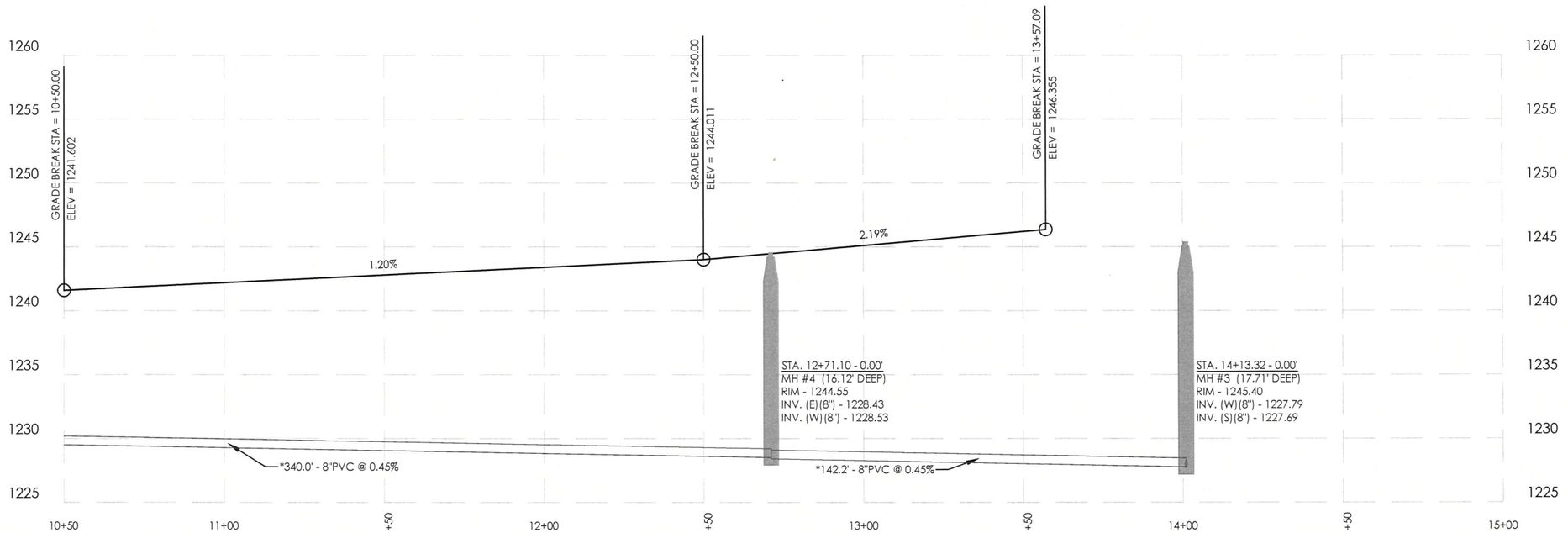
19. STA. 10+90-30.5'L TO 11+30-20.5'L
407 SF - 6" APPROACH PAVEMENT

20. STA. 13+57-20.5'L TO 13+57-20.5'R
410 SF - 6" APPROACH PAVEMENT

21. STA. 13+07.3-20.5'R TO 13+45-30.5'R
377 SF - 6" APPROACH PAVEMENT

SCALE: 1"= 40'





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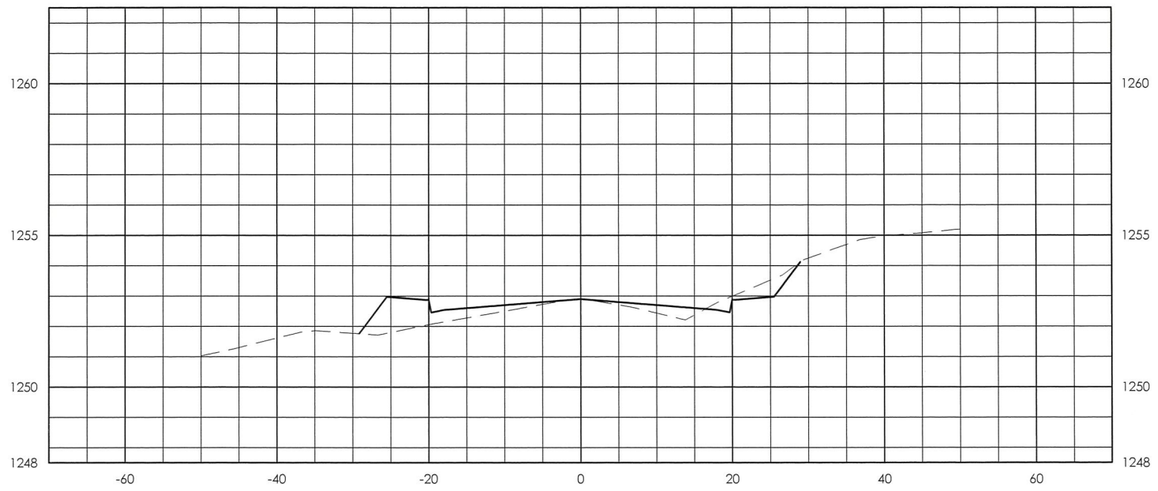
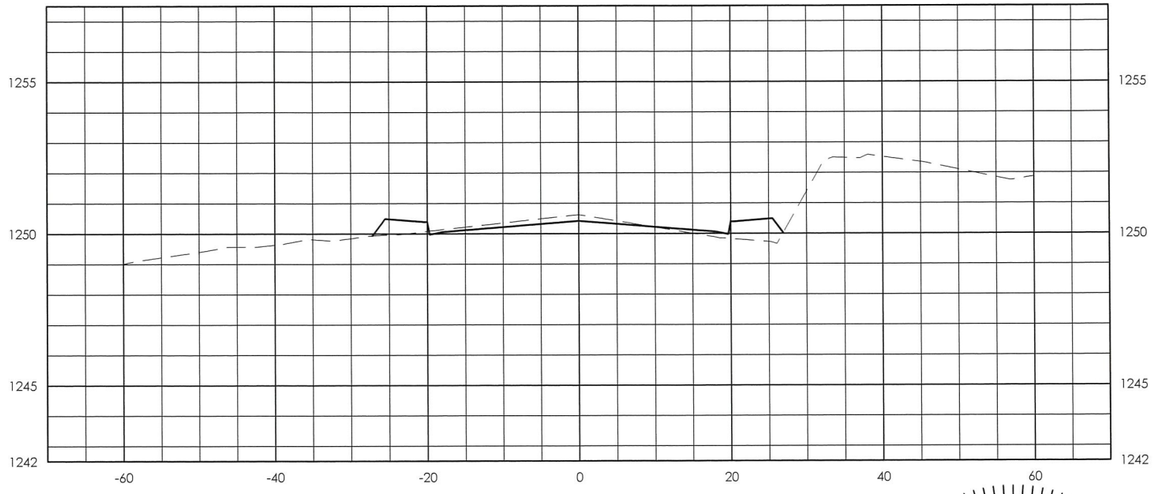
HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	24	41
CROSS SECTIONS		

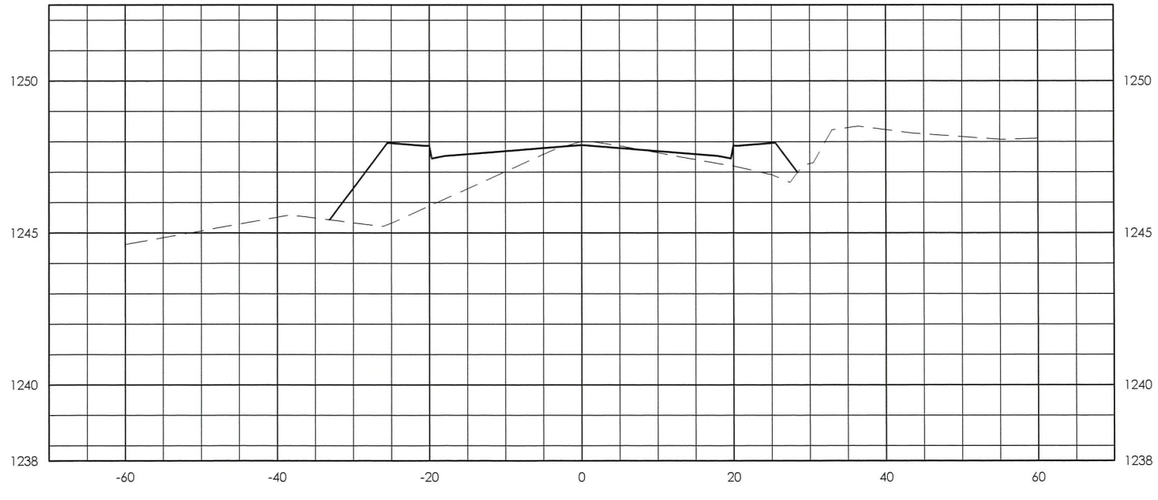
1+00



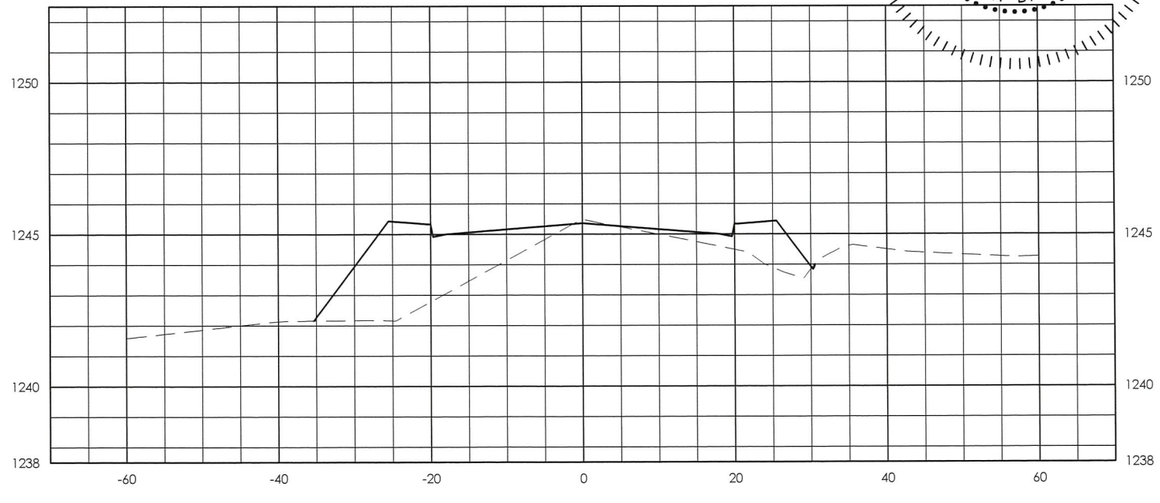
1+50



2+00



2+50



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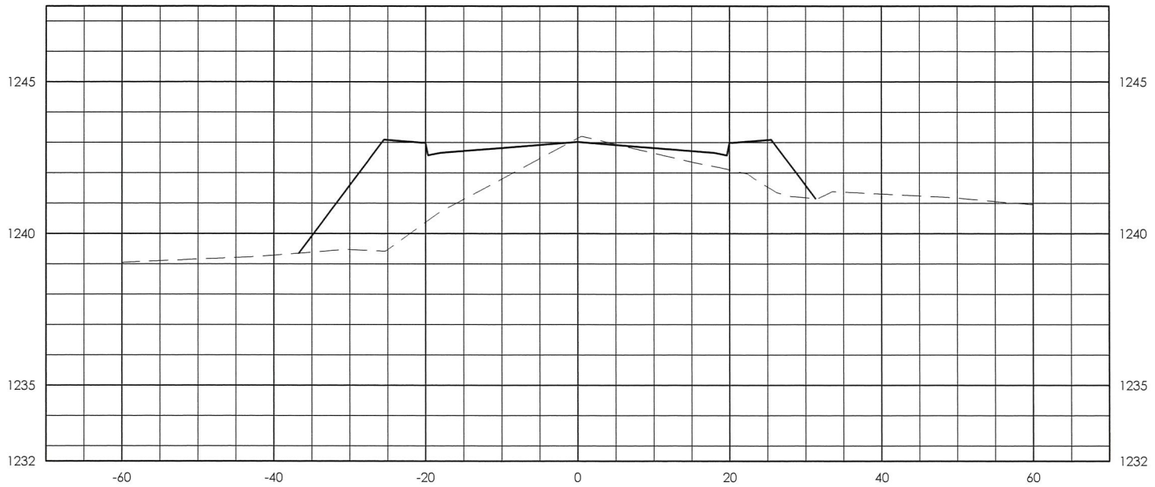
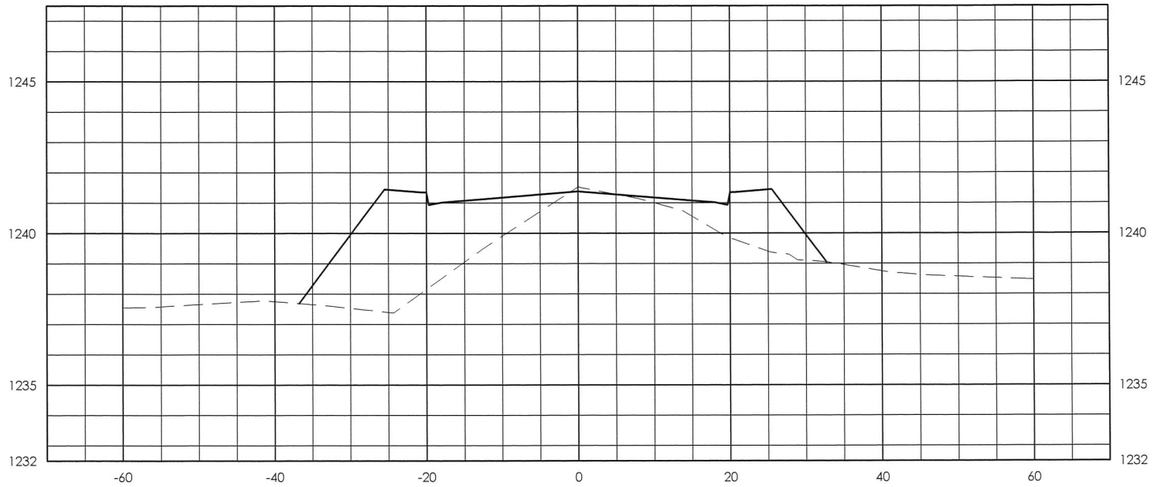
HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	25	41
CROSS SECTIONS		

