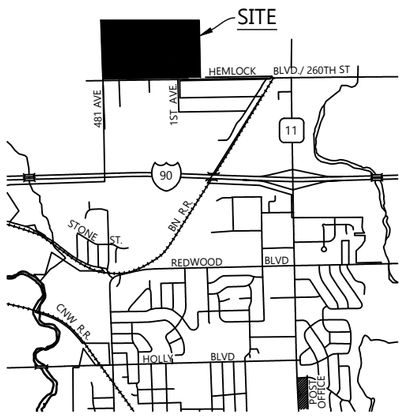
STREET CONSTRUCTION PLANS

WALNUT AVENUE, PLUM AVENUE, HONEYSUCKLE STREET & UTILITY EXTENSIONS

GRADING, SANITARY SEWER, WATER MAIN,
STORM SEWER & SURFACING
TO THE CITY OF BRANDON,
MINNEHAHA COUNTY, SOUTH DAKOTA

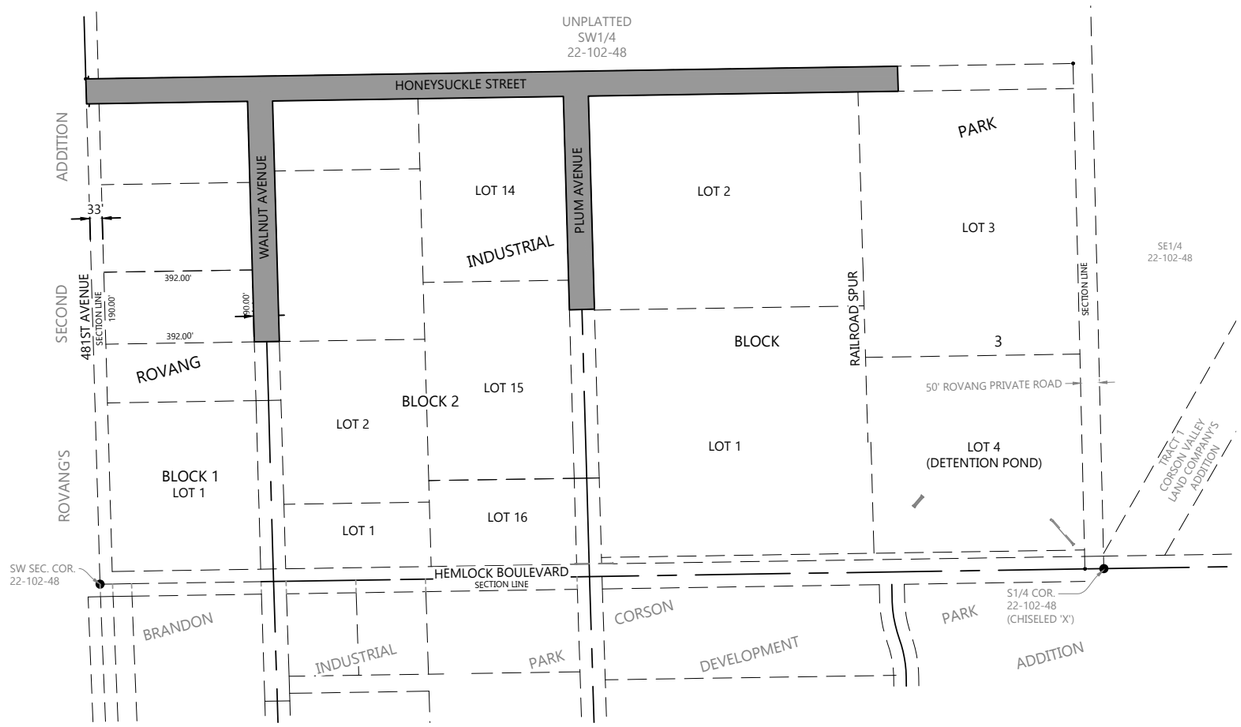


VICINITY MAP

SEC. 22-102-48

LEGEND

- FIRE HYDRANT
- STREET LIGHT
- LIGHT POLE
- FLOOD LIGHT
- HISTORICAL LIGHT POLE
- POWER POLE
- TRAFFIC SIGNAL
- POWER BOX
- ROOF DRAIN
- TELEPHONE BOX
- EXISTING MANHOLE
- EXISTING STORM M.H.
- SIGN
- STREET SIGN
- GAS METER
- UTILITY CLOSURE
- GUY WIRE
- FLAG POLE
- GAS VALVE
- WATER SHUTOFF
- WATER VALVE
- OHW — OVERHEAD WIRE
- UP — UNDERGROUND POWER
- UT — UNDERGROUND TELEPHONE
- F — FIBER OPTIC
- UTV — UNDERGROUND TELEVISION
- W — WATER LINE
- G — GAS LINE
- S — SANITARY SEWER
- SS — STORM SEWER
- CHAIN LINK FENCE
- BARBED WIRE FENCE
- WOOD FENCE
- EXISTING CURB & GUTTER
- 100 — EXISTING CONTOUR
- BUSHES
- DECIDUOUS TREE
- CONIFEROUS TREE
- CONCRETE SURFACE
- EXISTING BUILDING LINE



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DRAWING INDICATES GENERAL UTILITY LOCATIONS ONLY. NEITHER THE CORRECTNESS OR COMPLETENESS OF LOCATIONS ARE GUARANTEED. CONTACT SOUTH DAKOTA ONE-CALL (1-800-781-7474) PRIOR TO EXCAVATIONS.

OWNER/DEVELOPER:

BRANDON DEVELOPMENT FOUNDATION
CITY OF BRANDON
304 MAIN AVENUE
BRANDON, SD 57005
(605) 582-6515

ENGINEER:

SAYRE ASSOCIATES, INC.
216 S. DULUTH AVE.
SIOUX FALLS, SD 57104
(605) 332-7211

LEGAL DESCRIPTION:

TRACT 1, ROVANG INDUSTRIAL PARK IN THE SOUTHWEST QUARTER (SW1/4) OF SECTION 22, TOWNSHIP 102 NORTH, RANGE 48 WEST OF THE 5th P.M., MINNEHAHA COUNTY, SOUTH DAKOTA.

AREA

24.27 ACRES±

I, _____, CITY ENGINEER OF THE CITY OF BRANDON, DO HEREBY CERTIFY THAT I DID DULY REVIEW & RECOMMEND APPROVAL OF THIS PRELIMINARY PLAN ON THIS ____ DAY OF _____, 2021.

_____
CITY ENGINEER, CITY OF BRANDON, S.D.

I, THAD A. ROBERTS, HEREBY CERTIFY THAT THIS PLAN OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.

DATE:

_____
THAD A. ROBERTS
REG. NO. 6874

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6874
THAD A. ROBERTS
SOUTH DAKOTA

Sayre Associates
216 S. Duluth Avenue Sioux Falls, SD 57104
Phone: (605) 332-7211 Fax: (605) 332-7222
Engineers • Surveyors

BY: GRA, 21092 PLUM CP SECTION A.dwg, TITLE, PRINT DATE: Jan 06, 2022

HORIZONTAL AND VERTICAL CONTROL POINTS

SYMBOL	POINT	DESCRPTION	NORTHING	EASTING	ELEVATION
BM	BM#1	NAIL IN POWER POLE ON 481ST AVE			1413.95
BM	BM#2	TOP NUT OF FIRE HYDRANT ON NE CORNER OF 481ST & HEMLOCK			1434.83
BM	BM#3	TOP NUT OF FIRE HYDRANT ON SW CORNER OF HEMLOCK & WALNUT			1411.76
BM	BM#4	TOP NUT OF FIRE HYDRANT ON SW CORNER OF HEMLOCK & 1ST			1372.63
CP	CP#1	5/8" REBAR ON SW CORNER OF 481ST & HEMLOCK	15853323.80	2277845.49	
CP	CP#2	5/8" REBAR 2988' NORTH OF 481ST & HEMLOCK ON WEST SIDE	15856330.46	2277778.89	
CP	CP#3	5/8" REBAR 2450' EAST OF HEMLOCK & 1ST ON SOUTH SIDE	15853381.78	2282427.25	
CP	CP#4	5/8" REBAR 3330' EAST & 2660' NORTH OF HEMLOCK & 1ST	15856089.65	2283261.07	

N

GRAPHIC SCALE
200 0 100 200 400
(IN FEET)

CP#2

CP#4

UNPLATTED
SW1/4
22-102-48

481ST AVENUE

HONEYSUCKLE STREET

ADDITION

BM #1

WALNUT AVENUE

PLUM AVENUE

LOT 14

LOT 2

INDUSTRIAL

PARK

LOT 3

SECOND

481ST AVENUE
SECTION LINE
190.00'

392.00'

33'

ROVANG

BLOCK

3

RAILROAD SPUR

SECTION LINE

SE1/4
22-102-48

50' ROVANG PRIVATE ROAD

BLOCK 2

LOT 15

LOT 2

LOT 1

LOT 4
(DETENTION POND)

ROVANG'S

BLOCK 1
LOT 1

LOT 1

LOT 16

TRACT 1
CORSON VALLEY
LAND COMPANY'S
ADDITION

BM #2

SW SEC. COR.
22-102-48

CP#1

BM #3

HEMLOCK BOULEVARD
SECTION LINE

BM #4

CP#3

S1/4 COR.
22-102-48
(CHISELED 'X')

BRANDON

INDUSTRIAL

PARK

CORSON

DEVELOPMENT

PARK

ADDITION

BY: GRA, 21092 PLUM CP SECTION A.dwg, CONTROL, PRINT DATE: Jan 06, 2022

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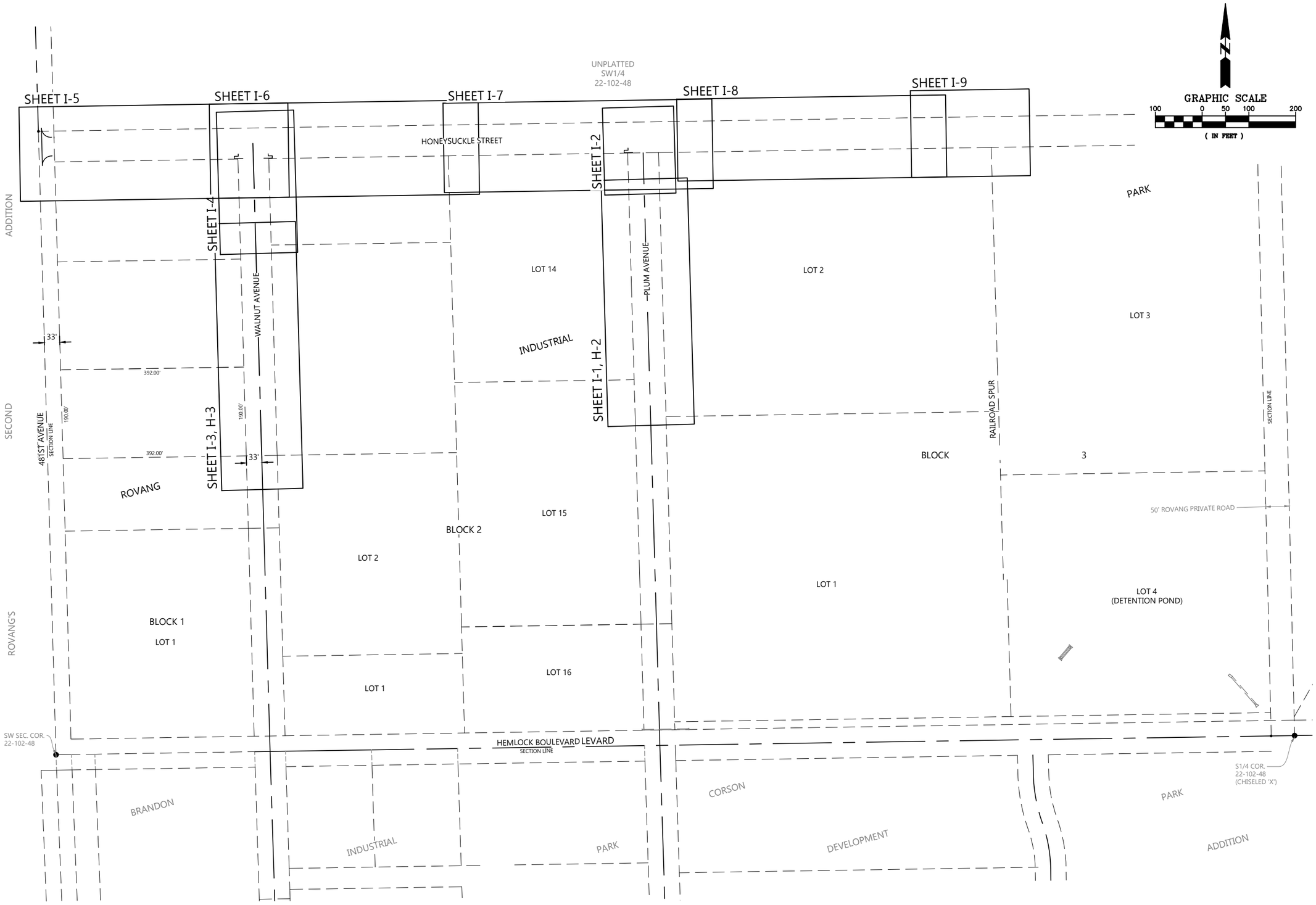
ROVANG INDUSTRIAL PARK

STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

DATA CONTROL

A-2



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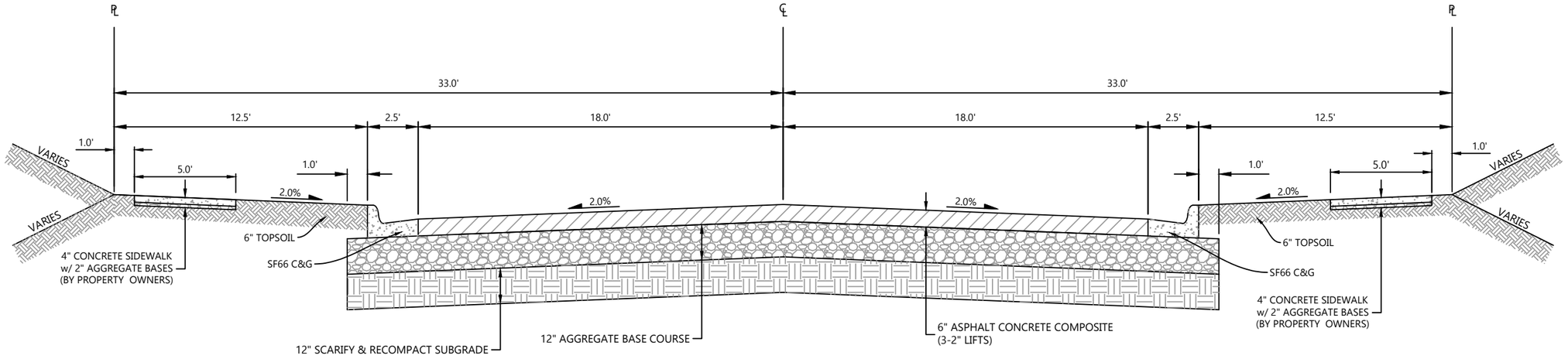
REVISION DATE:	

ORIENTATION

A-3

BY: GRA, 21092 PLUM CP SECTION A.dwg, ORIENT, PRINT DATE: Jan 06, 2022

TYPICAL GRADING & SURFACING SECTIONS



PLUM AVENUE, WALNUT AVENUE, & HONEYSUCKLE STREET

BY: GRA, 21092 PLUM CP SECTION C-D.dwg, C-1, PRINT DATE: Jan 06, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	
TYPICAL SECTION	

C-1

GENERAL NOTES

SCOPE OF PROJECT:

THIS PROJECT PROVIDES FOR THE FOLLOWING IMPROVEMENTS:

NORTH WALNUT, PLUM AVENUE, & HONEYSUCKLE STREET:

- GRADING
- WATER MAIN
- SANITARY SEWER
- STORM SEWER
- CURB & GUTTER
- ASPHALT SURFACING
- TOPSOIL, SEEDING, FERTILIZING AND MULCHING

SPECIFICATIONS TO BE USED:

THE MOST CURRENT EDITION OF THE CITY OF BRANDON GENERAL CONDITIONS FOR PUBLIC IMPROVEMENTS AND SUPPLEMENTAL STANDARD SPECIFICATIONS, TOGETHER WITH THE MOST CURRENT EDITION OF THE SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES WITH SUPPLEMENTAL SPECIFICATIONS AND ERRATA AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS, AND/OR SPECIAL PROVISIONS AS INCLUDED IN THE PROJECT MANUAL ARE HEREBY MADE A PART OF THESE SPECIFICATIONS IN ITS ENTIRETY UNLESS OTHERWISE REVISED, DELETED, OR SUPPLEMENTED HEREIN.