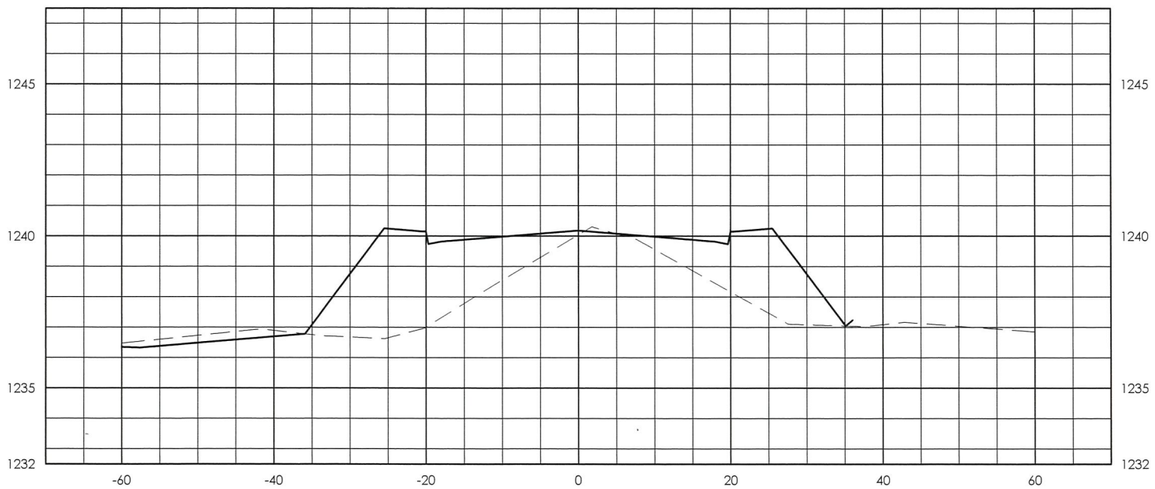
3+00



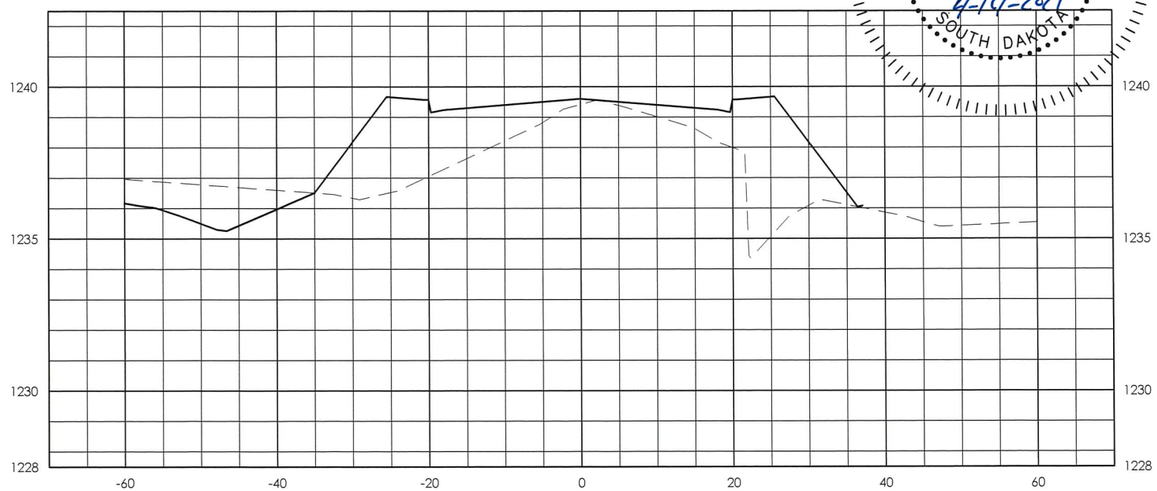
3+50

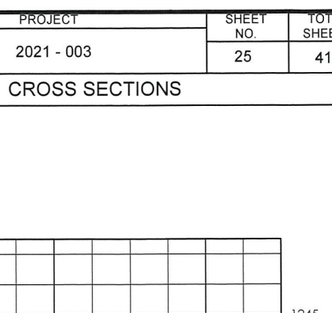


4+00



4+50

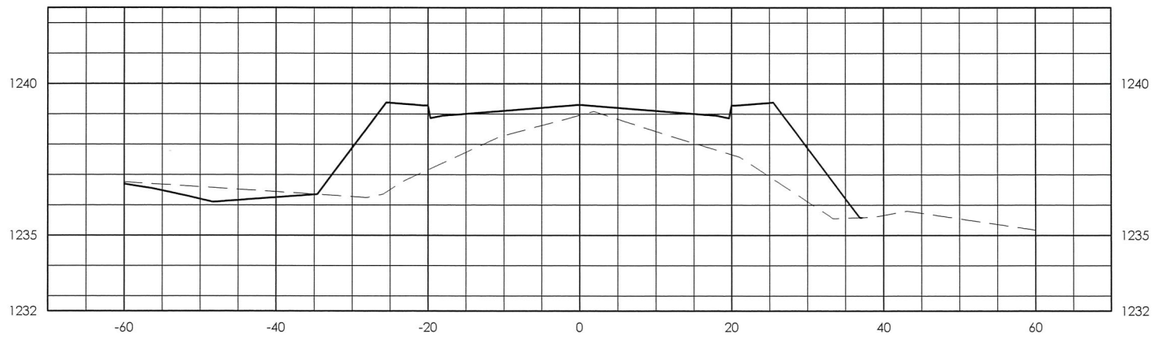




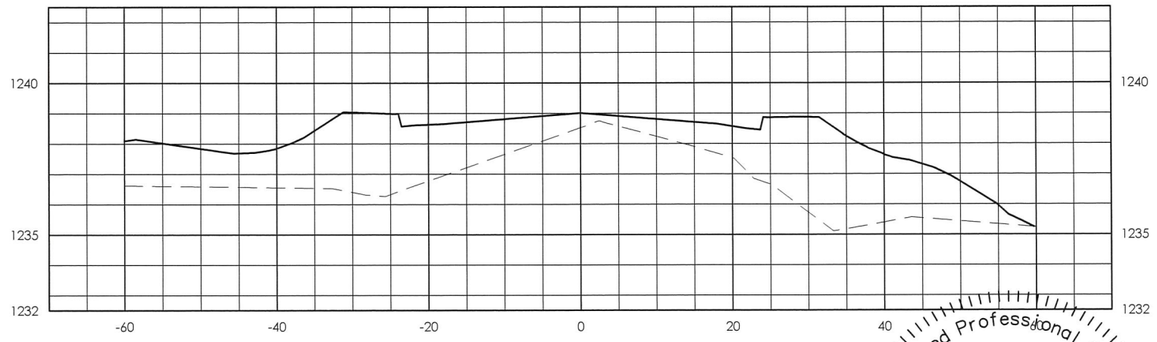
HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	26	41
CROSS SECTIONS		

5+00



5+50



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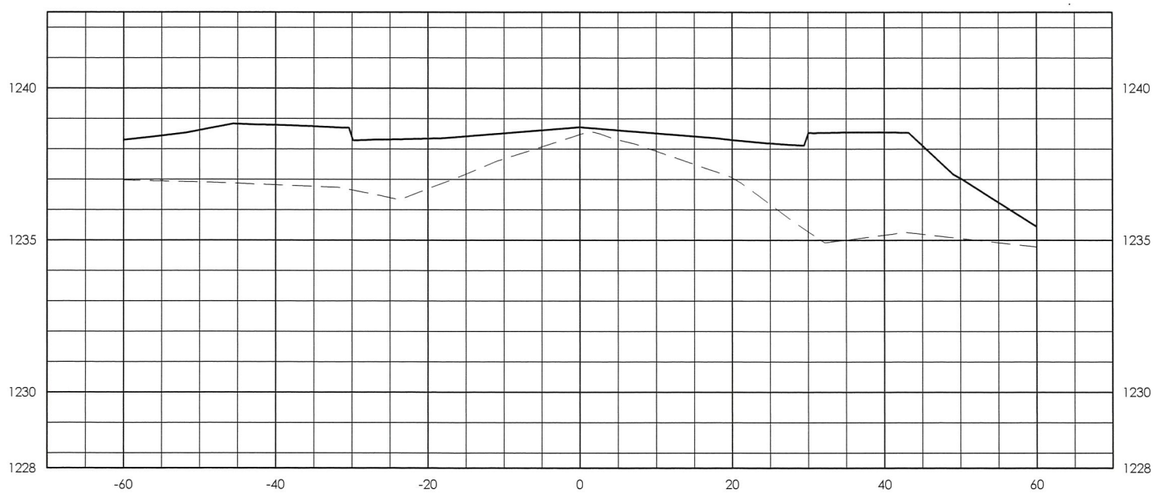
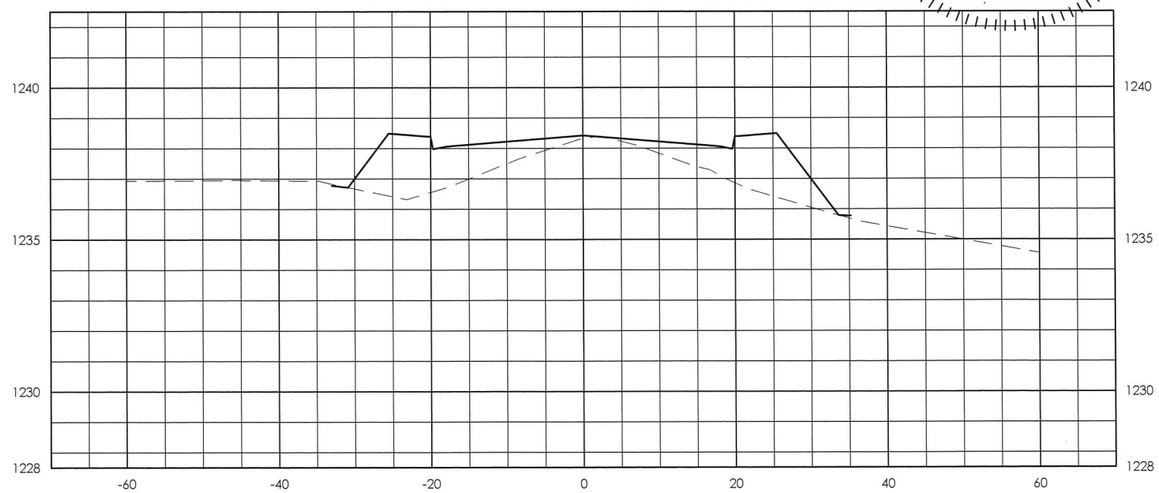
6+00



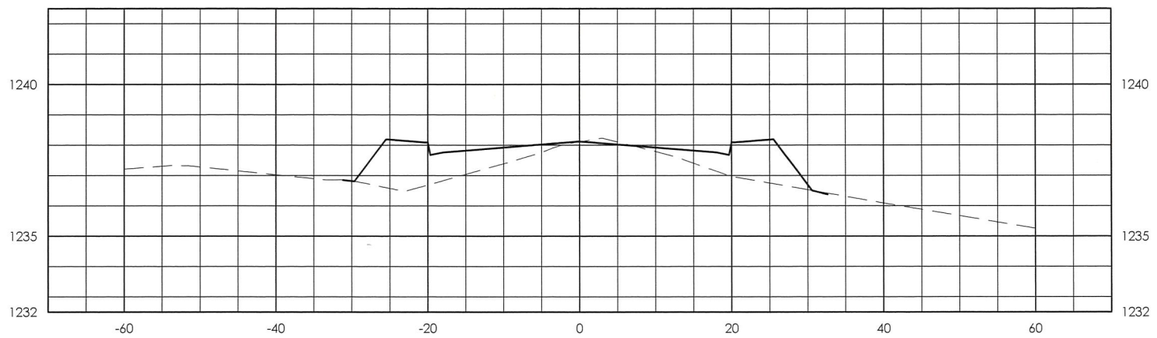
6+50



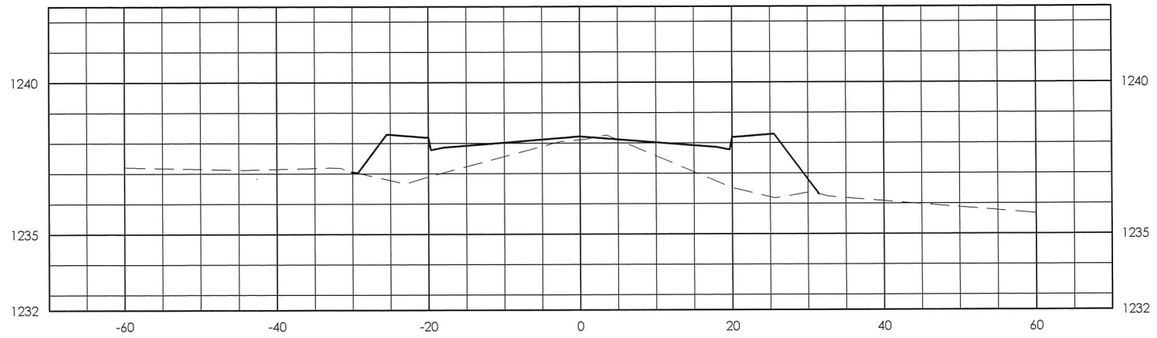
HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	27	41
CROSS SECTIONS		

7+00



7+50



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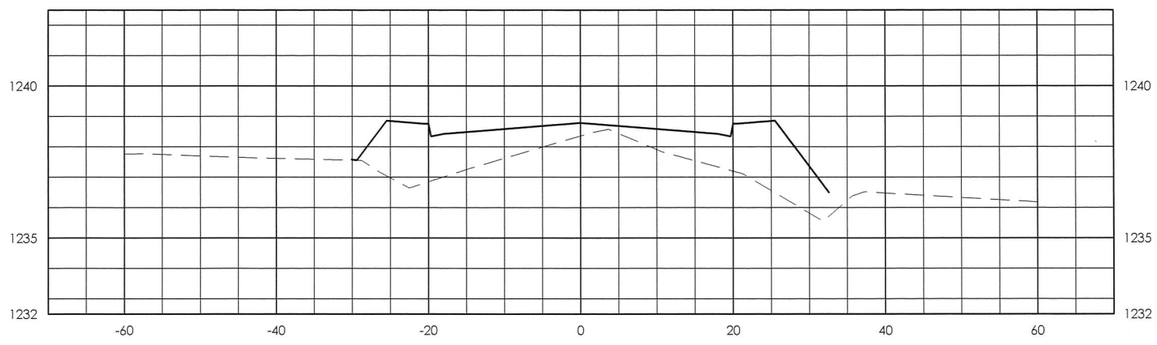
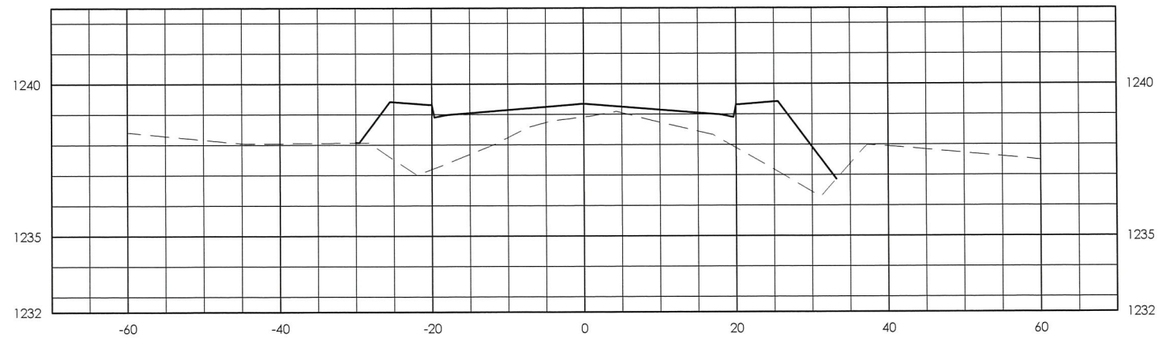
8+00



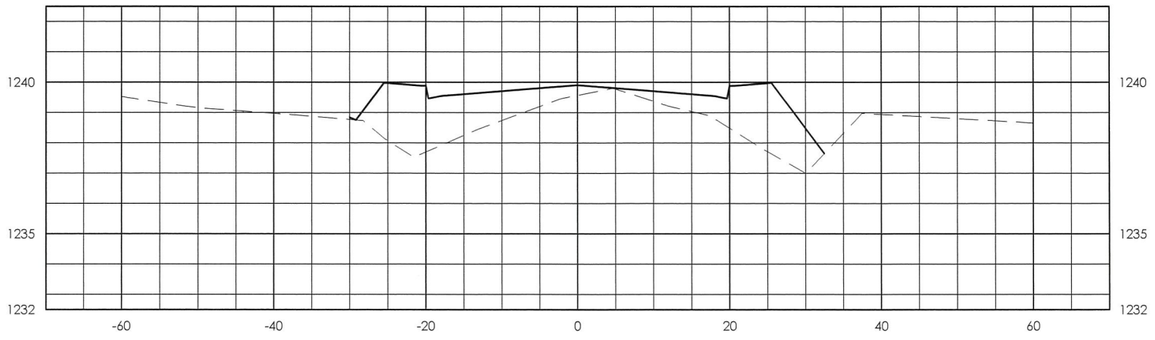
8+50



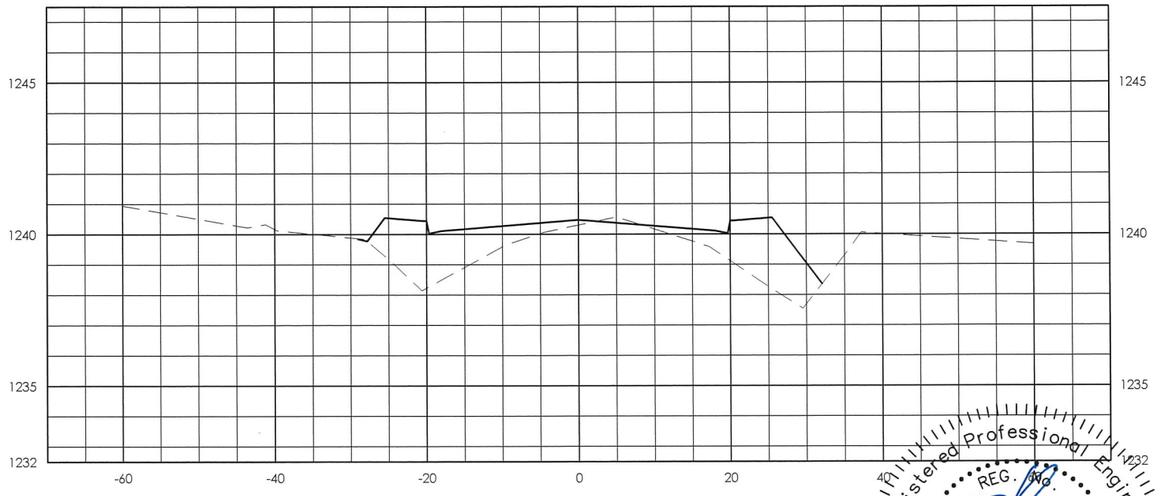
HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	28	41
CROSS SECTIONS		

9+00



9+50



Registered Professional Engineer
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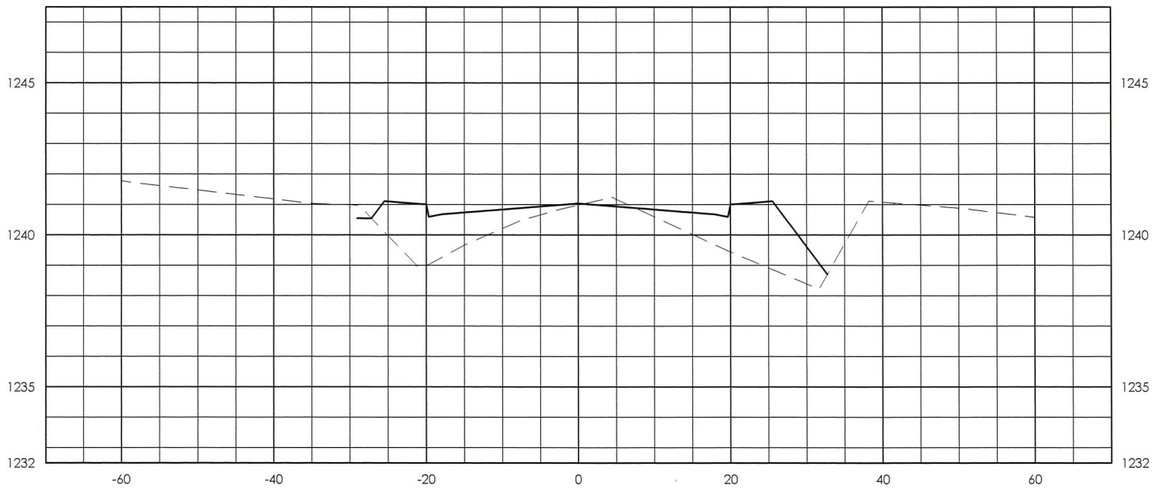
10+00



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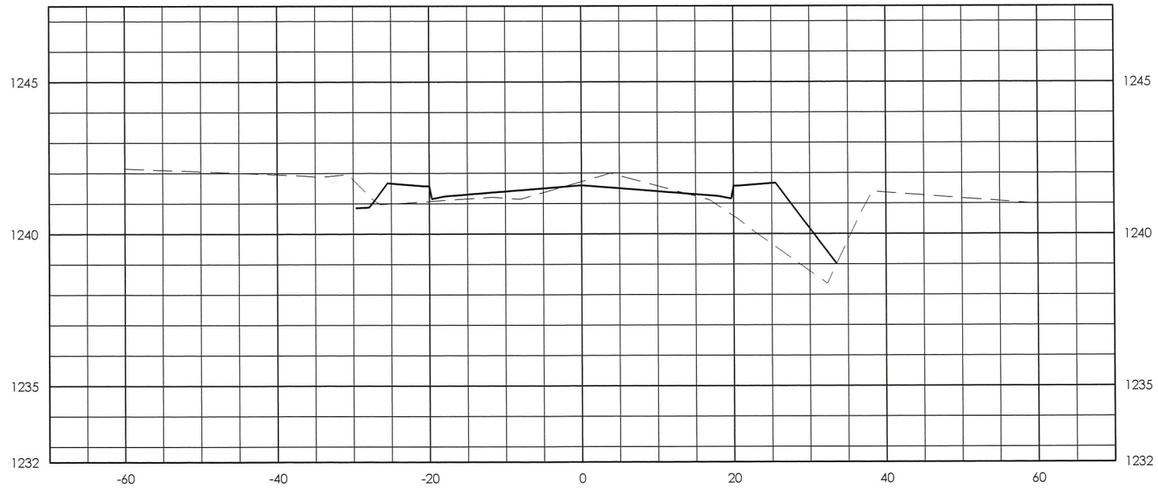
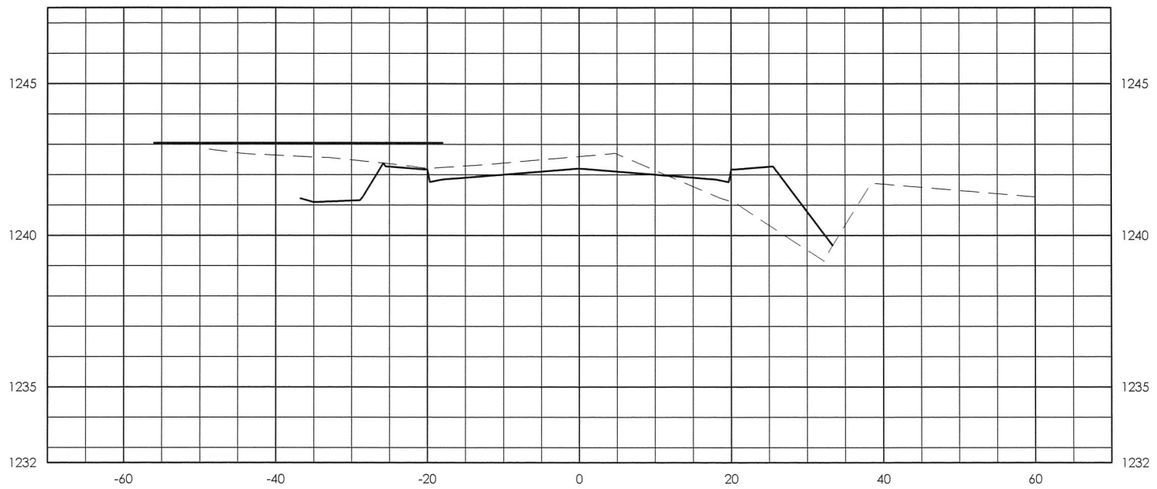


HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	29	41
CROSS SECTIONS		

11+00



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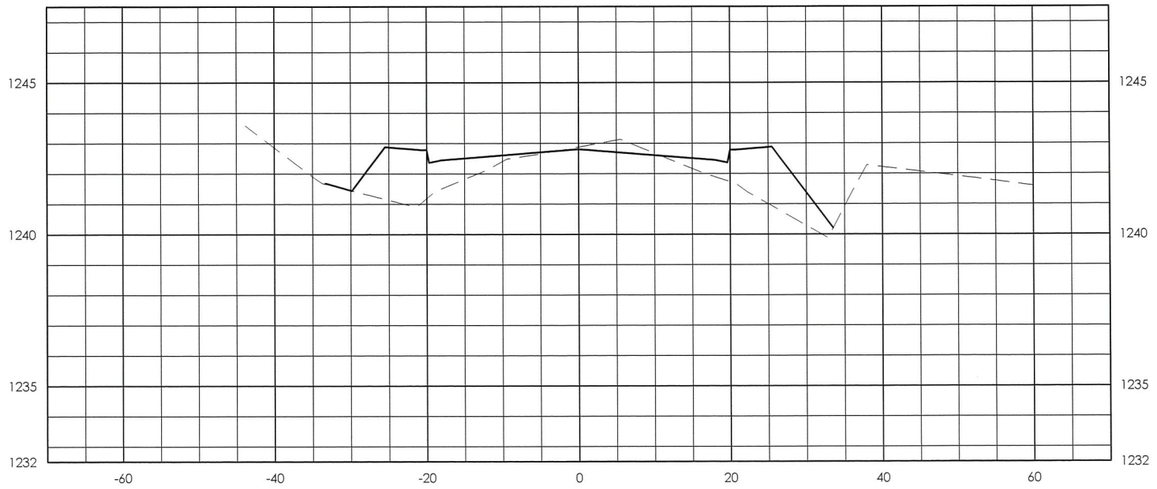

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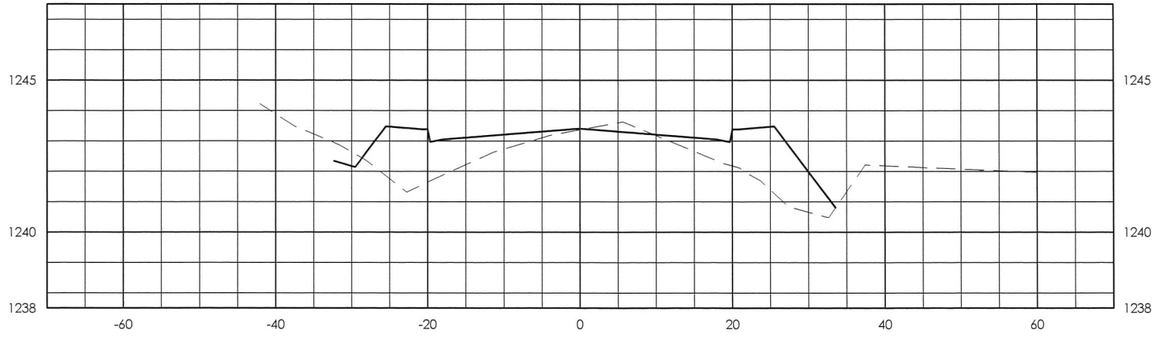
SOUTH DAKOTA

12+00



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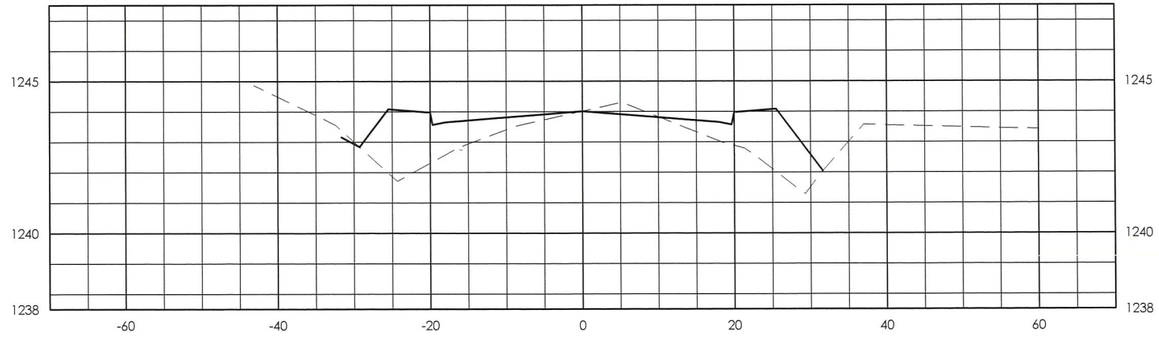
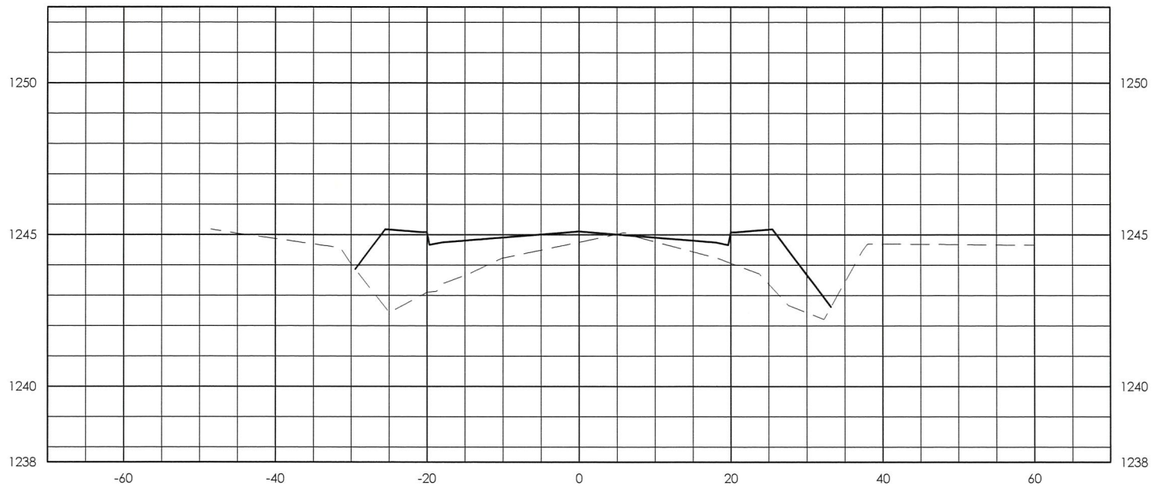


HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	30	41
CROSS SECTIONS		

13+00



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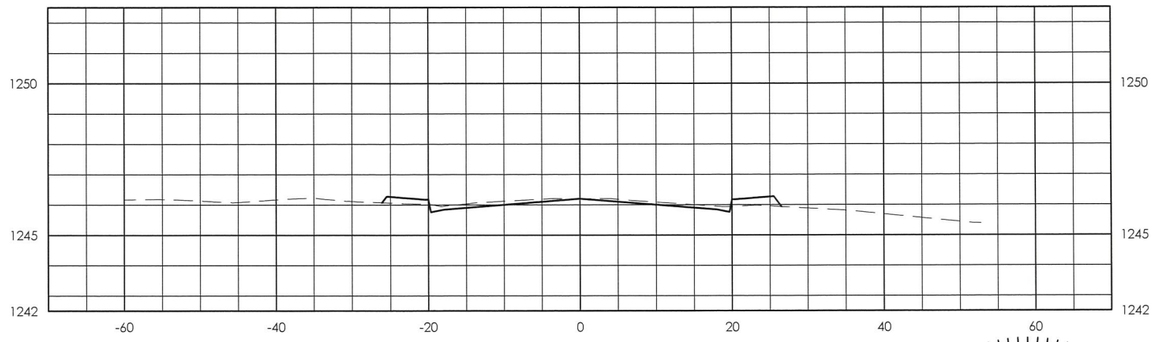
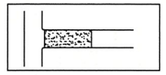


PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	31	41
STANDARD PLATES & DETAILS		



VTC

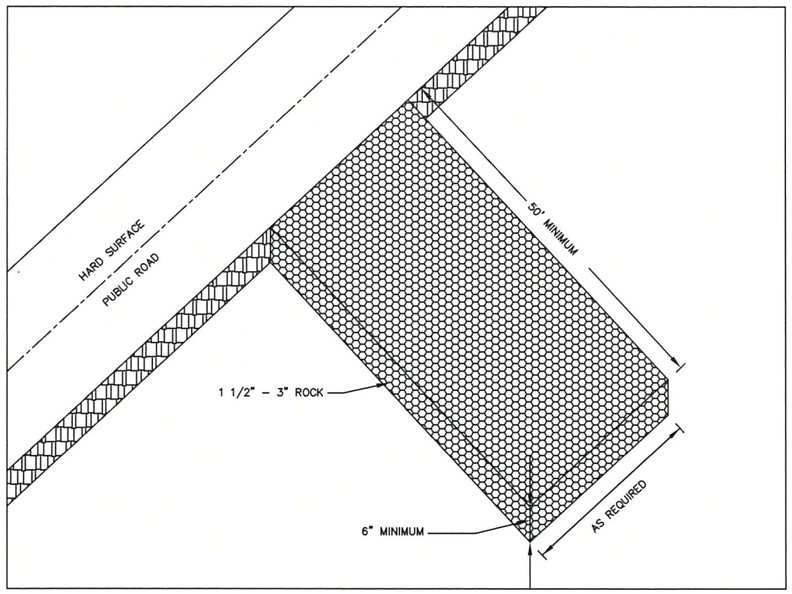
VEHICLE TRACKING CONTROL

DEFINITION:

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSES:

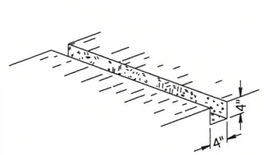
TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.



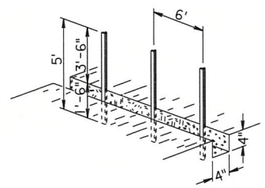
REVISED: MAY 2003

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION TEMPORARY VEHICLE TRACKING CONTROL	PLATE NUMBER 734.02

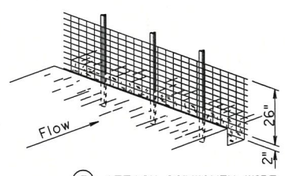
MANUAL LOW FLOW SILT FENCE INSTALLATION



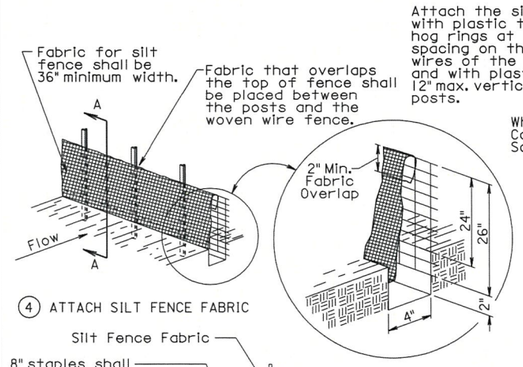
(1) EXCAVATE TRENCH



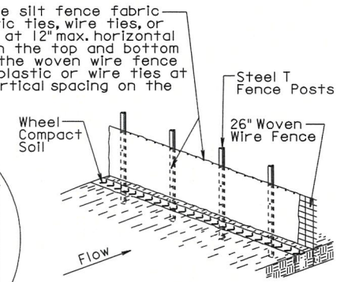
(2) DRIVE STEEL T FENCE POSTS



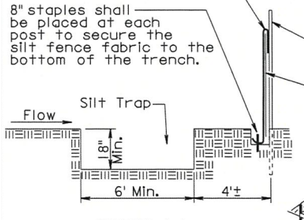
(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS



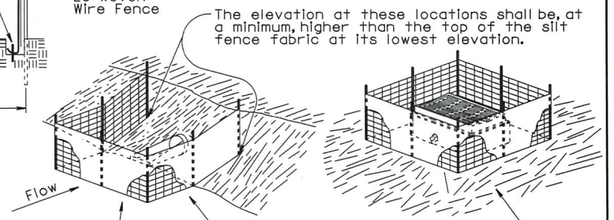
(4) ATTACH SILT FENCE FABRIC



(5) BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A



The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

December 23, 2003

Published Date: 4th Qtr. 2007	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

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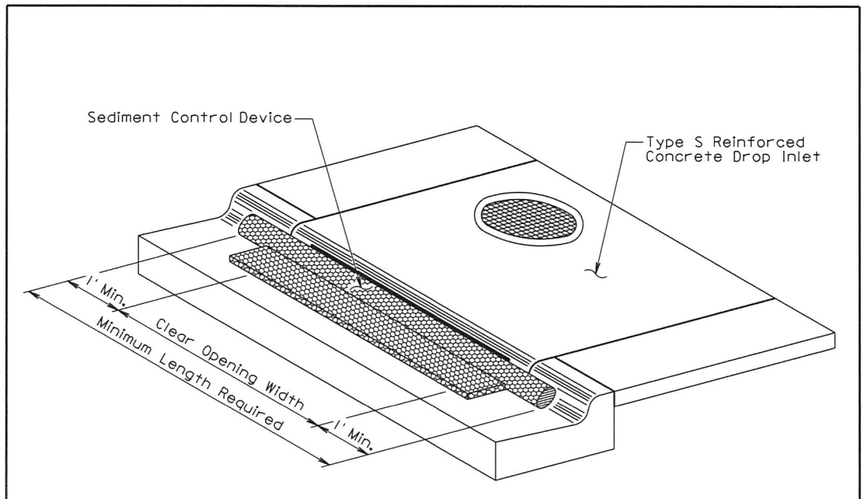


ISOMETRIC VIEW

GENERAL NOTES:

The type of sediment control device shown is for illustrative purposes only.