TESTING OF WATER MAIN AND SANITARY SEWER SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE CITY OF BRANDON GENERAL CONDITIONS FOR PUBLIC IMPROVEMENTS AND SUPPLEMENTAL SPECIFICATIONS.

DRAWINGS OF RECORD:
THE CONTRACTOR SHALL PROVIDE THE OWNER WITH REDLINED PLANS SHOWING DIMENSIONS OF ALL WATER MAIN AND FITTINGS AS WELL AS LOCATION OF SEWER SERVICES FROM THE NEAREST MANHOLE.

INSPECTIONS:
THE ENGINEER SHALL CONDUCT INSPECTIONS THROUGHOUT THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO CONSTRUCTION TO DISCUSS THE SCHEDULE.

ORDER OF PRECEDENCE:

IF CONFLICTS ARISE, THE ORDER OF PRECEDENCE OF THE CONTRACT DOCUMENTS SHALL BE AS FOLLOWS: PLANS OVER SPECIAL PROVISIONS OVER SUPPLEMENTAL SPECIFICATIONS OVER CITY OF BRANDON SUPPLEMENTAL STANDARD SPECIFICATIONS OVER CITY OF BRANDON GENERAL CONDITIONS FOR PUBLIC IMPROVEMENTS OVER SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS AND ERRATA OVER SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

PRECONSTRUCTION MEETING:

THE CONTRACTOR SHALL MEET WITH THE CONSULTANT AND THE OWNER TO DISCUSS THE PROJECT PRIOR TO BEGINNING WORK. AT THIS MEETING, THE CONTRACTOR SHALL PROVIDE A LIST OF SUBCONTRACTORS AND SUPPLIERS AND A PROPOSED CONSTRUCTION SCHEDULE.

CONSTRUCTION SEQUENCE:

THE PROJECT SHALL BE COMPLETED BY JULY 30, 2022.

THE CONTRACTOR SHALL SUBMIT THEIR CONSTRUCTION SCHEDULE 5 DAYS PRIOR TO THE PRECONSTRUCTION CONFERENCE. THE CONTRACTOR'S SCHEDULE IS SUBJECT TO OWNER AND ENGINEER APPROVAL.

ADJUST MANHOLES:

UNDER THIS ITEM OF WORK, THE ELEVATIONS OF FRAMES & COVERS ON PROPOSED MANHOLES ARE TO BE ADJUSTED TO BE WITHIN THE TOLERANCES SET ON THE STANDARD DETAIL. ANY COVERS DAMAGED THRU THE CARELESSNESS OF THE CONTRACTOR'S FORCES SHALL BE REPLACED WITH NEW COVERS AND/OR RIMS AT THE CONTRACTOR'S EXPENSE. ADJUSTING RINGS SHALL BE FURNISHED BY THE CONTRACTOR.

MANHOLE FRAMES AND COVERS:

ALL MANHOLE FRAMES SHALL HAVE AN EXTERNAL MANHOLE SEAL INSTALLED.

TOPSOIL:

PRIOR TO GRADING OPERATIONS, THE CONTRACTOR SHALL STRIP AND STOCKPILE TOPSOIL WITHIN THE PROJECT WORK LIMITS.

THE CONTRACTOR SHALL PLACE TOPSOIL TO A DEPTH OF 6" ON ALL DISTURBED AREAS NOT RECEIVING SURFACING. EXISTING TOPSOIL SHALL BE SALVAGED FOR PLACEMENT AFTER COMPLETION OF THE GRADING. THE SALVAGED TOPSOIL IS INCLUDED IN THE QUANTITY FOR UNCLASSIFIED EXCAVATION. TOPSOIL WILL BE PAID AS "PLACE SALVAGED TOPSOIL".

FERTILIZER:

A COMMERCIAL FERTILIZER WITH A MINIMUM GUARANTEED ANALYSIS OF 18-46-0 SHALL BE APPLIED TO ALL AREAS DESIGNATED FOR SEEDING. APPLICATION RATE OF 18-46-0 SHALL BE ONE HUNDRED (100) POUNDS PER ACRE.

MULCHING:

FOLLOWING SEEDING, A MULCH CONSISTING OF STRAW SHALL BE BLOWN ON AND PUNCHED INTO ALL NEWLY SEEDED AREAS OF PERMANENT SEEDING. ESTIMATE OF QUANTITIES FOR STRAW IS BASED ON ASSUMED COVERAGE OF ALL NEWLY SEEDED AREAS AT THE RATE OF TWO TONS PER ACRE. THE ENGINEER MAY REQUIRE THAT RYE STRAW SHALL NOT BE USED ON ANY AREAS WHERE HE/SHE DETERMINES THAT ADJACENT CULTIVATED LAND MIGHT BE CONTAMINATED.

THE USE OF STRAW MULCH AS A TEMPORARY EROSION CONTROL MEASURE MAY BE ORDERED BY THE ENGINEER AS DEEMED NECESSARY FOR CONSTRUCTION. MULCH WILL BE MEASURED BY THE TON TO THE NEAREST ONE-TENTH OF A TON.

PERMANENT SEEDING:

THE AREAS TO BE PERMANENTLY SEEDED ARE THOSE AREAS DISTURBED IN CONSTRUCTION OPERATIONS. THE EXACT LIMITS OF SEEDING WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

THE SEEDBED SHALL BE PREPARED BY EQUIPMENT AND METHODS ACCEPTABLE TO THE ENGINEER. THE PERMANENT SEED MIXTURE 1 SHALL CONSIST OF THE FOLLOWING:

PURE LIVE SEED (PLS)
POUNDS PER ACRE
40% ANNUAL RYEGRASS
20% TALL FESCUE
20% PERENNIAL RYEGRASS
10% KENTUCKY BLUEGRASS
10% TIMOTHY

THE APPLICATION RATE SHALL BE 50 LB. /ACRE.

ALL OTHER DISTURBED AREAS SHALL BE SEEDED WITH ALFALFA AT AN APPLICATION RATE OF 12 LB. /ACRE

WASTE DISPOSAL SITE:

THE CONTRACTOR WILL BE REQUIRED TO FURNISH A SITE SATISFACTORY TO THE ENGINEER FOR THE DISPOSAL OF BROKEN CONCRETE, EXCESS DIRT, ROCK, TREES, NON-SALVAGEABLE ASPHALT SURFACING AND OTHER OBJECTIONABLE MATERIAL. THE WASTE DISPOSAL SITE MAY NOT BE A STREAM, STREAMBANK, LAKE, LAKESHORE OR WETLAND AS DEFINED BY THE US ARMY CORPS OF ENGINEERS, UNLESS THE CONTRACTOR HAS OBTAINED A "404" PERMIT FROM THE US ARMY CORPS OF ENGINEERS.

CONSTRUCTION/DEMOLITION DEBRIS MAY NOT BE DISPOSED OF WITHIN THE R/O/W.

UTILITIES:

THE PLAN'S SHOWN LOCATION AND ELEVATION OF ALL UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO STARTING WORK. ANY TIME EXISTING UTILITIES IMPEDE THE PROGRESS OF WORK THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.

ALL UTILITIES WITHIN THE R-O-W, WHETHER PRIVATELY OR PUBLICLY OWNED, SHALL BE MOVED, AS NECESSARY, BY THE UTILITY COMPANY OR COMPANIES, AS THE CASE MAY BE, WHEN ADVISED BY THE ENGINEER IN ADVANCE OF CONSTRUCTION AND AT NO COST TO THE OWNER.

ANY DAMAGE DONE TO THE UTILITIES BECAUSE OF THE CONTRACTOR'S CARELESSNESS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

ABANDONED UTILITIES (GAS LINES, TELEPHONE LINES, ETC.) ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. COSTS ASSOCIATED WITH THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS BID ITEMS ASSOCIATED WITH WORK ADJACENT TO THE ABANDONED UTILITY.

SANITARY SEWER:

THE SANITARY SEWER PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF ASTM D-3034, TYPE PSM, SDR 35 MINIMUM.

TRACER WIRE SHALL BE INSTALLED WITH ALL SANITARY SEWER MAIN LINES AND SERVICE LINES. TRACER WIRE SHALL BE INCIDENTAL TO THE SANITARY SEWER INSTALLATION. THE TRACER WIRE SHALL BE TERMINATED BY RUNNING THE WIRE UP THE MANHOLE AND UNDER THE MANHOLE FRAME TO A POINT INSIDE THE MANHOLE.

SANITARY SEWER BACKFILL, WHERE INSTALLED BENEATH FUTURE RAILROAD EXTENSION, SHALL BE NO LESS THAN 97% OF STANDARD PROCTOR DENSITY.

SANITARY SEWER CASING:

STEEL PIPE FOR CASING SHALL BE IN CONFORMANCE WITH ASTM A1097 AND OF LEAKPROOF CONSTRUCTION. STEEL PIPE SHALL BE CATHODIC PROTECTED OR COATED. JOINTS SHALL BE INTERLOCKING OR BUTT WELDED. PIPE SHALL HAVE A SPECIFIED MINIMUM YIELD STRENGTH OF AT LEAST 35,000 PSI.

WALL THICKNESS FOR THE CATHODIC PROTECTED OR COATED STEEL PIPE SHALL BE 0.219 INCHES.

ALL SPACERS, ROLLERS, STUDS, NUTS, WASHERS, AND END SEALS REQUIRED FOR INSTALLATION SHALL BE INCLUDED IN THE BID ITEM 16" SANITARY SEWER CASING.

WATER MAIN:

ALL WATER MAINS SHALL HAVE A MINIMUM OF SIX FEET OF COVER OVER THE TOP OF THE PIPE BASED ON THE FINAL DIRT OR PAVEMENT GRADE ABOVE THE WATER MAIN UNLESS SHOWN OTHERWISE ON THE PLANS. THE FINAL GRADE ABOVE THE WATER MAIN WILL BE BASED ON THE PROFILE SHOWN IN THE PLANS. THE COST OF ANY ADDITIONAL DEPTH REQUIRED FOR THE CONNECTION TO EXISTING WATER MAINS OR FOR INSTALLATION BELOW ANOTHER UTILITY, EITHER EXISTING OR PROPOSED, SHALL BE INCLUDED IN THE UNIT PRICE FOR WATER MAIN INSTALLATION.

ALL SALVAGED WATER MAIN APPURTENANCES SHALL REMAIN THE PROPERTY OF THE CITY OF BRANDON IF NOT REINSTALLED.

WATER MAIN PIPE SHALL MEET THE REQUIREMENTS OF C900 DR18.

TRACER WIRE SHALL BE INSTALLED WITH ALL WATER MAIN LINES AND SERVICE LINES. TRACER WIRE SHALL BE INCIDENTAL TO THE WATER MAIN INSTALLATION.

THE CONTRACTOR SHALL NOTIFY ALL CONSUMERS AFFECTED BY ANY INTERRUPTION OF WATER SERVICE AT LEAST 24 HOURS BEFORE THE INTERRUPTION OF WATER SERVICE. CONSUMERS SHALL BE VERBALLY NOTIFIED WHEN POSSIBLE. IN THE EVENT A CONSUMER CANNOT BE VERBALLY NOTIFIED, A DOOR HANGER SHALL BE SECURED TO THE MOST FREQUENTLY USED ENTRANCE.

WATER SHUTOFFS MUST BE COORDINATED WITH THE PUBLIC WORKS DEPARTMENT TO VERIFY WHICH CUSTOMERS WILL BE AFFECTED.

WATER MAINS PARALLELING OR CROSSING SEWERS:

WHERE WATER MAINS ARE TO BE INSTALLED BELOW STORM SEWERS, SANITARY SEWER (SEWERS), OR ARE GOING TO BE LESS THAN 18" ABOVE SEWERS AT A SEWER CROSSING, THE WATER MAIN SHALL BE INSTALLED WITH A FULL LENGTH OF PIPE CENTERED ON THE SEWER.

WHERE WATER MAINS ARE TO BE INSTALLED IN PARALLEL WITH A SEWER OR SEWER MANHOLE THAT IS LESS THAN 10' AWAY HORIZONTALLY AND IS NOT AT LEAST 18" BELOW THE WATER MAIN, THE WATER MAIN SHALL BE ENCASED WITH 6" OF CONCRETE BACKFILL MATERIAL FOR THE ENTIRE DISTANCE THAT THE SEWER IS TOO CLOSE TO THE WATER MAIN.

THE CONCRETE MIX DESIGN FOR THE CONCRETE BACKFILL MATERIAL SHALL MEET THE S.D.D.O.T. SPECIFICATIONS FOR CONTROLLED DENSITY FILL. THE CONCRETE MATERIAL SHALL HAVE 2600 POUNDS OF SAND, 100 POUNDS OF CEMENT, 300 POUNDS OF FLY ASH AND 485 POUNDS OF WATER PER CUBIC YARD OF CONCRETE.