The type of sediment control device used shall be one of the types as specified in the plans.

The sediment control device shall be placed at the drop inlets according to the manufacturers' installation instructions.

The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.

All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

September 14, 2005

Published Date: 1st Qtr. 2012	SDDOT	**SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS**	PLATE NUMBER 734.11 Sheet 1 of 1

Traffic Control

(Double Lane Shifts)

Taper Formula:
L = S x W for speeds of 45 or more.

$L = WS^2/60$ for speeds of 40 or less.

Where:
L = Minimum length of taper
S = Numerical value of posted speed limit prior to work or 85th percentile speed
W = Width of offset.

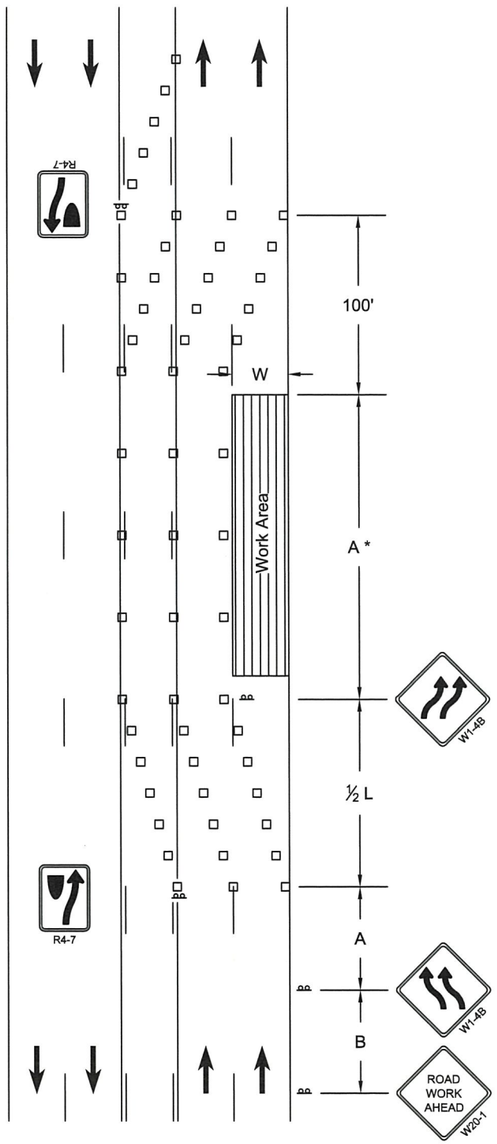
□ Channelizing devices

* Spacing between devices shall be up to 2 times the numerical value of the posted speed limit prior to work.

Note:
The maximum spacing between channelizing devices in a taper shall be approximately equal in feet to the speed limit.

If the road has an AADT of less than 20,000, the closure is not in place overnight, and the speed is less than 40 mph, the W20-5 sign is optional.

Posted speed prior to work (M.P.H.)	Spacing of advance warning signs (Feet) (A) (B) (C)	Taper length (feet) (L)
0 - 25	100 - 200	$\frac{W \cdot S^2}{60}$
30	120 - 240	$\frac{W \cdot S^2}{60}$
35	140 - 280	$\frac{W \cdot S^2}{60}$
40	160 - 320	$\frac{W \cdot S^2}{60}$
45	180 - 360	W • S
50	200 - 400	W • S
55	220 - 440	W • S



Typical Application - Construction Operations
Double Lane Shifts

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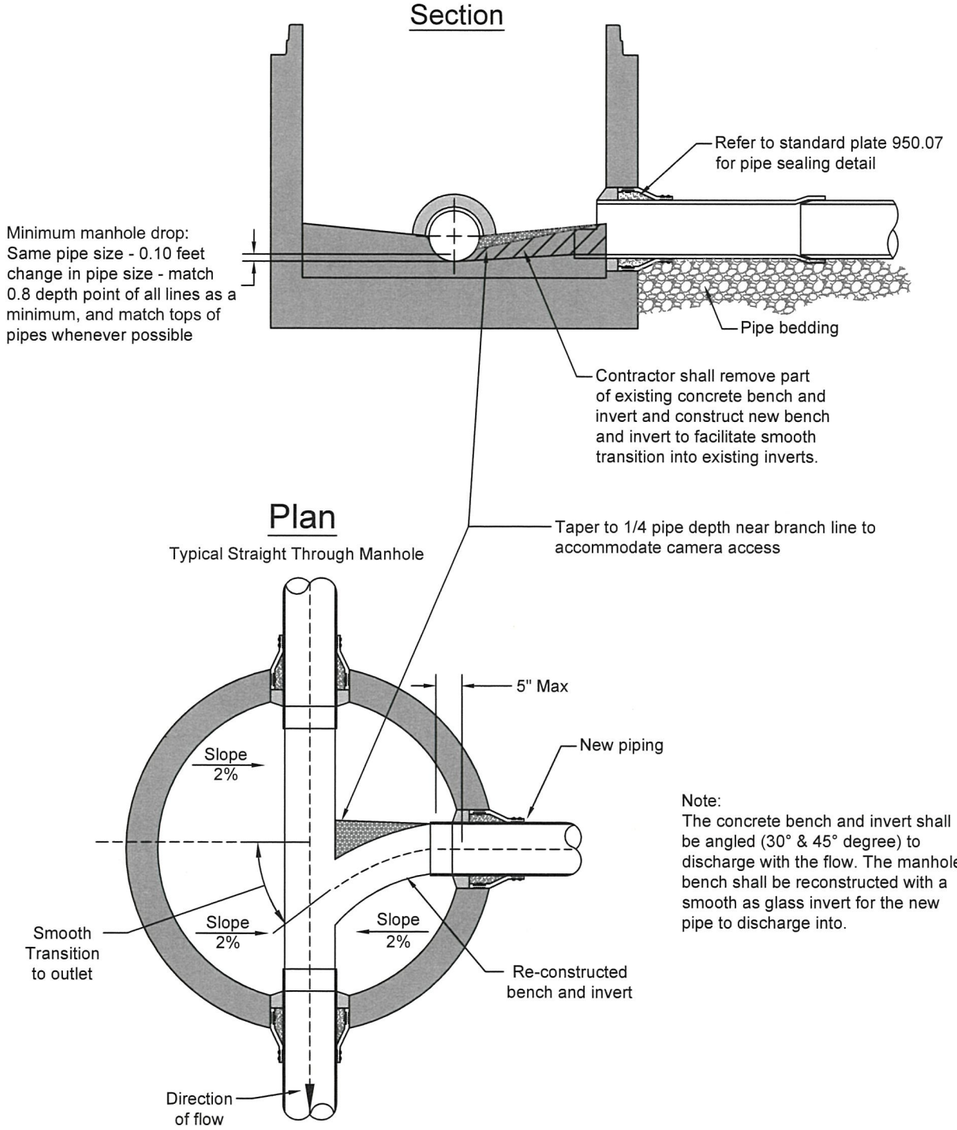
4-14-2021
SOUTH DAKOTA

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	33	41
STANDARD PLATES & DETAILS		

Connection Detail

Section

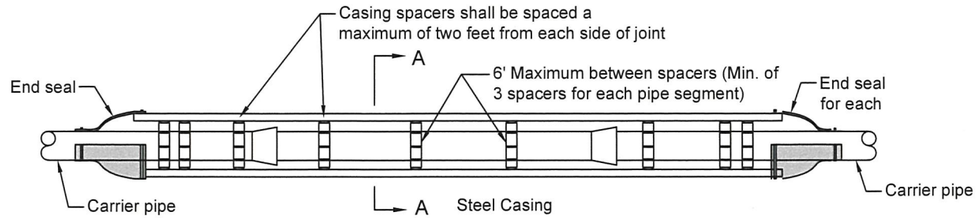


Plan

Typical Straight Through Manhole

Note:
The concrete bench and invert shall be angled (30° & 45° degree) to discharge with the flow. The manhole bench shall be reconstructed with a smooth as glass invert for the new pipe to discharge into.

Connection to Existing Manhole



Elevation

Casing spacers and end seals shall be manufactured by Advanced Products and Systems, Inc. P.O. Box 60399 Lafayette, LA. 70596-0399 or equal and meet these requirements.

Casing Spacers - Model SSI-8 (Pipe sizes 24 inches in diameter and smaller) or Model SSI-12-2 (pipe sizes 30 inches in diameter and greater) with T-304 stainless steel spacer.
Band - 14 Gauge T-304 stainless steel.
Riser - 14 Gauge T-304 stainless steel.

Runners - Two inch wide minimum glass reinforced plastic. The number of risers shall be as recommended by the manufacturer, but four is the minimum.

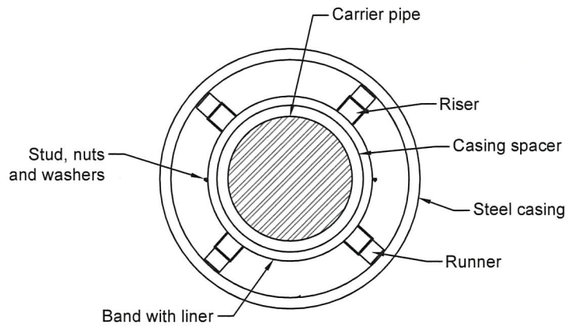
Studs, Nuts and Washers - T-304 stainless steel.

Heights - As required for center restraining

End Seals - Conical shaped wrap-around 1/8 inch synthetic rubber with T-304 stainless steel straps.

Casing pipe must conform to AWWA C-200 with ASTM grade A36 plate steel minimum yield strength of 35,000 pounds per square inch.

Grouting of the annular space will not be required unless otherwise noted.

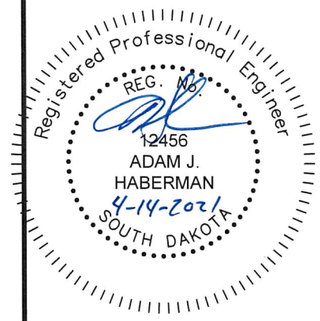


Section A-A

Pipe Size	Casing Size
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
16"	24"
20"	30"
24"	36"
30"	42"
>36"	*

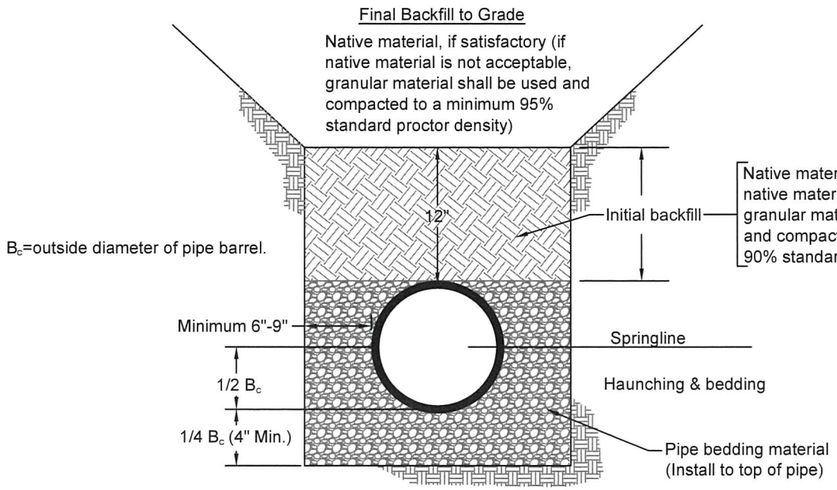
*As recommended by manufacturer

Standard Casing/Carrier For Sanitary Sewer Pipe



PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	34	41
STANDARD PLATES & DETAILS		

Bedding Material
For 4" to 12" Diameter Pipe



Pipe bedding material to be hand tamped or shovel sliced around haunches.