WATER MAIN DISINFECTION:

AFTER DISINFECTION AND FINAL FLUSHING AND BEFORE THE NEW WATER MAIN IS CONNECTED TO THE DISTRIBUTION SYSTEM, TWO CONSECUTIVE SETS OF ACCEPTABLE SAMPLES, TAKEN 24 HOURS APART, SHALL BE COLLECTED FROM THE NEW MAIN. THE SAMPLES MUST BE SUBMITTED TO A HEALTH LABORATORY ACCEPTABLE TO THE STATE DANR, WHICH INCLUDES THE CITY OF SIOUX FALLS HEALTH LAB. THE SAMPLES MUST BE FREE OF COLIFORM BACTERIA BEFORE THE SYSTEM CAN BE PLACED INTO SERVICE.

WHEN MINOR WATER MAIN WORK OCCURS (I.E. TIE-IN CONNECTIONS OF NEW WATER MAIN TO EXISTING WATER MAIN, WATER MAIN ADJUSTMENTS, INSTALLATION OF NEW VALVES ON EXISTING MAIN OR ANY OTHER WORK DEEMED MINOR BY THE ENGINEER) THE EXISTING MAIN, PRIOR TO THE COMPLETION OF THE BACTERIA TESTING, MAY BE RETURNED TO SERVICE ONCE THE LINE HAS BEEN FLUSHED AND A BOIL ORDER HAS BEEN ISSUED. THE BOIL ORDER WILL BE RESCINDED WITH THE PASSING OF THE BACTERIA TEST.

WATER THAT IS DISCHARGED DURING WATER MAIN FLUSHING SHALL NOT REACH A STREAM, RIVER OR WATER WAY IF THE CHLORINE RESIDUAL EXCEEDS 0.05 MG/L.

WATER SERVICES:
THE CONTRACTOR SHALL VERIFY WITH OWNER THE NUMBER OF SERVICE, SIZE OF SERVICE AND LOCATION OF SERVICES PRIOR TO INSTALLATION. OWNER IS WORKING WITH POTENTIAL BUYERS ON WHAT THEY NEED FOR SERVIES. THE WATER SERVICES SHOWN ARE 6". THE PROPOSAL FORM HAS BID ITEMS FOR 1" WATER SERVICE IN THE EVENT A 6" SERVICE IS NOT NEEDED.

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

GENERAL NOTES

D-1

GENERAL NOTES

AGGREGATE BASE COURSE:

WATER FOR COMPACTION OF GRANULAR MATERIAL IS ESTIMATED AT THE RATE OF TWELVE (12) GALLONS OF WATER PER TON OF GRANULAR MATERIAL.

THE AGGREGATE BASE COURSE SHALL MEET THE REQUIREMENTS OF SECTIONS 260 AND 882 OF THE SDDOT STANDARD SPECIFICATIONS.

GRADING:

THE CONTRACTOR SHALL NOT WITHDRAW WATER DIRECTLY FROM STREAMS IN WATERSHEDS OF THE JAMES, VERMILLION, AND BIG SIOUX RIVERS WITHOUT PRIOR APPROVAL FROM THE SDDOT ENVIRONMENTAL OFFICE. CONTACT DAVE GRAVES AT (605) 773-5727. WATER MAY BE OBTAINED FROM OTHER SOURCES NOT DIRECTLY CONNECTED TO THESE STREAMS SUCH AS STOCK DAMS, WETLANDS, OR WELLS. THIS NOTE DOES NOT RELIEVE THE CONTRACTOR OF HIS/HER RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FROM OTHER AGENCIES SUCH AS DANR AND COE (CORPS OF ENGINEERS).

UNCLASSIFIED EXCAVATION

EXCAVATE THE EXISTING SUBGRADE TO PROVIDE FOR THE REQUIRED DEPTH OF AGGREGATE BASE COURSE AND ASPHALT SURFACING OR AGGREGATE BASE COURSE AND CONCRETE SURFACING ON WALNUT AND PLUM AVENUE.

DUE TO THE DIFFICULTY IN MAKING FIELD MEASUREMENTS ON THIS PROJECT AND TO EXPEDITE FINAL PAYMENT, THE COMPUTED QUANTITY OF UNCLASSIFIED EXCAVATION SHALL BE THE BASIS OF PAYMENT FOR THIS ITEM. NO FIELD MEASUREMENTS WILL BE MADE FOR PAYMENTS EXCEPT WHEN CHANGES FROM THE PLAN SHOWN CONSTRUCTION LIMITS ARE ORDERED BY THE ENGINEER.

ALL EXCAVATIONS MADE FOR UNDERGROUND UTILITIES IS INCIDENTAL TO THE INSTALLATION OF THAT UTILITY. SPOIL MATERIAL REMOVED FOR PIPE INSTALLATION MAY BE SPREAD ON ADJACENT LAND OWNED BY THE OWNER. SPREADING SPOIL MATERIAL SHALL BE INCIDENTAL TO PIPE INSTALLATION COSTS AND DONE PRIOR TO TOPSOIL PLACEMENT.

WATER FOR COMPACTION OF SUBGRADE AND EMBANKMENTS SHALL BE PROVIDED BY THE CONTRACTOR AND USED TO MAINTAIN SOIL AT OR NEAR OPTIMUM MOISTURE CONTENT TO OBTAIN REQUIRED DENSITY. COMPACTION OF SUBGRADE AND EMBANKMENTS SHALL BE GOVERNED BY THE SPECIFIED DENSITY METHOD. COMPACTION OF EMBANKMENT SHALL BE NO LESS THAN 95% OF STANDARD PROCTOR DENSITY. SEPARATE PAYMENT WILL BE MADE FOR WATER USED FOR COMPACTION OF SUBGRADE. THE ESTIMATED QUANTITY OF WATER FOR EMBANKMENT IS BASED ON 10 GALLONS PER CUBIC YARD OF UNCLASSIFIED EXCAVATION.

CONCRETE:

ALL CONCRETE FOR CURB AND GUTTER, JUNCTION BOXES AND DROP INLETS SHALL BE CLASS M-6. DROP INLETS AND JUNCTION BOXES SHALL BE CAST-IN-PLACE. PRECAST WILL NOT BE ALLOWED. ALL CONCRETE CURB & GUTTER SHALL BE CURED WITH WHITE PIGMENTED LINSEED OIL BASE EMULSION COMPOUND.

CLASS C FLY ASH SHALL NOT BE PERMITTED IN CONCRETE PLACED IN DIRECT CONTACT WITH SOIL.

ASPHALT CONCRETE COMPOSITE:

PLACEMENT OF ASPHALT CONCRETE SHALL BE BY SELF-PROPELLED PAVERS. COMPACTION OF THE ASPHALT CONCRETE SHALL BE BY METHODS AND EQUIPMENT SATISFACTORY TO THE ENGINEER.

COMPACTION OF ASPHALT CONCRETE SHALL BE BY THE SPECIFIED DENSITY METHOD. THE MINIMUM DENSITY REQUIREMENT SHALL BE 92% OF SD312 (RICE METHOD).

ASPHALT CONCRETE COMPOSITE SHALL CONFORM TO THE SDDOT SPECIFICATIONS FOR CLASS G, ASPHALT CONCRETE. THE TOP LIFT SHALL CONFORM TO CLASS G-2 FOR THE MINERAL AGGREGATE SPECIFICATIONS. ALL LOWER LIFT(S) SHALL CONFORM TO CLASS G-1 FOR THE MINERAL AGGREGATE SPECIFICATIONS UNLESS OTHERWISE NOTED OR BY DIRECTION OF THE ENGINEER.

THE ASPHALT BINDER USED IN THE MIXTURE SHALL BE PERFORMANCE GRADED AASHTO DESIGNATION: PG58-28 AND SHALL CONFORM TO THE CURRENT SDDOT SPECIFICATIONS. CERTIFICATES OF COMPLIANCE WILL BE REQUIRED ON THE ASPHALT CONCRETE COMPOSITE MIX AND THE PERFORMANCE GRADED ASPHALT BINDER. THE ENGINEER MAY ACCEPT THE MIXTURE ON THE BASIS OF THE CERTIFICATE OF COMPLIANCE AND VISUAL INSPECTION OR MAY TEST THE MIXTURE FOR SPECIFICATION COMPLIANCE.

ASPHALT CONCRETE COMPOSITE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON, FURNISHED COMPLETE IN PLACE, AND SHALL BE FULL COMPENSATION FOR ASPHALT BINDER, MINERAL AGGREGATE, TACK COAT (SS-1H OR CSS-1H), ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

TACK COAT (SS-1H OR CSS-1H) SHALL BE APPLIED BETWEEN EACH LIFT OF ASPHALT AND ALONG EXISTING CONCRETE AND ASPHALT FACES AND ANY AREAS AS DETERMINED BY THE ENGINEER AT THE RATE OF 0.05 GAL./SQ.YD. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ASPHALT CONCRETE COMPOSITE.

THE TONNAGE OF ASPHALT CONCRETE COMPOSITE SHOWN IN THE ESTIMATE OF QUANTITIES IS THE GROSS TONNAGE AFTER MIXING WITH NO DEDUCTION FOR THE WEIGHT OF THE ASPHALT CEMENT IN THE MIXTURE.

WRITTEN CERTIFICATION FROM THE PRODUCER STATING THAT THE ASPHALT CONCRETE CONFORMS TO THE SPECIFICATIONS AND THE JOB MIX FORMULA AND A CERTIFICATE OF COMPLIANCE FROM THE REFINERY FOR THE ASPHALT CEMENT USED IN THE MIXTURE SHALL BE FURNISHED IN DUPLICATE TO THE ENGINEER. THE ENGINEER MAY ACCEPT THE MIXTURE ON THE BASIS OF THE CERTIFICATE OF COMPLIANCE AND VISUAL INSPECTION OR MAY TEST THE MIXTURE FOR SPECIFICATION COMPLIANCE.

WEIGHT TICKETS SHALL BE FURNISHED TO THE ENGINEER BY THE CONTRACTOR.

ASPHALT CONCRETE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER TON, FURNISHED IN PLACE AND SHALL BE FULL COMPENSATION FOR MINERAL AGGREGATE, TACK COAT (SS-1H OR CSS-1H) ASPHALT CEMENT, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

SIDEWALK

SIDEWALK IS NOT BEING INSTALLED WITH THIS PROJECT. THE CITY OF BRANDON WILL REQUIRE THAT SIDEWALK BE INSTALLED BY INDIVIDUAL PROPERTY OWNERS IN ACCORDANCE WITH THE CITY OF BRANDON DESIGN STANDARDS.

TABLE OF EARTH WORK QUANTITIES		
Unclassified Excavation	44,673	CY
8" Topsoil	22,339	CY
Total Excavation	67,012	CY
Embankment	33,275	CY
30% Shrinkage	9,983	CY
8" Topsoil	22,339	CY
Total Embankment	65,597	CY
Waste	1,416	CY
Total	67,012	CY

ALL WASTE MATERIAL WILL BE STOCKPILED WITHIN ROVANG INDUSTRIAL PARK. COORDINATE WITH OWNER FOR LOCATION OF STOCKPILE.

Sayre Associates
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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

GENERAL NOTES

D-2

TRAFFIC CONTROL

SEQUENCE OF OPERATIONS

The following Sequence of Operation shall be followed by the Contractor unless an alternate Sequence of Operations is submitted in writing and approved by the Engineer.

The project shall be closed to traffic as provided in the traffic control plan during the entire construction process. The Contractor shall complete the grading, water main, sanitary sewer, storm sewer, base course, curb & gutter, roadway surfacing, topsoil placement and temporary/permanent erosion control measures shown in the plans. The project shall be opened to traffic upon completion of all work items.

The Contractor shall post "ROAD WORK AHEAD" signs on 481st Ave when performing grading and surfacing of Honeysuckle Street. When installing sanitary sewer and water at 481st Ave/Honeysuckle St, the Contractor shall post barricades, "ROAD CLOSED" and "ROAD CLOSED TO THRU TRAFFIC" signs. Upon installation of the utilities, 481st Ave shall be backfilled and gravel placed to open 481st Ave back up to traffic.

GENERAL MAINTENANCE OF TRAFFIC

1. Installation of traffic control shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) Current Edition unless otherwise modified in the plans.

2. The Contractor shall notify the engineer 7 days prior to start of construction and before any substantial traffic control change so that a press release can be issued. The Contractor shall notify the engineer 48 hours in advance of all other traffic control changes.

   For closures on Arterial streets, the Contractor shall notify the Engineer 7 days prior to installing traffic control. Installation of traffic control shall not be made before 8:30 AM on the day of the closure.

3. Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

4. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the City, and to the satisfaction of the Engineer.

5. All breakaway sign supports shall comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide post installation details at the preconstruction meeting for all steel post breakaway sign support assemblies.

6. Installation, maintenance, relocation and removal of Type I and II barricades, cones, vertical panels, drums, barricade warning lights, watchmen, tubular markers and flags shall be included in the lump sum price bid for "Traffic Control Miscellaneous".

7. The Contractor or designated traffic control subcontractor shall ensure the adequacy, legibility, and reflectivity of each sign and device. Sign washing shall be considered incidental to Traffic Control and required as directed by the Engineer.

8. The Contractor shall provide temporary access routes for residences and businesses located in the construction area unless otherwise noted in the plans. Temporary routes and drives shall be considered incidental to all items of the project and therefore no separate measurement and payment shall be made.

9. Flagger warning signs shall be installed when using flaggers to direct traffic. Flaggers shall wear appropriate safety clothing and shall use a Stop/Slow paddle. Payment for flagging will be at the contract unit price per hour if a bid item has been included. If no bid item is included, flagging shall be incidental to "Traffic Control, Miscellaneous".

10. The Contractor is responsible for maintaining all traffic control devices throughout the project at all time in accordance with the plans and the latest edition of the MUTCD. The Contractor shall immediately take appropriate measures to remedy any traffic control devices that need to be removed , replaced, etc. due to changes in the phasing, sequencing, weather, or any other reason upon notification from the Engineer. Failure to correct any traffic control devices that are not in compliance with the plans or the latest edition of the MUTCD upon notification from the Engineer will result in a price adjustment to the contract. The minimum price adjustment to the contract will be $100 per day per occurrence. The Engineer may delay the issuance of the price adjustment(s) if the Engineer has determined all the following apply:

    a. The Contractor has made a good faith effort to bring the items into compliance with the plans and latest edition of the MUTCD.

    b. Compliance was not achieved due to weather conditions outside the Contractor's control and the conditions were severe enough to prevent the Contractor from bringing the item into compliance.

    c. The Contractor brought the item into compliance as soon as possible after the weather and site conditions permit.

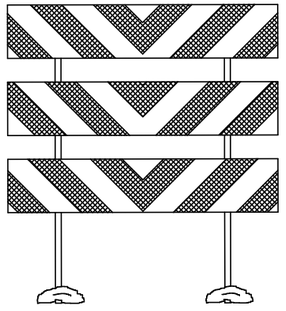
STANDARD SPACING FOR SIGNS, TAPERS AND CHANNELIZING DEVICES

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C) (D)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0-30	200	180	25
35-40	350	320	25
45-50	500	600	50
55	500	660	50
	(A) (B) (C) (D)		
60-65	500 1000 1300 1600	780	50
75	500 1000 1300 1600	1125	50

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE			DESCRIPTION	SQ. FT. PER SIGN	MAX REQUIRED	TOTAL SQ. FT.
W20-1	48"	x	48"	ROAD WORK AHEAD	16	2	32
R11-4	60"	x	30"	ROAD CLOSED TO THRU TRAFFIC	12.5	1	12.5
R11-2	48"	x	30"	ROAD CLOSED	10	4	40
						TOTAL	84.5

SIGN CODE	SIGN SIZE	DESCRIPTION	MAX REQUIRED	TOTAL
*****	*****	TYPE III BARRICADE - 8FT SINGLE SIDED	6	6
*****	*****	TYPE III BARRICADE - 6 FT SINGLE SIDED	1	1

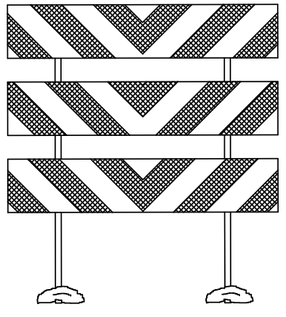


TYPE III BARRICADE
8' SINGLE SIDED

R11-2
48" x 30"

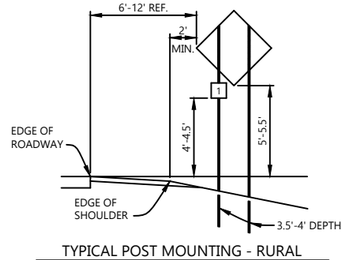
R11-4
60" x 30"

W20-1
48" x 48"

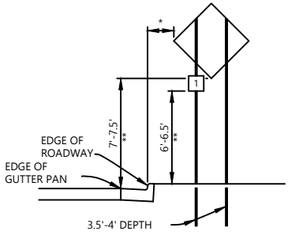


TYPE III BARRICADE
6' DOUBLE SIDED

* 2'-2.5' WITHOUT CURB SIDEWALK;
6'-6.5' WITH CURB SIDEWALK
** USE THESE MOUNTING HEIGHTS WHEN SIGNS ARE ADJACENT TO A 4-LANE UNDIVIDED ROADWAY OR WHERE SIDEWALK EXISTS OR WHERE CURBSIDE PARKING IS PERMITTED. IN ALL OTHER CASES, USE THE LESSER MOUNTING HEIGHTS SHOWN IN RURAL AREAS.



TYPICAL POST MOUNTING - RURAL



TYPICAL POST MOUNTING - URBAN

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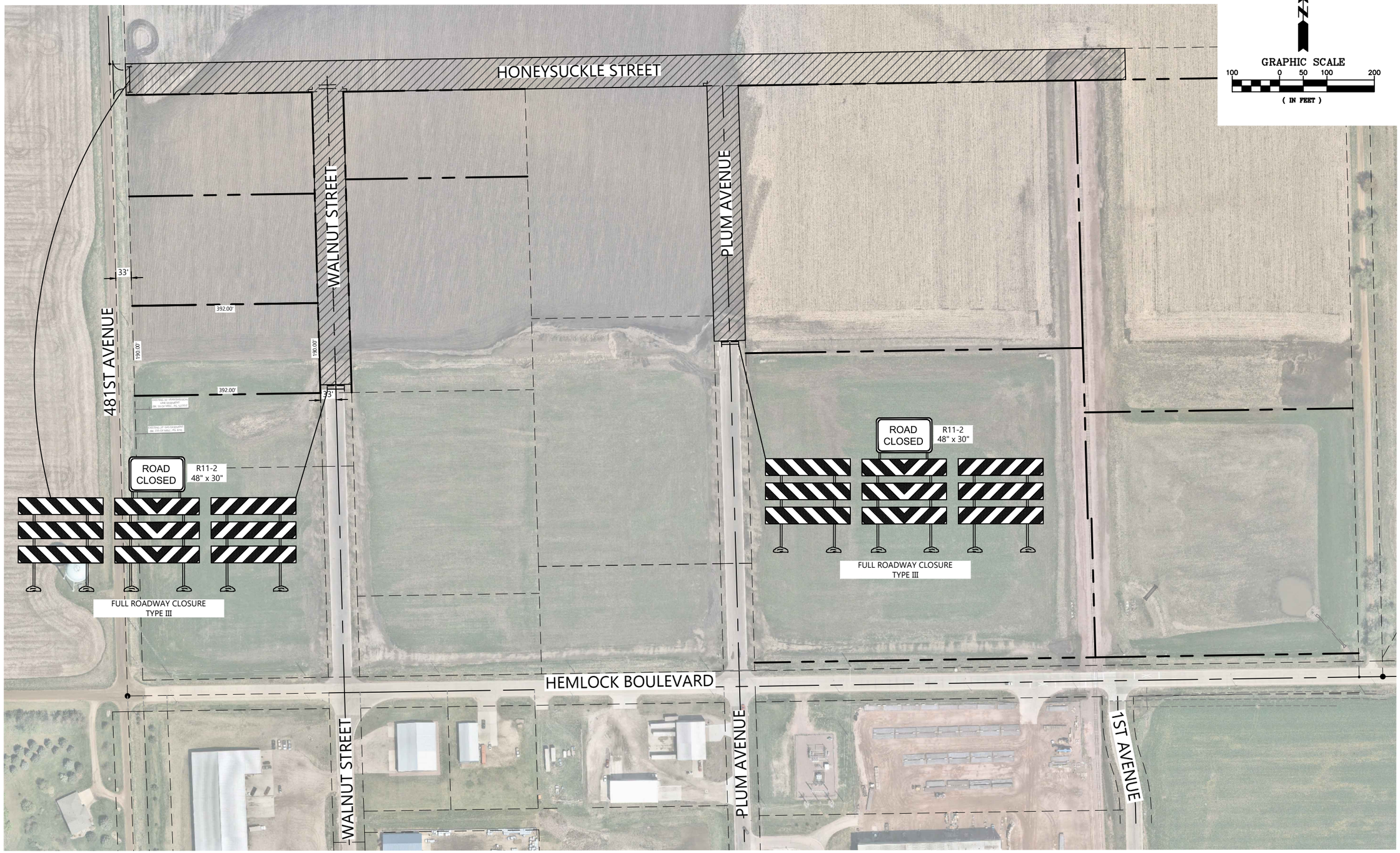
ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

TRAFFIC CONTROL PLAN

F-1



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ROVANG INDUSTRIAL PARK

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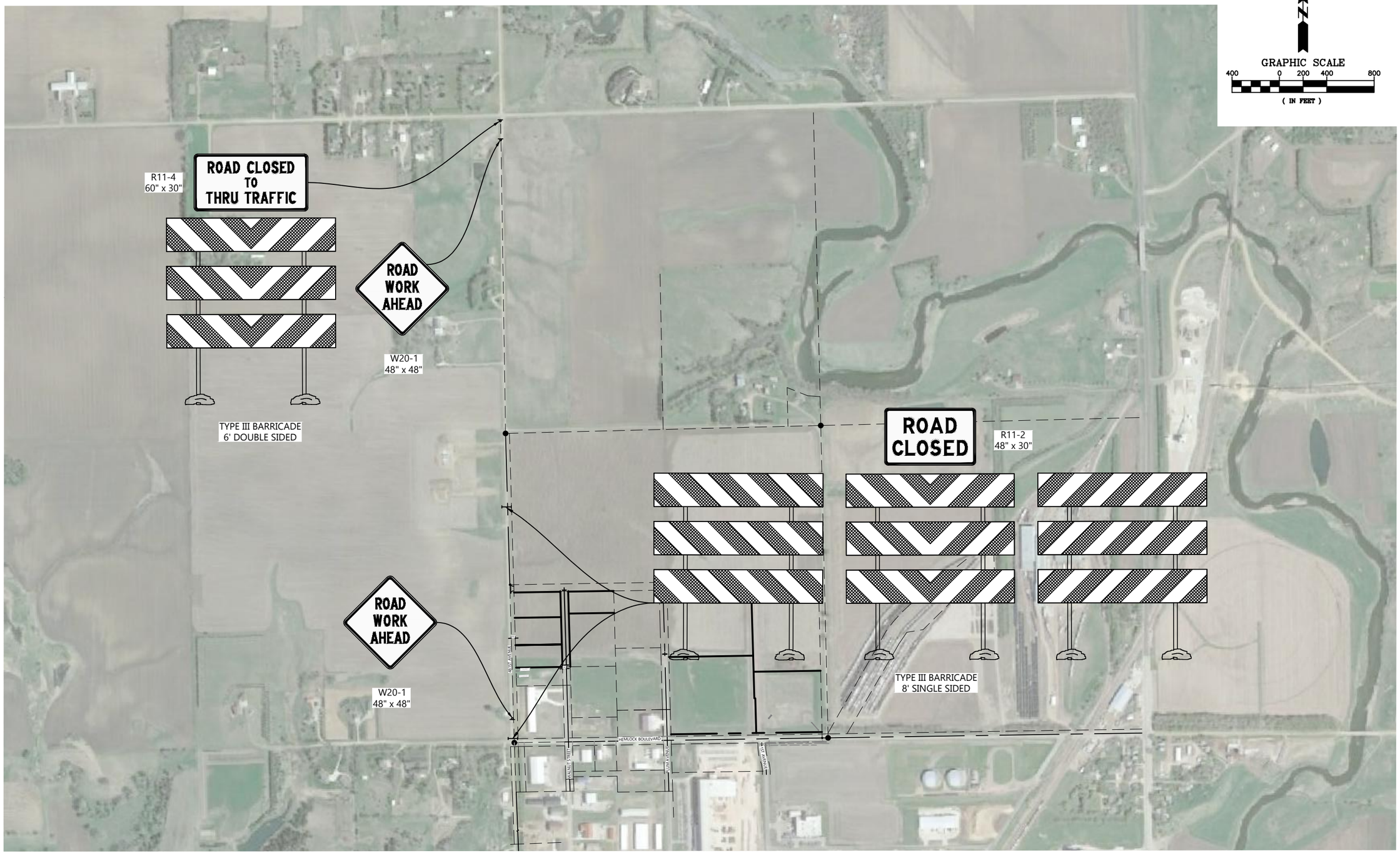
TRAFFIC CONTROL PLAN

F-2

BY: GRA, 21092 PLUM CP SECTION F.dwg, F-2, PRINT DATE: Jan 06, 2022



NOTE: SEE " SEQUENCE OF OPERATIONS" NOTE ON SHEET F-1 FOR WHEN THE VARIOUS SIGNS ON 481ST AVENUE ARE NEEDED.

BY: GRA, 21092 PLUM CP SECTION F.dwg, F-3, PRINT DATE: Jan 06, 2022

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ROVANG INDUSTRIAL PARK
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REVISION DATE:	

TRAFFIC CONTROL PLAN

F-3

EROSION CONTROL NARRATIVE

NAME	OWNER/DEVELOPER	ENGINEER
ROVANG INDUSTRIAL PARK	BRANDON DEVELOPMENT FOUNDATION 304 MAIN AVE. P.O. BOX 95 BRANDON, SD 57005 CONTACT: CHUCK PARSONS PHONE: (605) 759-7539 EMAIL: spotbill@alliancecom.net	SAYRE ASSOCIATES, INC. 216 S. DULUTH AVENUE SIOUX FALLS, SD 57104 605-332-7211 REGISTERED ENGINEER: THAD A. ROBERTS EMAIL: thadr@sayreassociates.com

PROJECT DESCRIPTION:

THE PROJECT PROVIDES FOR GRADING, STREET CONSTRUCTION AND UTILITY INSTALLATION. THE SITE IS LOCATED IN TRACT 1, ROVANG INDUSTRIAL PARK IN THE SOUTHWEST QUARTER (SW1/4) OF SECTION 22, TOWNSHIP 102 NORTH, RANGE 48 WEST OF THE 5th P.M., MINNEHAHA COUNTY, SOUTH DAKOTA.

CONSTRUCTION REQUIREMENTS:

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT STANDARD SPECIFICATIONS AND ENGINEERING DESIGN STANDARDS OF THE CITY OF BRANDON.

EXISTING SITE CONDITIONS:

THE EXISTING SITE IS AN UNDEVELOPED LOT. THE LAND GENERALLY DRAINS FROM WEST TO EAST.

ARE WETLANDS AN ISSUE? (Y/N) NO
IF WETLANDS ARE AN ISSUE, HAS A DETERMINATION BEEN MADE BY THE CORPS OF ENGINEERS? (Y/N) N/A

DOES THE STATE HISTORICAL PRESERVATION OFFICE (SHPO) NEED TO REVIEW THESE PLANS? (Y/N) NO

DOES SOUTH DAKOTA GAME FISH AND PARKS NEED TO REVIEW PLANS? (Y/N) NO

DOES THE UNITED STATES FISH AND WILDLIFE SERVICE NEED TO BE CONTACTED CONCERNING THREATENED OR ENDANGERED SPECIES? (Y/N) NO

ARE DEWATERING OPERATIONS EXPECTED? NO
IF SO, DESCRIBE METHODS FOR PROVIDING A TEMPORARY BMP OR NOTE THAT A DEWATERING PERMIT HAS BEEN ISSUED BY SD DENR.

ADJACENT AREA DESCRIPTION:

THE SITE IS BORDERED TO THE WEST, NORTH, AND EAST BY UNDEVELOPED FARM LAND, TO THE SOUTH BY HEMLOCK BOULEVARD AND INDUSTRIAL BUILDINGS/LOTS.

AREAS:

APPROXIMATELY 24.27 ACRES OF LAND WILL BE DISTURBED DURING THE CONSTRUCTION OF THIS PROJECT.

TEMPORARY EROSION CONTROL MEASURES:

VEHICLE TRACKING CONTROL, INLET PROTECTION, CONCRETE WASHOUT FACILITY & WATTLES WILL ALL BE UTILIZED IN THE EROSION AND SEDIMENT CONTROL PROCESS AS SHOWN ON THE PLANS.

SCHEDULE:

THE PROJECT IS EXPECTED TO BEGIN SPRING 2022 AND BE COMPLETED SUMMER 2022.