Undisturbed soil for base (see Note 1)

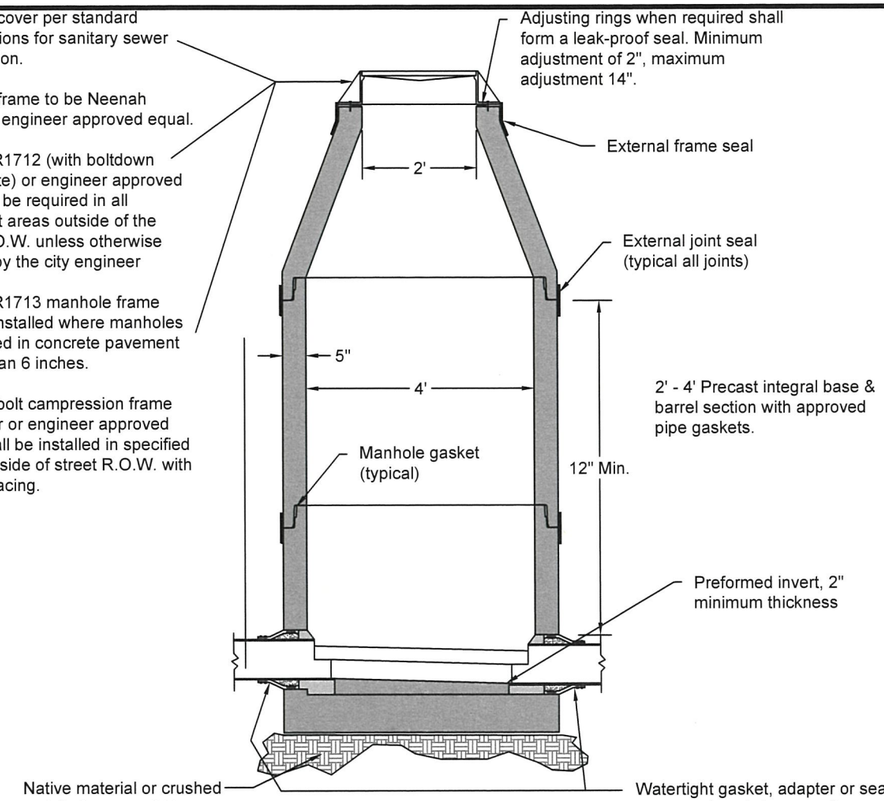
Note:

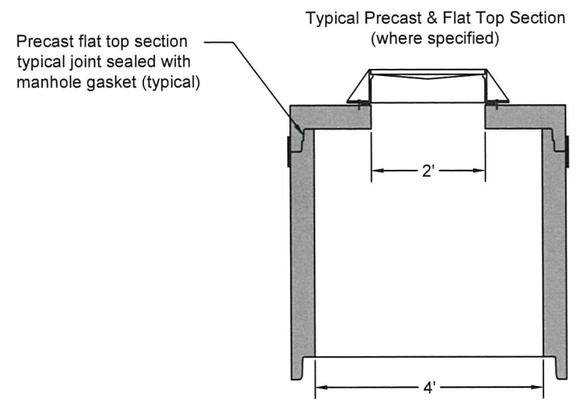
1. If base is unstable, trench shall be undercut and stabilized with trench stabilization material. Specifications as per manufacturer's recommendations and A.S.T.M. C12.
2. Bedding Material

   95% Passing 3/4" sieve
   95% Retained #4 sieve

   (Clean angular, well-graded, crushed rock. Pea rock may be used for sanitary sewer service lines.)
3. The required bedding material under the bottom of the pipe shall be installed prior to pipe installation.

Bedding and Backfill Requirements For 4" to 12" Sanitary Sewer Pipe





Sanitary Sewer Manhole

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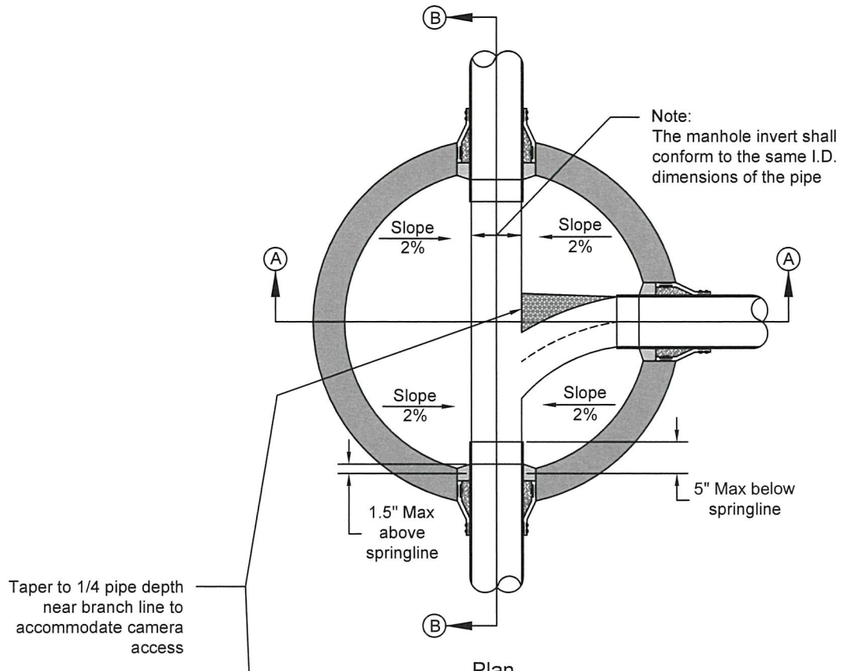
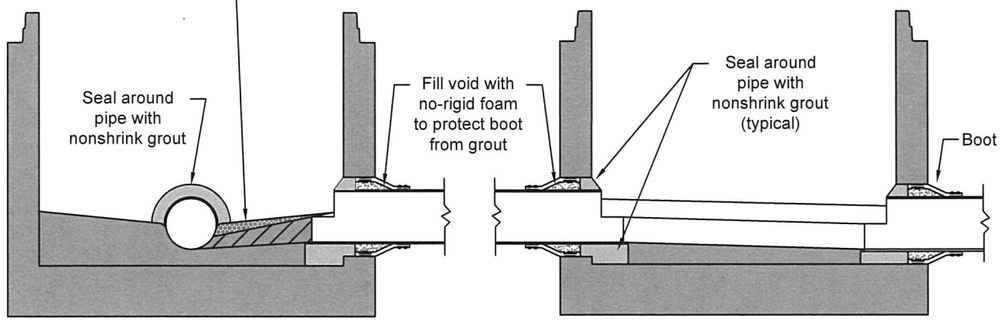
4-14-2021
SOUTH DAKOTA



Plan

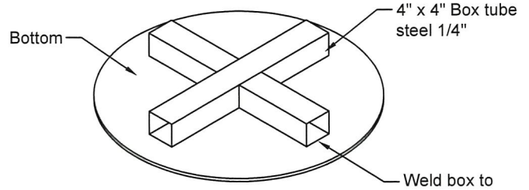
Typical Straight Through Manhole



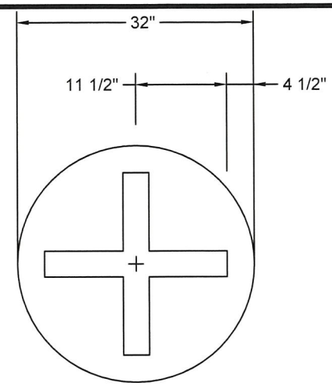
Section A-A

Section B-B

Manhole Bench and Invert Detail



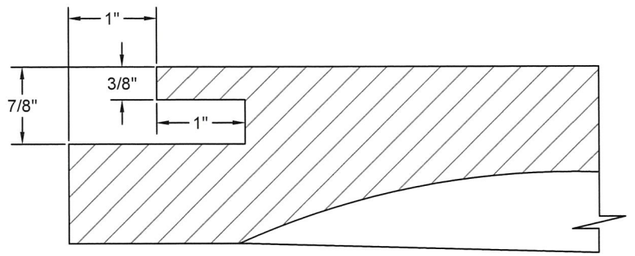
Bottom View



Bottom View

Note:
1. A Sealant material shall be installed between the manhole construction plate marker and the manhole to form a watertight seal.
2. Breakaway lift hooks will be allowed on the top of the plate for use in installing and removing the plate. The lift hooks shall be located within a 10 inch radius of the plate center.

Manhole Construction Plate Marker



Width = 2 Inches

Note:
Concealed pick holes and the seal between the frame and cover shall be protected from asphalt, concrete pavement, chip seal and soil. It shall be the contractors responsibility to provide a system to prevent material from entering the concealed pick hole and frame and cover seal during the work.

Revised: October 2004

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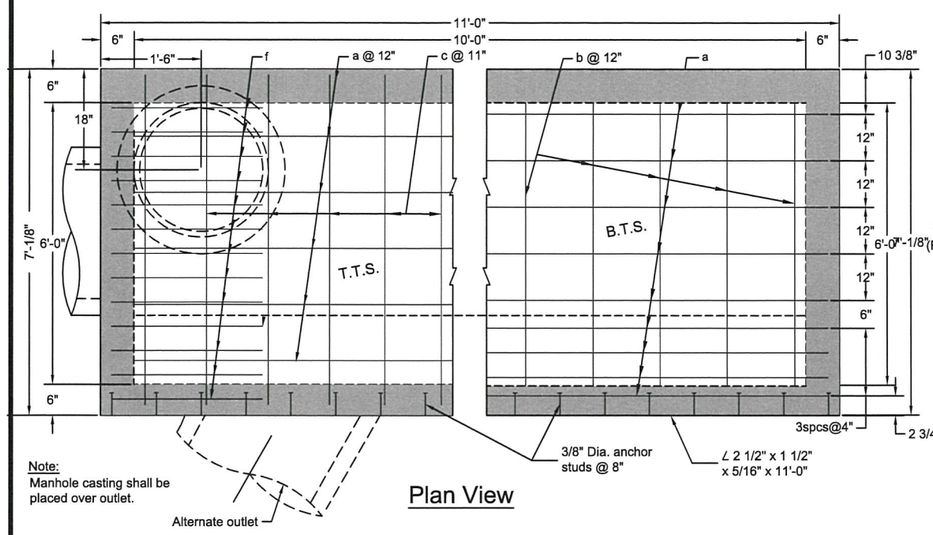
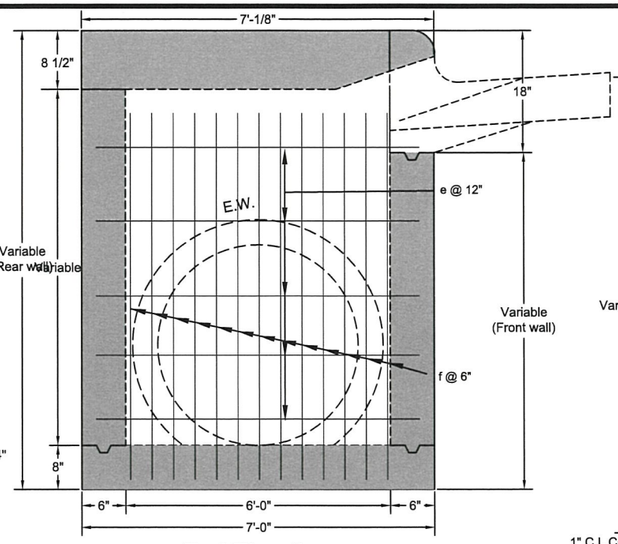
Concealed Pick Hole For Sanitary Manhole Covers

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	36	41
STANDARD PLATES & DETAILS		

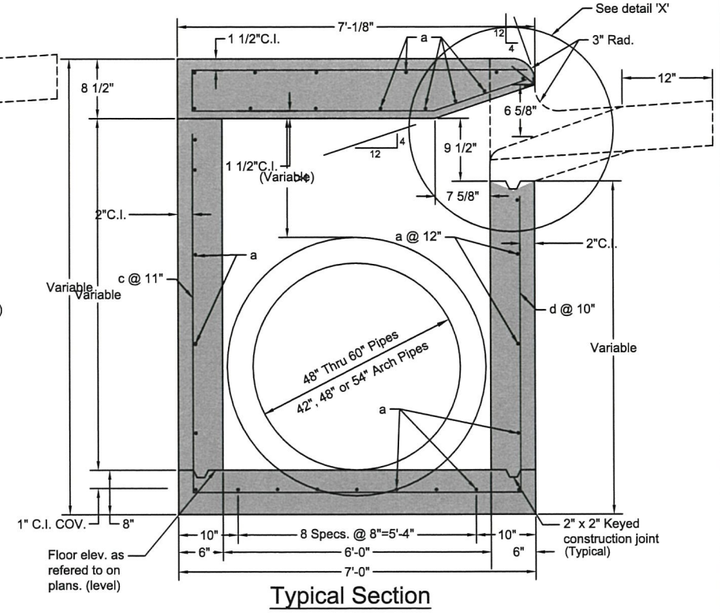


Note:
Manhole casting shall be placed over outlet.