SEQUENCING:

THE FOLLOWING IS A PROPOSED ORDER OF PROJECT SEQUENCING. IF THE CONTRACTOR PROPOSES TO UTILIZE A DIFFERENT SEQUENCING, HE/SHE SHALL SUBMIT THAT TO THE ENGINEER AND THE CITY FOR APPROVAL.

- INSTALL INLET PROTECTION.
- INSTALL VEHICLE TRACKING STATION.
- STRIP TOPSOIL.
- PERFORM GRADING.
- PLACE TOPSOIL ON AREAS OUTSIDE OF PLUM & WALNUT AVENUE R-O-W.
- PERFORM SURFACE ROUGHING.
- INSTALL SANITARY SEWER, WATER MAIN, AND STORM SEWER.
- INSTALL INLET PROTECTION AT 24" FLARED END AFTER IT IS INSTALLED.
- FINAL GRADE PLUM & WALNUT AVENUE.
- INSTALL AGGREGATE BASE, CURB & GUTTER.
- BACKFILL C&G AND TOPSOIL BOULEVARDS.
- PLACE ASPHALT SURFACING.
- SEED, FERTILIZE, MULCH BOULEVARDS AND DRAINAGE CHANNELS.

AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.

SOME ITEMS MAY OVERLAP OTHERS WITHIN THE LIST OF SEQUENCING.

SOIL STABILIZATION:

AFTER CONSTRUCTION BEGINS, SOIL SURFACE STABILIZATION SHALL BE APPLIED WITHIN 14 DAYS TO ALL DISTURBED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR PERIODS LONGER THAN AN ADDITIONAL 21 CALENDAR DAYS. WITHIN 14 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE, PERMANENT OR TEMPORARY SOIL SURFACE STABILIZATION SHALL BE APPLIED TO DISTURBED AREAS AND SOIL STOCKPILES.

MAXIMUM TIME LIMITS OF LAND EXPOSURES FOR SELECTION OF EROSION CONTROLS

EROSION CONTROL METHOD	MAXIMUM ALLOWABLE PERIOD OF EXPOSURE (MONTHS)
SURFACE ROUGHENING *	1
MULCHING	12
TEMPORARY REVEGETATION	12-24
PERMANENT REVEGETATION	24 OR MORE
SOIL STOCKPILE REVEGETATION	2
EARLY APPLICATION OF ROAD BASE	1

*THE SURFACE ROUGHENING EROSION CONTROL METHOD MAY BE EXTENDED UP TO THE MAXIMUM OF THREE MONTHS ON A CASE BASIS IF THE CITY INSPECTOR HAS DETERMINED THAT THE SITE DEMONSTRATES THE FOLLOWING:
- APPROPRIATE SOIL CONDITIONS EXIST FOR THIS METHOD OF CONTROL.
- DISTURBED AREAS WILL BE SEEDED AND MULCHED WITHIN THREE MONTHS.
- SEASONAL PLANTING LIMITATIONS EXIST.
- SOIL STABILIZATION METHOD HAS DEMONSTRATED ITS EFFECTIVENESS.

PERMANENT STABILIZATION MEASURES:

THE BOULEVARD, DRAINAGE CHANNEL AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED TO MINIMIZE POST CONSTRUCTION EROSION.

STORM WATER MANAGEMENT CONSIDERATIONS:

THE TEMPORARY EROSION CONTROL MEASURES WILL BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.

NOTICE OF INTENT:

A NOTICE OF INTENT WAS FILED WITH THE SD DENR. THE PERMIT NUMBER IS SDR_____.

NOTIFICATION:

SITE INSPECTION PRIORITY FOR THIS PROJECT IS: HIGH

THE PRIMARY RESPONSIBLE PARTY (PRP) IS REQUIRED TO NOTIFY THE CITY EROSION CONTROL INSPECTOR WHEN THE SITE REACHES FINAL STABILIZATION, AS WELL AS FILE A (NOT) NOTICE OF TERMINATION WITH THE SD DENR.

MAINTENANCE:

ALL PAVED STREETS ADJACENT TO THE SITE SHALL BE CLEANED AT THE END OF EACH WORKING DAY.

THE PERMITTEE SHALL ASSURE THAT QUALIFIED PERSONNEL INSPECT THE SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS ONE HALF (0.5) INCH OR GREATER TO CONFIRM PLAN COMPLIANCE. A REPORT SUMMARIZING THE AREAS INSPECTED, NAME(S) AND TITLE(S) OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS AND CORRECTIVE ACTIONS TAKEN SHALL BE MADE AND RETAINED AS PART OF THE PLAN FOR AT LEAST 3 YEARS. SUCH REPORTS SHALL IDENTIFY AND INCIDENTS OF NON-COMPLIANCE. WHERE AN INSPECTION DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE SITE IS IN COMPLIANCE WITH THE PLAN AND PERMIT.

SPILL PREVENTION:

PETROLEUM PRODUCTS: ON -SITE CONSTRUCTION EQUIPMENT WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR MAINTENANCE.

FERTILIZERS: THE USE OF FERTILIZERS SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

CERTIFICATION:

THIS EROSION AND SEDIMENT CONTROL REPORT AND ATTACHED SITE CONSTRUCTION PLAN APPEARS TO FULFILL THE TECHNICAL CRITERIA AND THE CRITERIA FOR EROSION CONTROL AND REQUIREMENTS OF THE CITY OF BRANDON. I UNDERSTAND THAT ADDITIONAL EROSION CONTROL MEASURES MAY BE NEEDED IF UNFORESEEN EROSION PROBLEMS OCCUR OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE LANDOWNER UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED, OR VOIDED.

OWNER/DEVELOPER:_____ DATE:_____

ENGINEER'S CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.

ENGINEER: _____ DATE:_____

Sayre Associates Engineering Solutions
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ROVANG INDUSTRIAL PARK
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BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

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EROSION CONTROL NARRATIVE

G-1

PERMANENT SEED MIXTURE 1

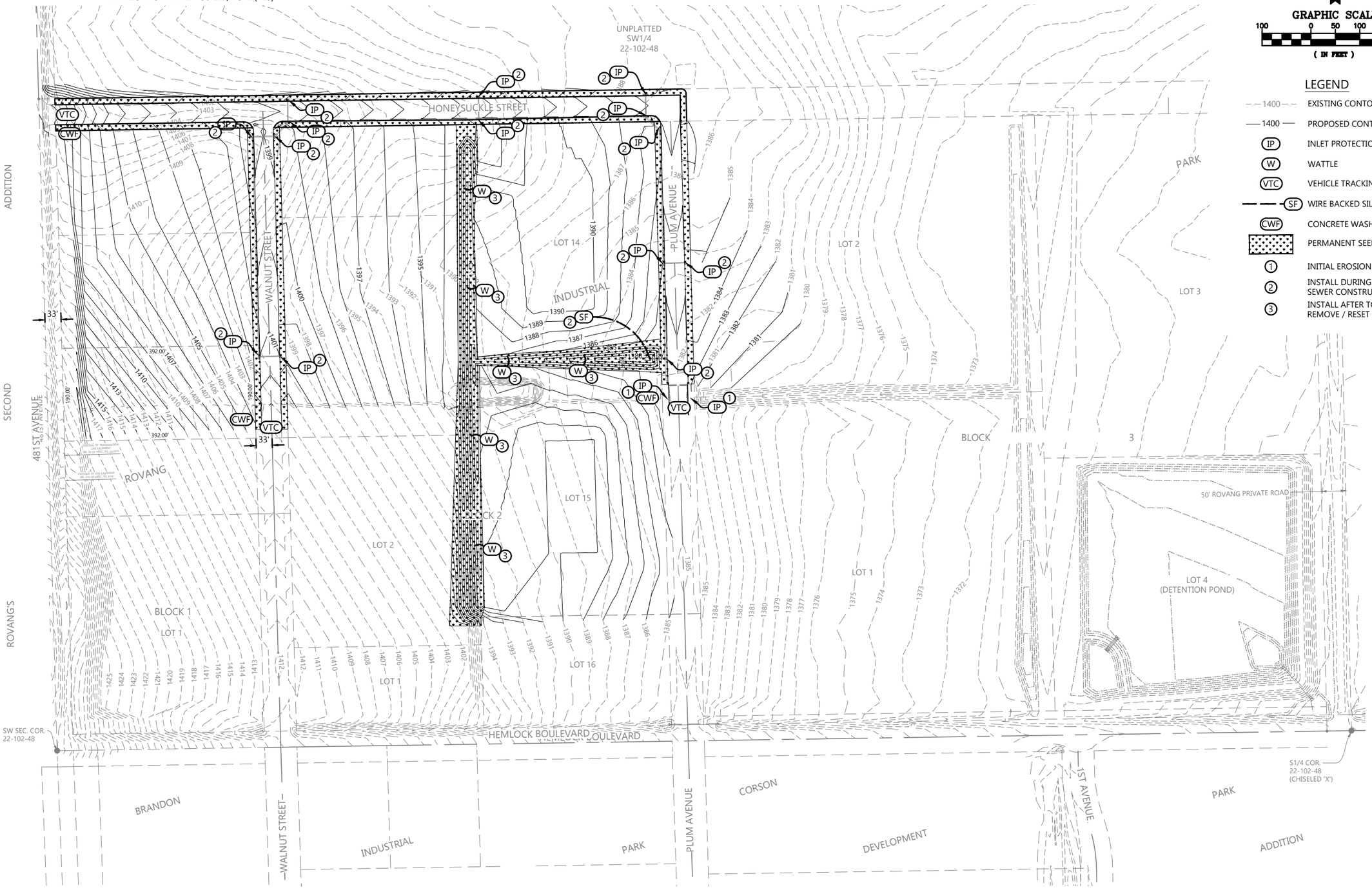
40% ANNUAL RYEGRASS
20% TALL FESCUE
20% PERENNIAL RYEGRASS
10% KENTUCKY BLUEGRASS
10% TIMOTHY

APPLICATION RATE = 50 LB. /ACRE (PLS)

PERMANENT SEED MIXTURE 2

ALL OTHER DISTURBED AREAS TO BE SEEDED WITH ALFALFA

APPLICATION RATE = 12 LB. /ACRE (PLS)



GRAPHIC SCALE
100 0 50 100 200
(IN FEET)

LEGEND

- 1400 EXISTING CONTOURS
- 1400 PROPOSED CONTOURS
- IP INLET PROTECTION
- W WATTLE
- VTC VEHICLE TRACKING CONTROL
- SF WIRE BACKED SILT FENCE
- CWF CONCRETE WASHOUT FACILITY
- PERMANENT SEED MIXTURE 1
- 1 INITIAL EROSION CONTROL
- 2 INSTALL DURING STORM SEWER CONSTRUCTION
- 3 INSTALL AFTER TOPSOIL IS PLACE, REMOVE / RESET DURING SEEDING

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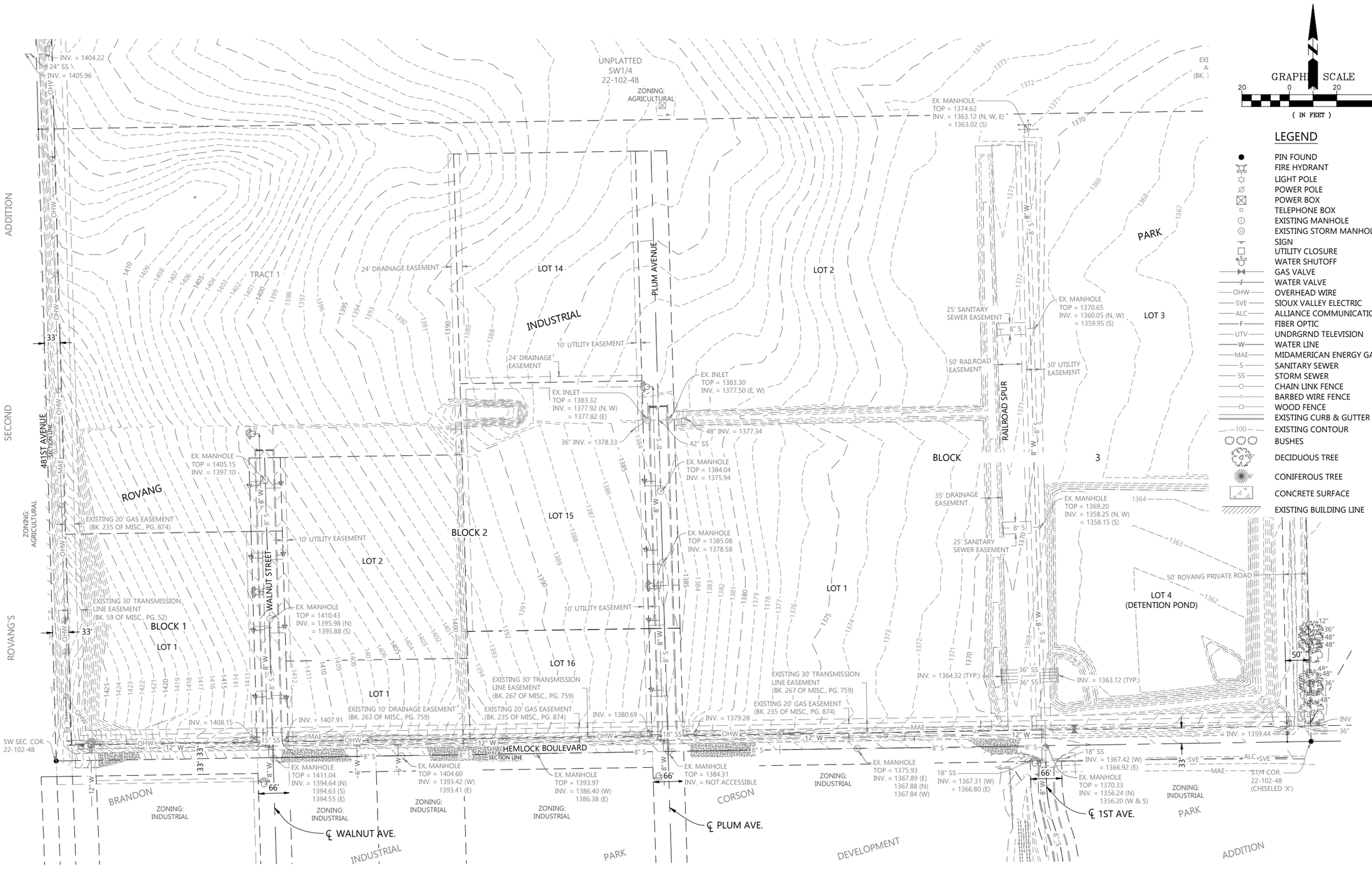
EROSION CONTROL PLAN

G-2



BENCHMARK NO. 1:	BENCHMARK NO. 2:	BENCHMARK NO. 3:	BENCHMARK NO. 4:
NAIL IN POWER POLE ON EAST SIDE OF 481ST AVENUE	TOP NUT OF FIRE HYDRANT ON NORTHEAST CORNER OF 481ST AVENUE & HEMLOCK BOULEVARD	TOP NUT OF FIRE HYDRANT ON SW CORNER OF HEMLOCK BOULEVARD & WALNUT AVENUE	TOP NUT OF FIRE HYDRANT ON SW CORNER OF HEMLOCK BOULEVARD & 1ST AVENUE
ELEV. = 1413.95 (88 DATUM)	ELEV. = 1434.83 (88 DATUM)	ELEV. = 1411.76 (88 DATUM)	ELEV. = 1372.63 (88 DATUM)

BY: GRA, 21092 PLUM CP SECTION H.dwg, H-1, PRINT DATE: Jan 06, 2022

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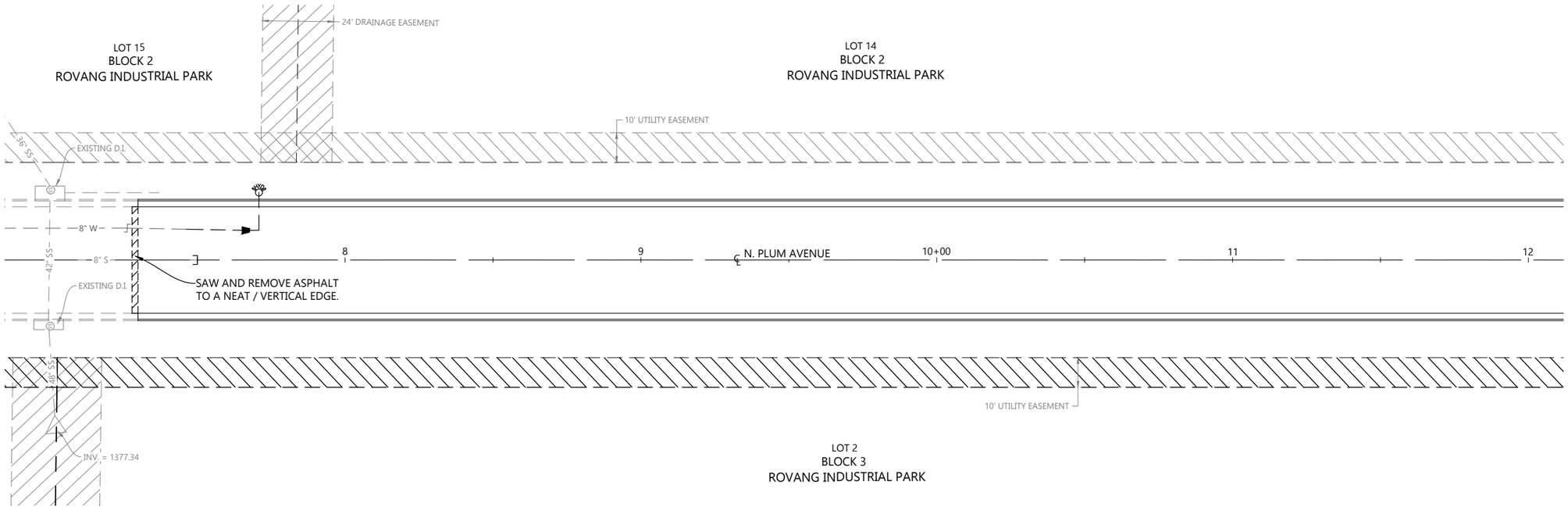
EXISTING CONDITIONS

H-1

STA. 7+46.34 - 10.00' LT TO
STA. 7+71.34 - 23.5' LT
REMOVE THE FOLLOWING:
20 LF± 8" WATER MAIN
1 - 8"x6" M.J. REDUCER
1 - 6" x 90 DEG. M.J. ELBOW
1 - HYDRANT (DO NOT REUSE HYDRANT)
18.5 LF ± 6" WATER MAIN

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

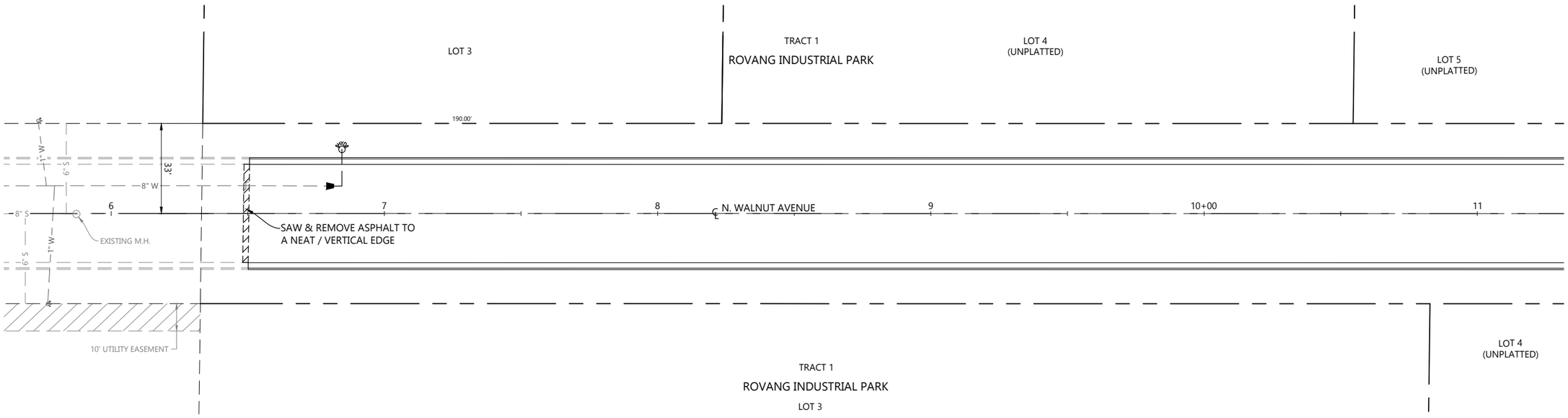
PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

REMOVALS

H-2

STA. 6+81.43 - 10.00' LT TO
STA. 6+84.43 - 23.50' LT
REMOVE THE FOLLOWING:
1 - 8"x6" M.J. REDUCER
23.5 LF± 6" WATER MAIN
1 - HYDRANT (DO NOT REUSE HYDRANT)
1 - 6" x 90 DEG. M.J. ELBOW

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

REMOVALS

H-3

BY: GRA, 21092 PLUM CP SECTION I.dwg, H-3, PRINT DATE: Jan 06, 2022

INSTALL 8" x 6" WYE, 6" ELBOW
6" SANITARY SERVICE, 6" PLUG,
SEWER SERVICE MARKER
AT THE FOLLOWING LOCATIONS:
STA. 9+16.21 - LT (33.0')
STA. 10+20.00 - RT (33.0')
STA. 11+33.61 - LT (33.0')
(SEWER SERVICE SLOPE = 2.00%)

STA. 7+46.34 - 10.00' LT
CONNECT TO EXISTING WATER MAIN
w/ 8"x6" M.J. TEE

STA. 7+46.34 - 10.00' LT TO
STA. 12+00.00 - 10.00' LT
INSTALL 8" x 454' WATER MAIN

STA. 7+47.00 - 10.00' LT TO
STA. 7+47.00 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
23 LF ± 6" WATER MAIN
1 - 6" M.J. PLUG
32 SQFT OF 2" INSULATION
(BETWEEN WATER AND STORM SEWER)

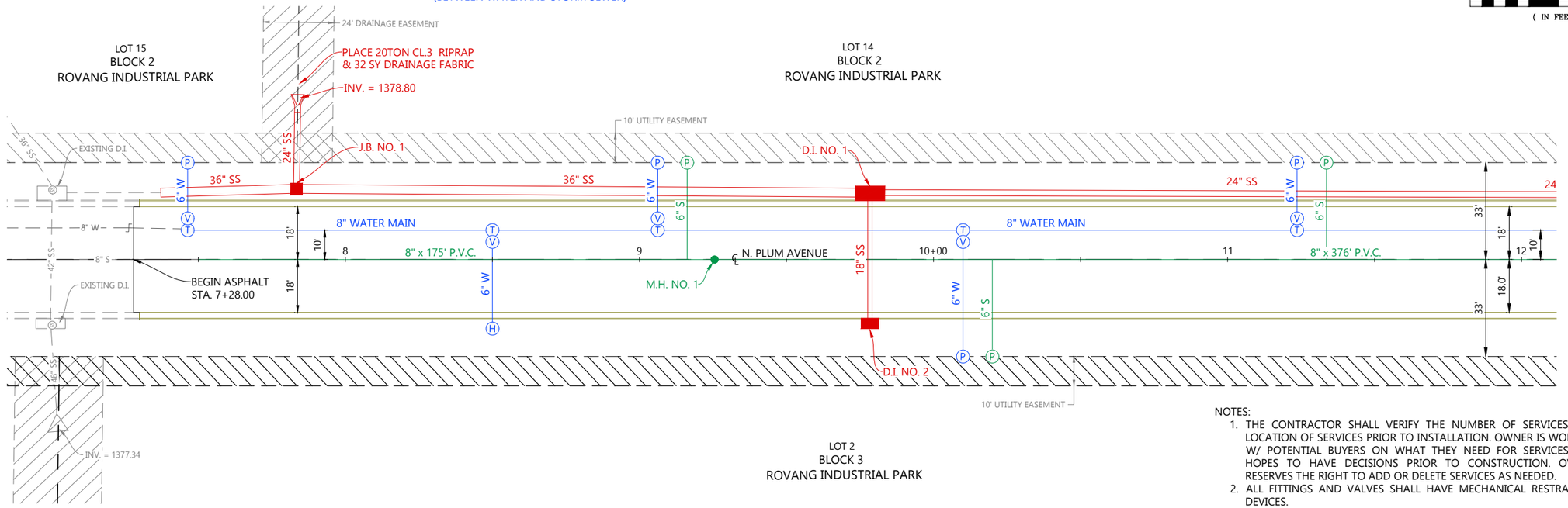
STA. 8+50.00 - 10.00' LT TO
STA. 8+50.00 - 23.50' RT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - HYDRANT
33.5 LF+- 6" WATER MAIN
T.C. ELEV. = 1384.19

STA. 9+06.21 - 10.00' LT TO
STA. 9+06.21 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 8"x6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - 6" M.J. PLUG
23 LF ± 6" WATER MAIN

STA. 10+20.00 - 10.00' LT TO
STA. 10+20.00 - 33.00' RT
INSTALL THE FOLLOWING:
1 - 8"x6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - 6" M.J. PLUG
43 LF± 6" WATER MAIN

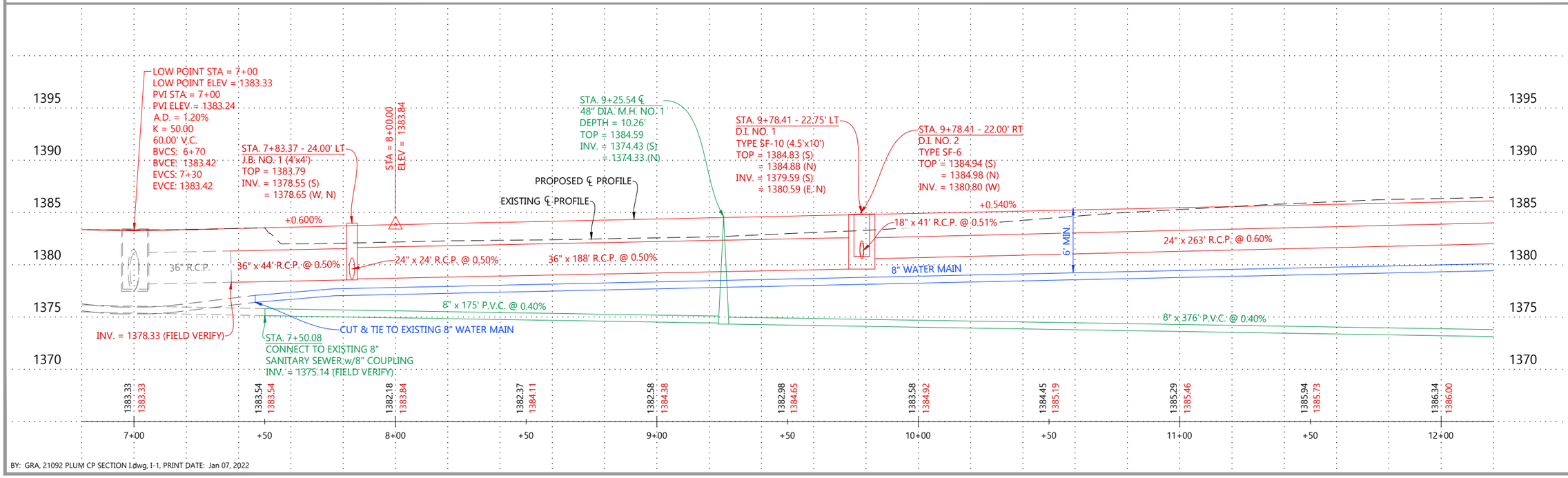
STA. 11+23.61 - 10.00' LT TO
STA. 11+23.61 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 8"x6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - 6" M.J. PLUG
23 LF ± 6" WATER MAIN

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



NOTES:
1. THE CONTRACTOR SHALL VERIFY THE NUMBER OF SERVICES AND LOCATION OF SERVICES PRIOR TO INSTALLATION. OWNER IS WORKING W/ POTENTIAL BUYERS ON WHAT THEY NEED FOR SERVICES AND HOPES TO HAVE DECISIONS PRIOR TO CONSTRUCTION. OWNER RESERVES THE RIGHT TO ADD OR DELETE SERVICES AS NEEDED.
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

PLUM AVENUE



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-1, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 7+00 TO 12+00

I-1

STA. 12+00.00 - 10.00' LT TO
STA. 13+34.26 - 10.00' LT
INSTALL 8" x 134' WATER MAIN

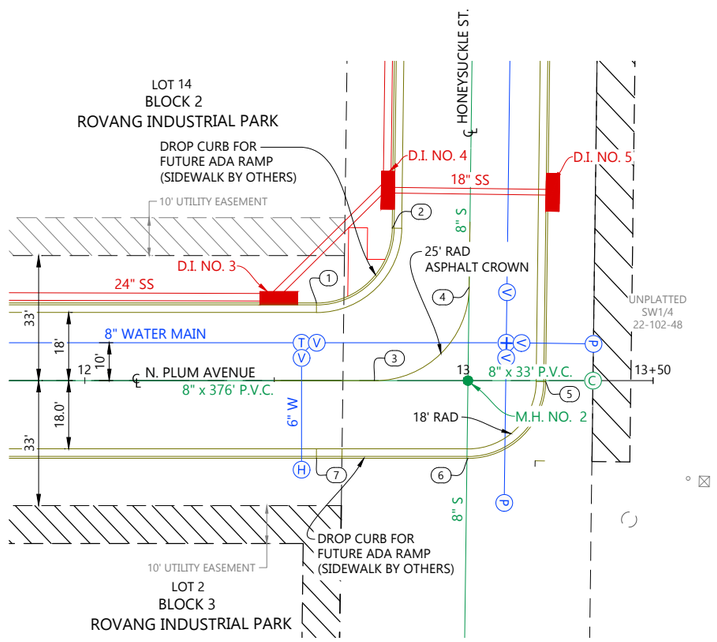
STA. 12+57.20 - 10.00' LT TO
STA. 12+57.20 - 23.50' RT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - HYDRANT
33.5 LF+- 6" WATER MAIN
T.C. ELEV. = 1386.37