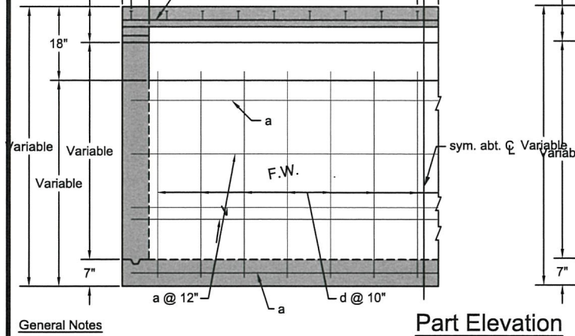
Plan View

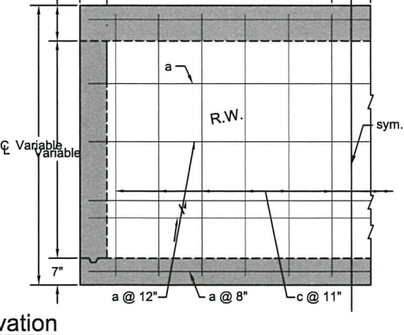


End Elevation

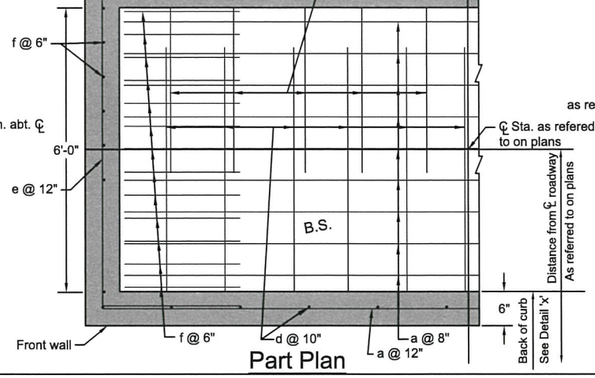


Typical Section

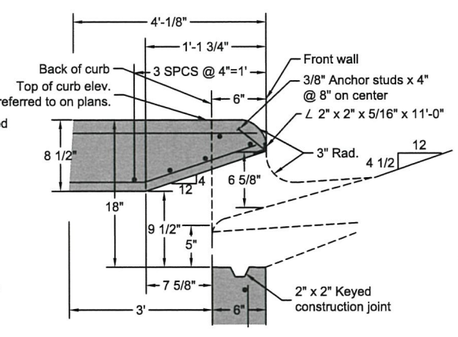




Part Elevation

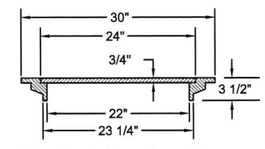


Part Plan



Detail 'X'

Legend For Placing Re-Steel
T.T.S. ~ Top of top slab
B.T.S. ~ Bottom of top slab
F.W. ~ Front wall
R.W. ~ Rear wall
E.W. ~ End wall
B.S. ~ Bottom slab



Manhole frame and cover shall be a Neenah R-6040, Type Y or engineer approved equal.

Typical Section Thru Manhole Assembly

General Notes

1. All exposed edges shall be chamfered 1".
2. Design specification: A.A.S.H.T.O. Specifications for highway bridges, latest edition.
3. All reinforcing steel shall conform to A.S.T.M. A615 Grade 60.
4. Unit stresses: Concrete: fc = 1,600 P.S.I.; fc = 4,000 P.S.I.
   Reinforcing steel: fs = 20,000 P.S.I.
5. The cost of angle, studs and galv. shall be absorbed in the price bid for reinforcing steel or unit price for each inlet.
6. Transition to full inlet opening depth shall be 3" each side of outside walls.
7. Minimum 3/8" expansion material shall be place between the curb and the inlet lid on both sides of the inlet.
8. Tooled joints shall be placed across the gutter pan at the outside walls of the inlet structure.
9. It is not acceptable to construct this structure with the pipe connection as a non-monolithic installation.
10. All reinforcing steel is to be tied in place prior to the start of concrete placement.

Specification Note

Use South Dakota Standard Specifications for roads and bridges, latest edition and required provisions, supplemental specifications and/or special provisions as included in the proposal.

* Constant shall be reduced for the appropriate pipe or combination of Pipes, thus; 48" Dia.=-0.34 C.Y., 54" Dia.=-0.43 C.Y., 60" Dia.=-0.52 C.Y., 42" arch=-0.25 C.Y., 48" arch=-0.32 C.Y., 54" arch=-O.40 C.Y.

Estimated Quantities

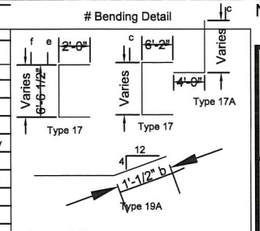
Item	Unit	10' Long Inlet											
		48" Dia. Outlet		54" Dia. Outlet		60" Dia. Outlet		42" Arch Outlet		48" Arch Outlet		54" Arch Outlet	
		Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable
* Class M6 concrete	CuYds	6.60	0.60V	6.94	0.60V	7.28	0.60V	5.68	0.60V	6.02	0.60V	6.20	0.60V
Reinforcement-conc. masonry	LBS	1004	89.7V	1039	89.7V	1099	89.7V	860	89.7V	9.14	89.7V	939	89.7V
Manhole rim & cover-Type Y	Each	1	----	1	----	1	----	1	----	1	----	1	----

Reinforcing Schedule

			48" Dia. Pipe		54" Dia. Pipe		60" Dia. Pipe		42" Arch Pipe		48" Arch Pipe		54" Arch Pipe	
MK	SZ	Type	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
*a	4	STR	36+2V	10'-3"	36+2V	10'-3"	38+2V	10'-3"	32+2V	10'-3"	34+2V	10'-3"	34+2V	10'-3"
*b	4	19A	11	6'-3"	11	6'-3"	11	6'-3"	11	6'-3"	11	6'-3"	11	6'-3"
*c	6	17	12	15'3 3/4"+V	12	15'101/4"+V	12	16'4 3/4"+V	12	13'101/2"+V	12	14'33/4"+V	12	14'81/2"+V
d	7	17A	13	7'-10"+V	13	8'-5"+V	13	8'-11"+V	13	6'-5"+V	13	6'-10"+V	13	7'-7"+V
*e	4	17	10+2V	10'6 1/2"	10+2V	10'6 1/2"	12+2V	10'-6 1/2"	6+2V	10'-6 1/2"	8+2V	10'-6 1/2"	8+2V	10'-6 1/2"
*f	4	17	26	9'1/2"+V	26	9'-7"+V	26	10'1 1/2"+V	26	7'7 1/4"+V	26	8'-1/2"+V	26	8'-5"+V

* Cut and bend in field as necessary to fit

All reinforcing steel dimensions are outside to outside.



Note: For 48" to 60" pipes - max.

Revised: December 2009

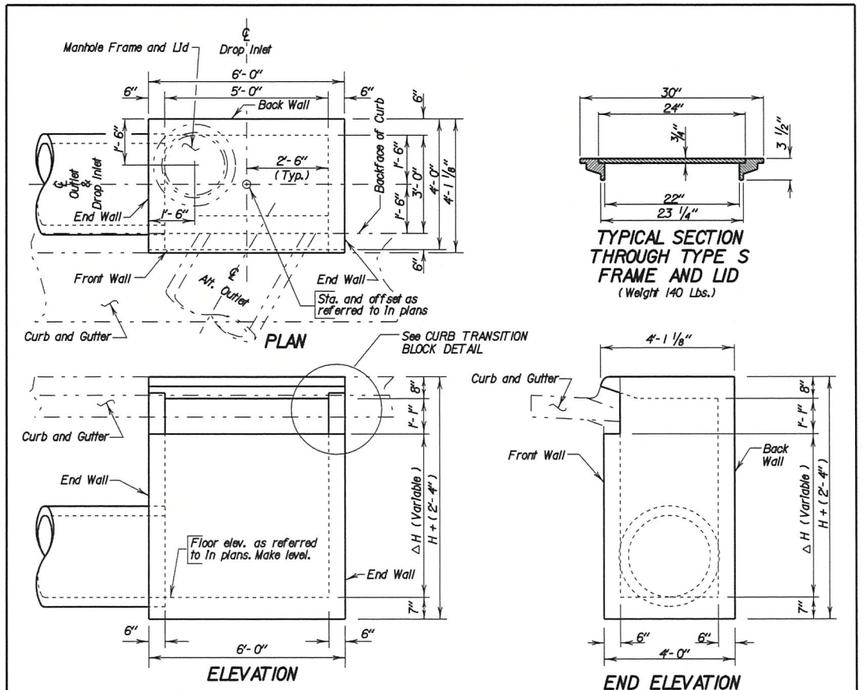
Registered Professional Engineer
REG. No. 12456
ADAM J. HABERMAN
4-14-2021
SOUTH DAKOTA

10'-0" S.F. Type Inlet for Storm Water (48" to 60" Pipes)

CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Specification Reference	Plate Number
No. 460	460.04

PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	37	41
STANDARD PLATES & DETAILS		



GENERAL NOTES:

The inlets shall be constructed in conformance with Section 670, Drop Inlets.

Design Loading: HS 20 - 44 and Alternate Loading.

Unit Stresses: Concrete f_c = 1600 p.s.i.
Reinforcing Steel f_s = 24000 p.s.i.

All reinforcing steel shall be Grade 60.

Structural steel shall conform to ASTM A36.

The 3/8" dia. Headed Type A Steel Studs shall conform to Section 7 of the current edition of the AWS D1.1 Structural Steel Welding Code.

After welding is complete, galvanize the angle and steel studs in accordance with AASHTO M111 (ASTM A123).

Use 1" clear cover on all reinforcing steel except as shown.

Cut and bend reinforcing steel in field as necessary to fit pipe and manhole openings; such openings are not shown in these details. The number, size, and location of pipe entering the drop inlet are shown elswhere in the plans.

All costs for the angle, headed studs, welding, and galvanizing shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".

Cast iron frame and lid shall conform to AASHTO M105, Class 30.

The dimension of H is in feet.

SPECIFICATION NOTES:

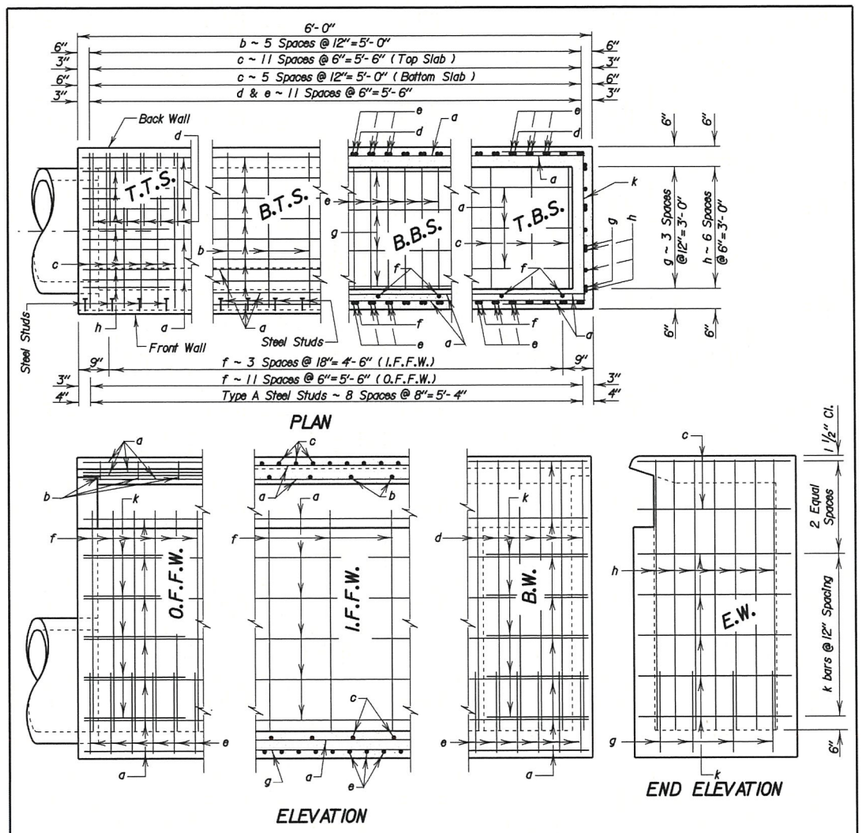
Design Specifications: A.A.S.H.T.O. Standard Specifications for Highway Bridges, 1996 Edition. (Service Load)

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition.

DROP INLETS FOR 18" TO 30" DIAMETER PIPE

September 14, 2005

Published Date: 4th Qtr. 2009	SDDOT	3'X 5' TYPE S REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.30
			Sheet 1 of 3



LEGEND FOR PLACING RE-STEEL

T.T.S.	- Top of Top Slab
B.T.S.	- Bottom of Top Slab
T.B.S.	- Top of Bottom Slab
B.B.S.	- Bottom of Bottom Slab
O.F.F.W.	- Outside Face of Front Wall
I.F.F.W.	- Inside Face of Front Wall
B.W.	- Back Wall
E.W.	- End Wall

PIPE DISPLACEMENT REDUCTIONS

For pipes perpendicular to wall.

Pipe Size Inches		T Inches	Class M6 Concrete Cu'd
R.C. Pipe	18	2 1/2	0.05
	21	2 3/4	0.07
	24	3	0.09
	27	3 1/4	0.11
	30	3 1/2	0.14
R.C. Arch Pipe	24	3 1/2	0.09
Manhole			0.12

September 14, 2005

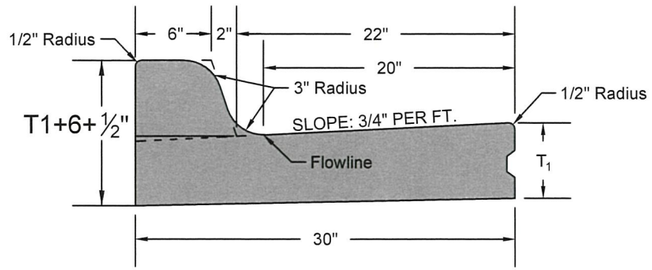
Published Date: 4th Qtr. 2009	SDDOT	3'X 5' TYPE S REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.30
			Sheet 2 of 3

Registered Professional Engineer
REG. No.
12456
ADAM J.
HABERMAN
4-14-2021
SOUTH DAKOTA

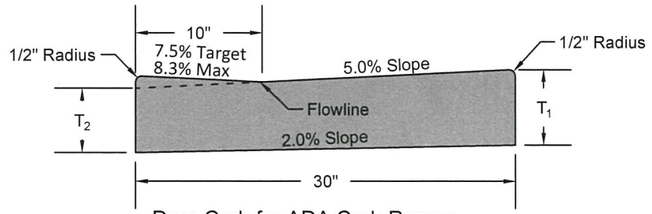
PROJECT	SHEET NO.	TOTAL SHEETS
2021 - 003	38	41
STANDARD PLATES & DETAILS		

30" CONCRETE CURB AND GUTTER

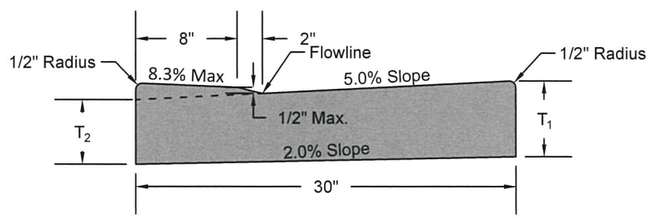
N.T.S



Standard Curb and Gutter



Drop Curb for ADA Curb Ramps



Drop Curb for Driveway Approach

TYPE	T1 INCHES	CU. YD PER LIN. FT.
B66	6"	0.055
B67	7"	0.063
B68	8"	0.071
B68.5	8.5"	0.074
B69	9"	0.078
B69.5	9.5"	0.082
B610	10"	0.086
B610.5	10.5"	0.090
B611	11"	0.094
B611.5	11.5"	0.098
B612	12.0"	0.102

T_1 = Thickness shall be equal to the depth of the adjacent pavement but not less than 6"

$T_2 = T_1$-7/8"

1/2" Preformed Expansion Joint Fillers shall be placed, Tranversely in the Curb & Gutter as follows:

(1) At each junction of Radius return Curb & Gutter and the Curb & Gutter which is parallel to the project centerline.

(2) At each junction with existing Concrete Curb or Concrete Curb & Gutter

(3) At each junction with existing sidewalk, to the depth of the sidewalk.

(4) At a maximum of 195 L.F. appart, measured along the face of the Curb & Gutter.

1/2" Preformed Expansion Joint Filler shall be placed, Longitudinally, along the backface of the Curb, to the depth of the sidewalk, where such backface of Curb is adjacent to an existing Concrete Sidewalk.

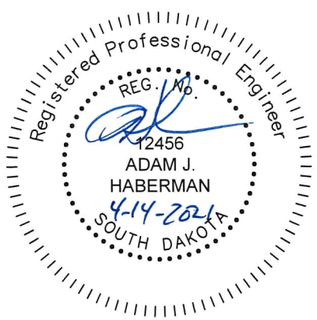
Weakened Plane Joints shall be constructed at Approx. 10' intervals. The joints shall be constructed to a minimum depth of one inch by scoring with a tool which coincide with pavement joints leave the corners rounded and insure a free movement of the Concrete at the joint.

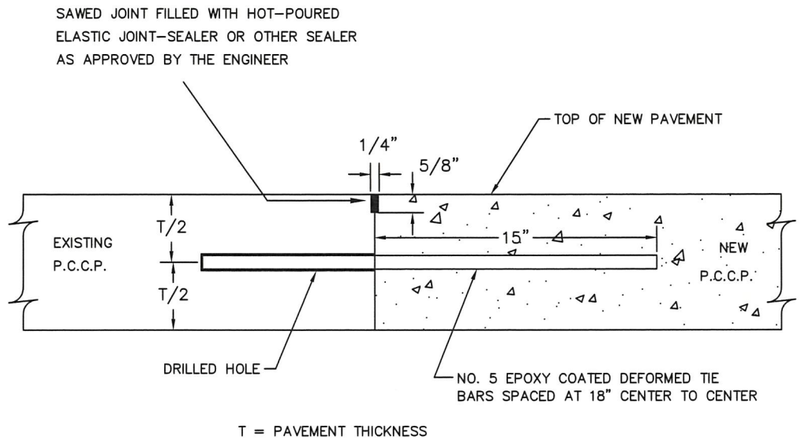
GENERAL NOTES:

1) On PCC pavement a keyway longitudinal joint with tie bars shall be used when curb and gutter is poured separately.

2) Curb and gutter shall be constructed using M-6 concrete unless monolithically constructed with the adjacent pavement. In monolithic paving, concrete mix for the curb and gutter may be the same as the adjacent concrete pavement.

3) The curb transition length at ADA curb ramps will be dependent on the type of curb ramp being installed. The plans should call out the length of the transitions. Refer to plate 651.02 for additional curb transition information.

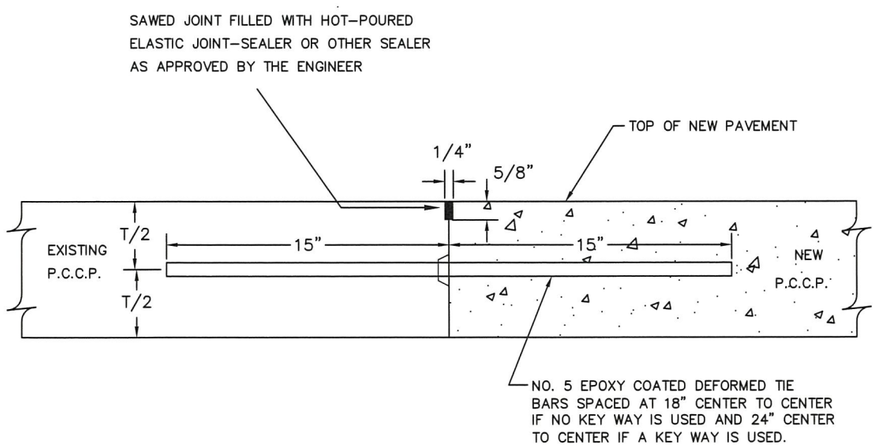




T = PAVEMENT THICKNESS

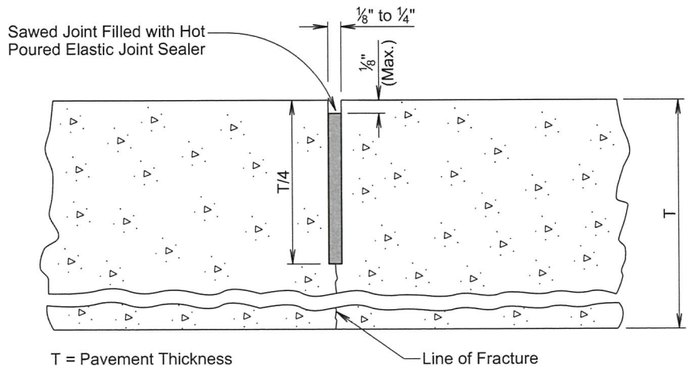
GENERAL NOTES

THE TIE BAR IS TO BE EMBEDDED A MINIMUM DEPTH OF 9 INCHES INTO THE EXISTING PAVEMENT BY UTILIZING AN EPOXY RESIN ADHESIVE.



T = PAVEMENT THICKNESS

PCC PAVEMENT TRANSVERSE JOINTS WITH TIE BARS



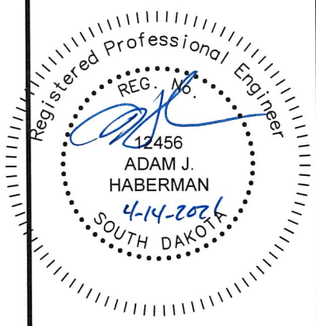
GENERAL NOTES:

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum ¼ of the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement will be removed as soon as the material has cooled. The extent of removal of material will be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material will be borne by the Contractor.

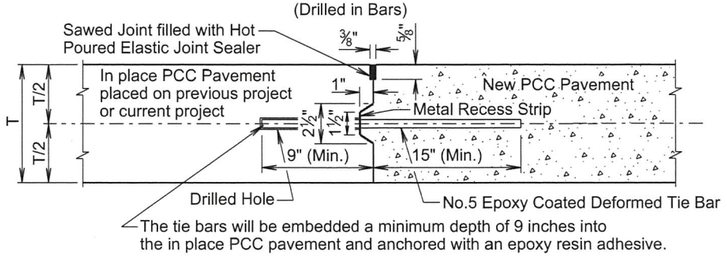
June 26, 2019

Published Date: 4th Qtr. 2019	SDDOT	*PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY*	*PLATE NUMBER* 380.05 *Sheet 1 of 1*



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

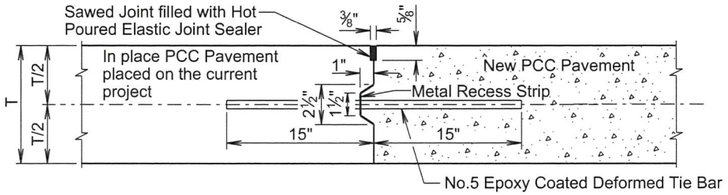
(Drilled in Bars)



T = Pavement Thickness

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will be spaced in accordance with the following tables:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

TIE BAR SPACING 30" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

The tie bars will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

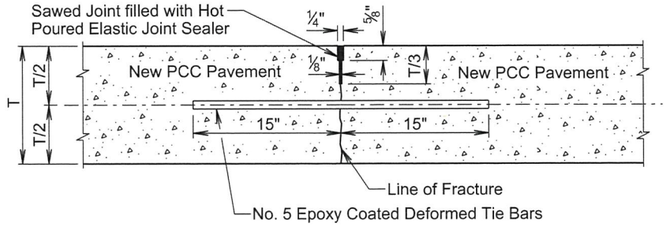
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

June 26, 2019

Published Date: 4th Qtr. 2019	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10 Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS

(Poured Monolithically)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars will be spaced in accordance with the following table:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

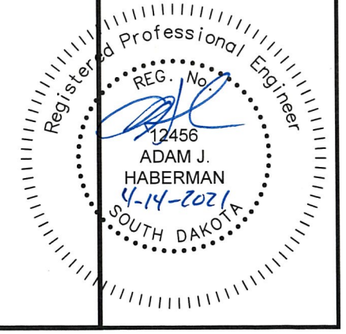
The tie bars will be placed a minimum of 15 inches from the transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing will apply to tie bars within each panel.

The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

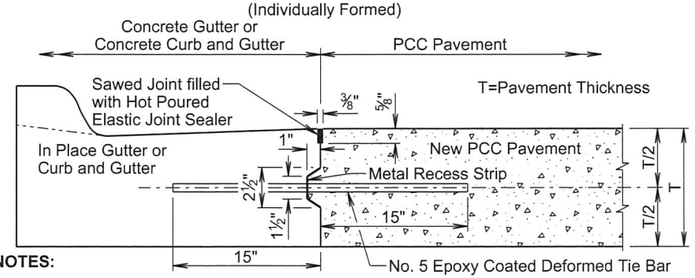
June 26, 2019

Published Date: 4th Qtr. 2019	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10 Sheet 2 of 2



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Individually Formed)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center. The keyway shown above is a female keyway.

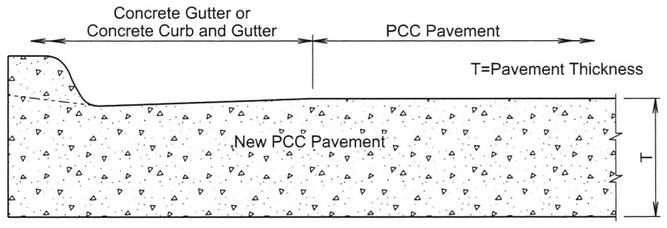
The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1½ inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY



GENERAL NOTES:

The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement will be eliminated.

The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

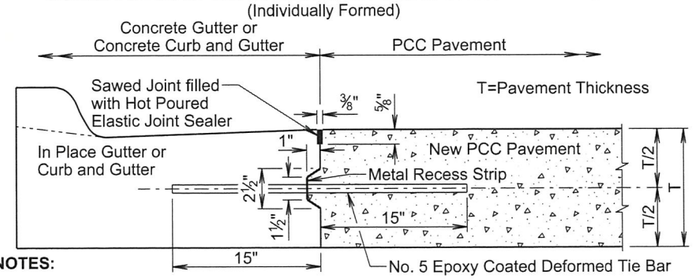
The slope of the gutter will be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter will be constructed at the same slope as the mainline concrete pavement.

June 26, 2019

Published Date: 4th Qtr. 2019	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11 Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Individually Formed)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center. The keyway shown above is a female keyway.

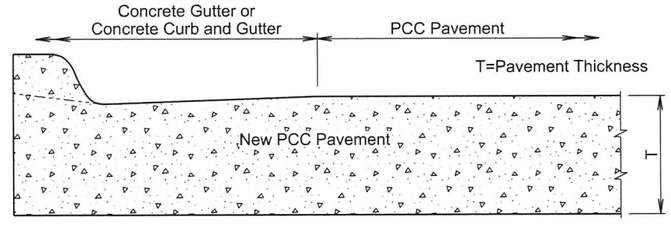
The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1½ inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY



GENERAL NOTES:

The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement will be eliminated.

The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

The slope of the gutter will be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter will be constructed at the same slope as the mainline concrete pavement.

June 26, 2019

Published Date: 4th Qtr. 2019	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11 Sheet 1 of 1