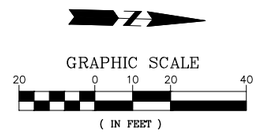
STA. 12+61.20 - 10.00' LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 13+11.26 - 10.00' LT
INSTALL 8" x 8" M.J. CROSS

STA.13+14.26 - 10.00' LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 13+34.26 - 10.00' LT
INSTALL 8" M.J. PLUG



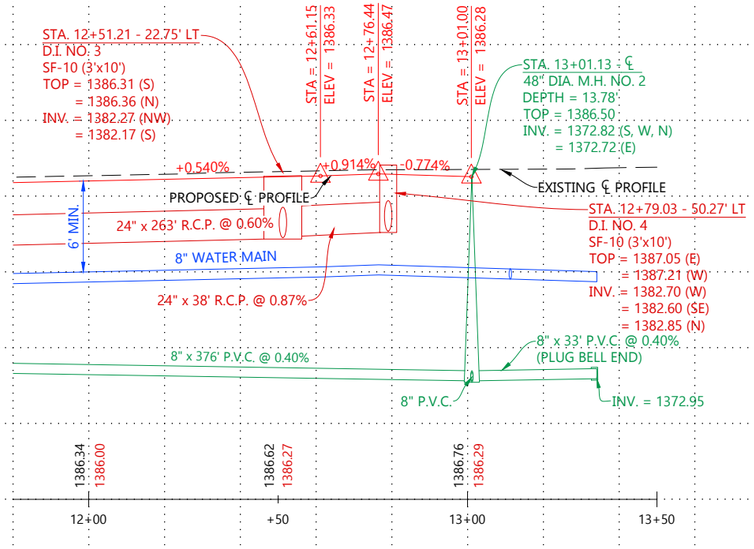


PROPOSED ELEVATIONS:

1	1386.39'	T/C
2	1386.97'	T/C
3	1386.47'	T/A
4	1386.79'	T/A
5	1386.76'	T/C
6	1386.60'	T/C
7	1386.39'	T/C

NOTES:
1. THE CONTRACTOR SHALL VERIFY THE NUMBER OF SERVICES AND LOCATION OF SERVICES PRIOR TO INSTALLATION. OWNER IS WORKING W/ POTENTIAL BUYERS ON WHAT THEY NEED FOR SERVICES AND HOPES TO HAVE DECISIONS PRIOR TO CONSTRUCTION. OWNER RESERVES THE RIGHT TO ADD OR DELETE SERVICES AS NEEDED.
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

PLUM AVENUE



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-2, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 12+00 TO 13+50

I-2

INSTALL 8" x 6" WYE, 6" ELBOW, 6" SANITARY SERVICE, 6" PLUG, SEWER SERVICE MARKER AT THE FOLLOWING LOCATIONS:
STA. 7+44.00 - LT (33.0')
STA. 8+95.00 - RT (33.0')
STA. 9+53.00 - LT (33.0')
(SEWER SERVICE SLOPE = 2.00%)

STA. 6+81.43 - 10.00' LT
CONNECT TO EXISTING WATER MAIN w/ 8" M.J. LONG SLEEVE

STA. 6+81.43 - 10.00' LT TO
STA. 11+00.00 - 10.00' LT
INSTALL 8" x 419' WATER MAIN

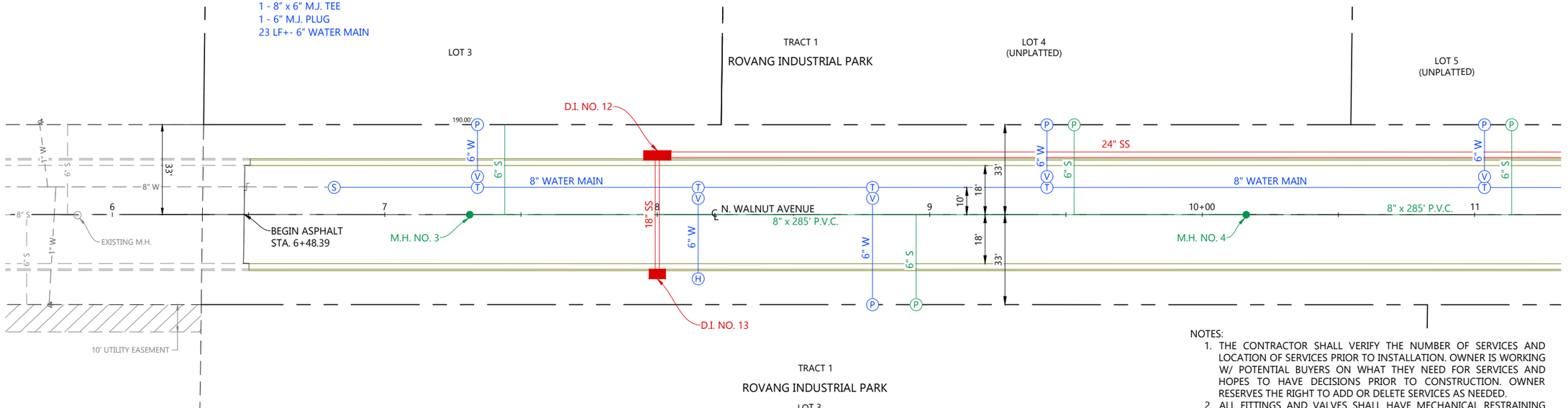
STA. 7+34.00 - 10.00' LT TO
STA. 7+34.00 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 6" M.J. GATE VALVE & BOX
1 - 8" x 6" M.J. TEE
1 - 6" M.J. PLUG
23 LF+- 6" WATER MAIN

STA. 8+15.00 - 10.00' LT TO
STA. 8+15.00 - 23.50' RT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - HYDRANT
33.5 LF+- 6" WATER MAIN
T.C. ELEV. = 1401.32

STA. 8+79.00 - 10.00' LT TO
STA. 8+79.00 - 33.00' RT
INSTALL THE FOLLOWING:
1 - 6" M.J. GATE VALVE & BOX
1 - 8" x 6" M.J. TEE
1 - 6" M.J. PLUG
43 LF ± 6" WATER MAIN

STA. 9+43.00 - 10.00' LT TO
STA. 9+43.00 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 6" M.J. GATE VALVE & BOX
1 - 8" x 6" M.J. TEE
1 - 6" M.J. PLUG
23 LF ± 6" WATER MAIN

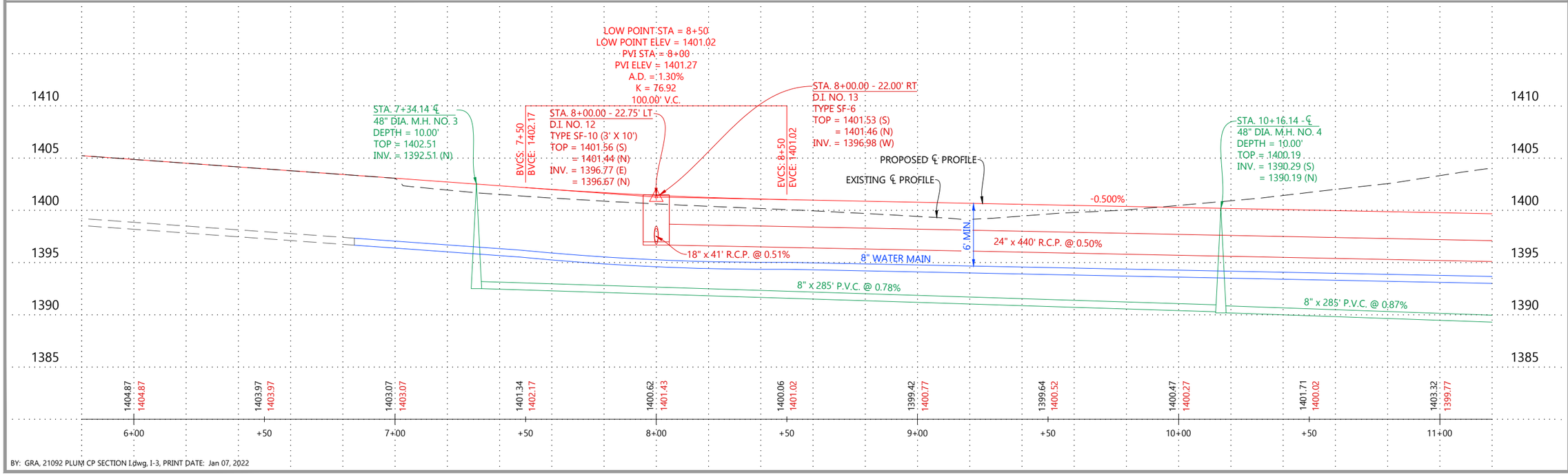
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



TRACT 1
ROVANG INDUSTRIAL PARK
LOT 3

NOTES:
1. THE CONTRACTOR SHALL VERIFY THE NUMBER OF SERVICES AND LOCATION OF SERVICES PRIOR TO INSTALLATION. OWNER IS WORKING W/ POTENTIAL BUYERS ON WHAT THEY NEED FOR SERVICES AND HOPES TO HAVE DECISIONS PRIOR TO CONSTRUCTION. OWNER RESERVES THE RIGHT TO ADD OR DELETE SERVICES AS NEEDED.
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

WALNUT AVENUE



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-3, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 6+00 TO 11+00

I-3

INSTALL 8" x 6" WYE, 6" ELBOW, 6" SANITARY SEWER, 6" PLUG, SEWER SERVICE MARKER AT THE FOLLOWING LOCATIONS:
STA. 11+13.56 - LT (33.0')
(SEWER SERVICE SLOPE = 2.00%)

STA. 11+00.00 - 10.00' LT TO
STA. 13+34.26 - 10.00' LT
INSTALL 8" x 234' WATER MAIN

STA. 11+03.56 - 10.00' LT TO
STA. 11+03.56 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 6" M.J. GATE VALVE & BOX
1 - 8" x 6" M.J. TEE
1 - 6" M.J. PLUGS
23 LF ± 6" WATER MAIN

STA. 12+35.00 - 10.00 LT TO
STA. 12+35.00 - 23.50' RT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - HYDRANT
33.5 LF+- 6" WATER MAIN
T.C. ELEV. = 1399.15

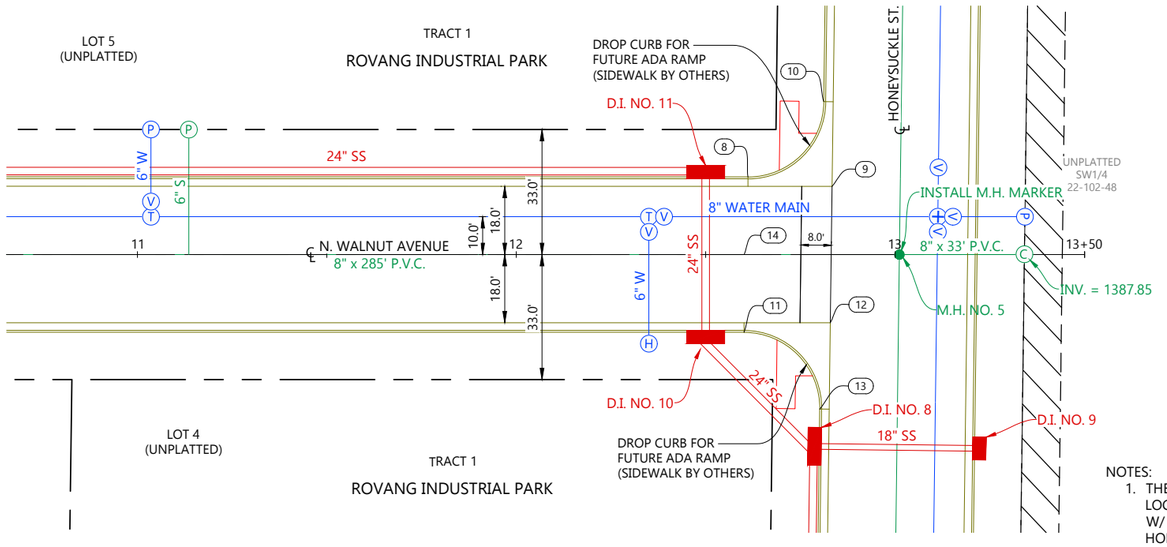
STA. 12+38.00 - 10.00' LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 13+11.25 - 10.00' LT
INSTALL 8" x 8" M.J. CROSS

STA. 13+14.25 - 10.00' LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 13+34.26 - 10.00' LT
INSTALL 8" M.J. PLUG
STA. 11+03.56 - 10.00' LT TO
STA. 11+03.56 - 33.00' LT
INSTALL THE FOLLOWING:
1 - 6" M.J. GATE VALVE & BOX
1 - 8" x 6" M.J. TEE
1 - 6" M.J. PLUGS
23 LF ± 6" WATER MAIN

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



PROPOSED ELEVATIONS:

8	1399.17'	T/C
9	1399.07'	T/A
10	1399.67'	T/C
11	1399.17'	T/C
12	1398.78'	T/A
13	1399.01'	T/C
14	1399.20'	T/A

NOTES:
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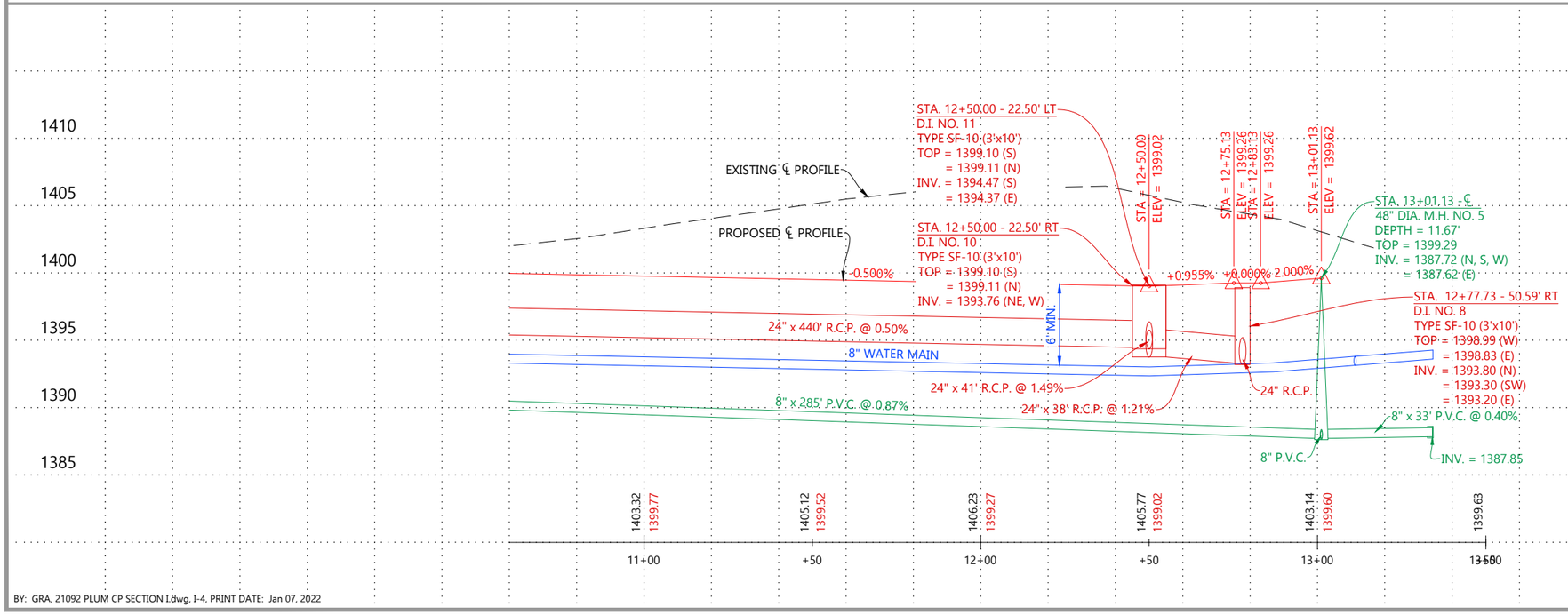
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

WALNUT AVENUE



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-4, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 11+00 TO 13+50

I-4

STA. 0+14.00 - 10.00' LT
INSTALL 8" M.J. PLUG

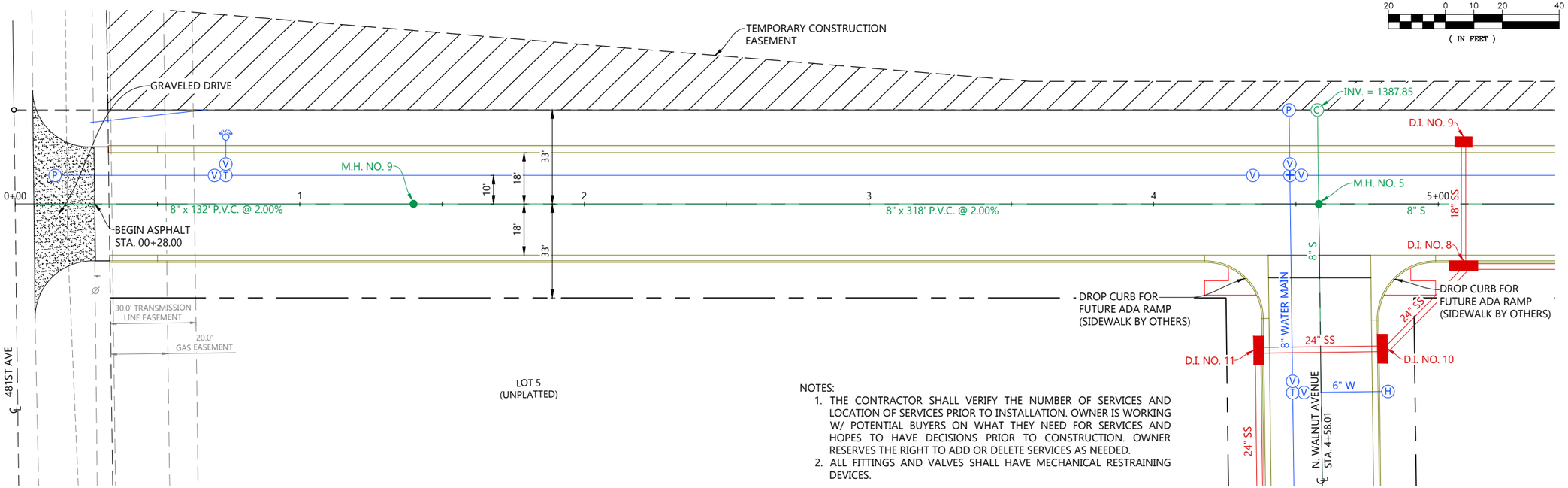
STA. 0+14.00 - 10.00' LT TO
STA. 5+00.00 - 10.00' LT
INSTALL 8" x 486' WATER MAIN

STA. 0+74.00 - 10.00 LT TO
STA. 0+74.00 - 23.50' LT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - HYDRANT
13.5 LF+- 6" WATER MAIN
T.C. ELEV. = 1408.31

STA. 4+34.36 - 10' LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 4+50.88 - 10' LT
INSTALL 8" M.J. GATE VALVE & BOX

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



NOTES:
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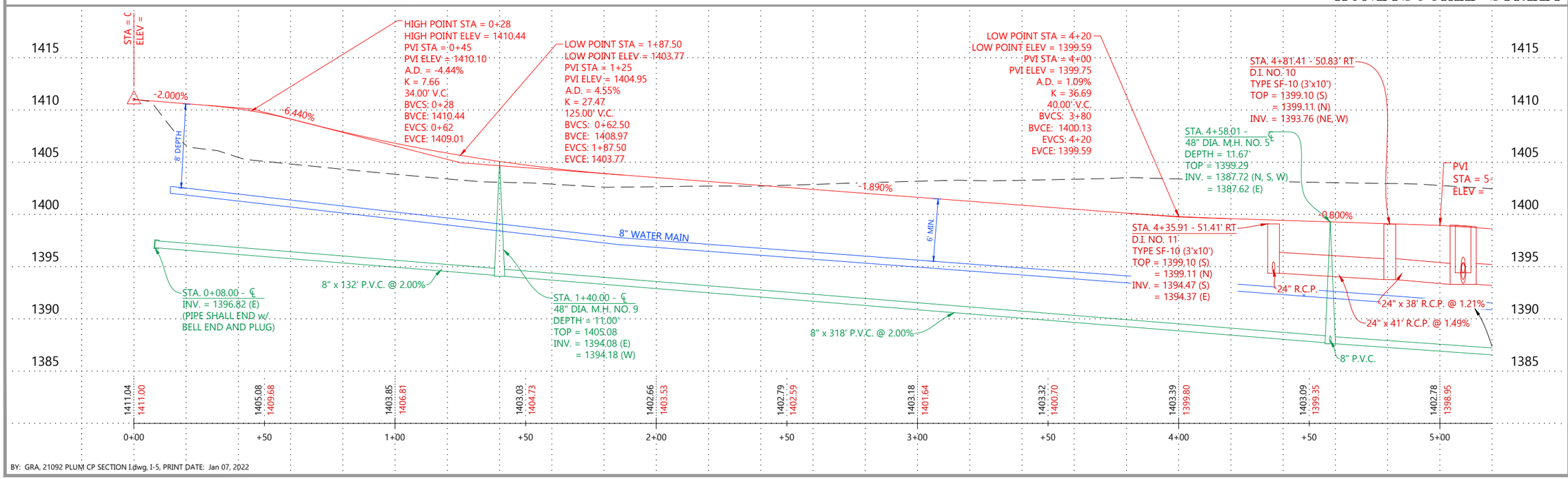
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

HONEYSUCKLE STREET



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-5, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 4+00 TO 9+00

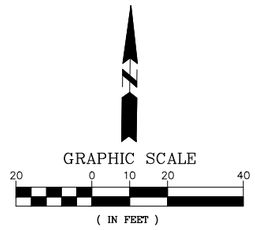
I-5

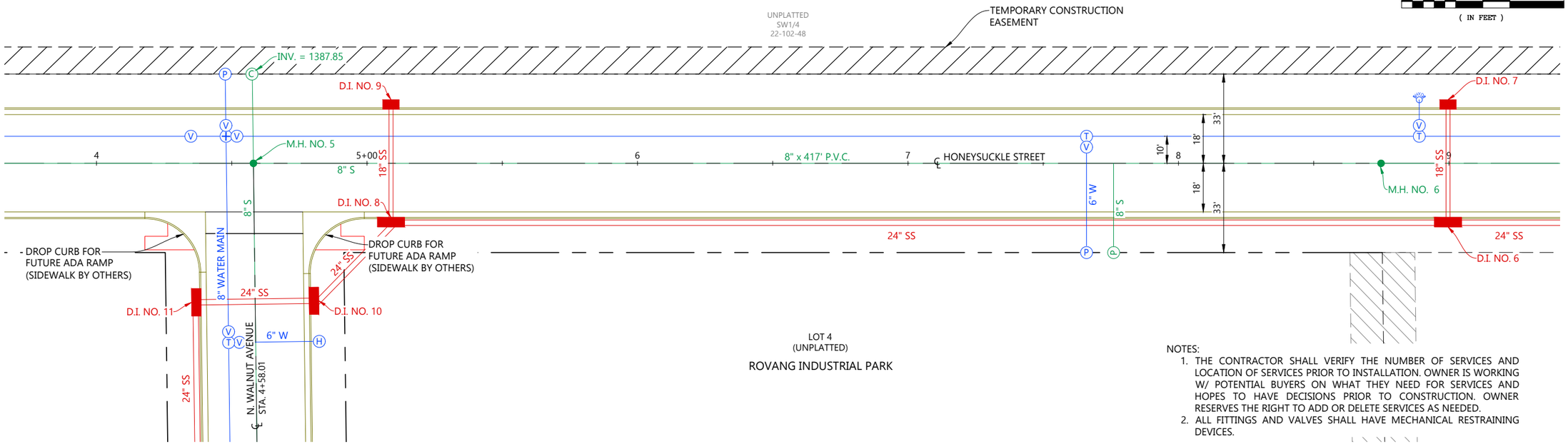
INSTALL 8" x 6" WYE, 6" ELBOW
6" SANITARY SERVICE, 6" PLUG,
SEWER SERVICE MARKER
AT THE FOLLOWING LOCATIONS:
STA. 8+66.00 - RT (33.0')
(SEWER SERVICE SLOPE = 2.00%)

STA. 5+00.00 - 10.00' LT TO
STA. 9+00.00 - 10.00' LT
INSTALL 8" x 400' WATER MAIN

STA. 7+66.00 - 10.00 LT TO
STA. 7+66.00 - 33.00' RT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - 6" M. J. PLUG
43 LF+- 6" WATER MAIN
(WATER SHALL INSTALLED
WITH A MINIMUM OF 18"
SEPARATION FROM STORM SEWER)

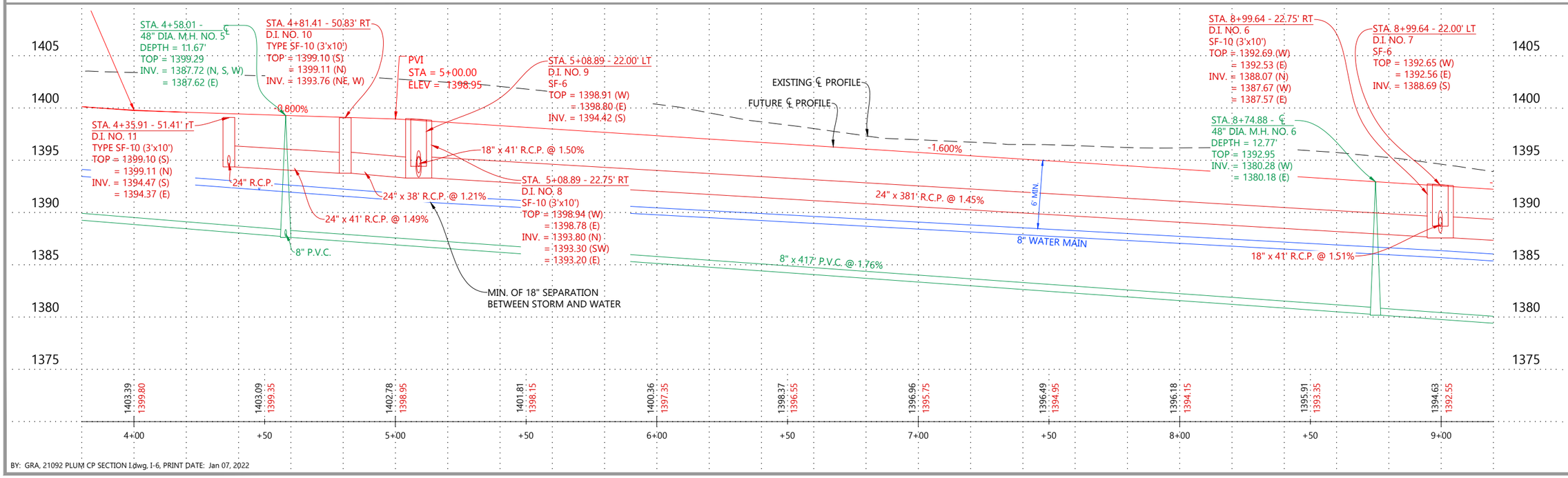
STA. 8+89.00 - 10.00 LT TO
STA. 8+89.00 - 23.50' LT
INSTALL THE FOLLOWING:
1 - 8" x 6" M.J. TEE
1 - 6" M.J. GATE VALVE & BOX
1 - HYDRANT
13.5 LF+- 6" WATER MAIN
T.C. ELEV. = 1392.78





NOTES:
1. THE CONTRACTOR SHALL VERIFY THE NUMBER OF SERVICES AND LOCATION OF SERVICES PRIOR TO INSTALLATION. OWNER IS WORKING W/ POTENTIAL BUYERS ON WHAT THEY NEED FOR SERVICES AND HOPES TO HAVE DECISIONS PRIOR TO CONSTRUCTION. OWNER RESERVES THE RIGHT TO ADD OR DELETE SERVICES AS NEEDED.
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

HONEYSUCKLE STREET



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-6, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 4+00 TO 9+00

I-6

STA. 9+00.00 - 10.00' LT TO
STA. 13+24.00 - 10.00' LT
INSTALL 8" x 424' WATER MAIN

STA. 12+68.43 - 10.00 LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 12+84.75 - 10.00' LT
INSTALL 8" M.J. GATE VALVE & BOX

STA. 13+24.00 - 10.00 LT
INSTALL 8" M.J. PLUG

NOTES:
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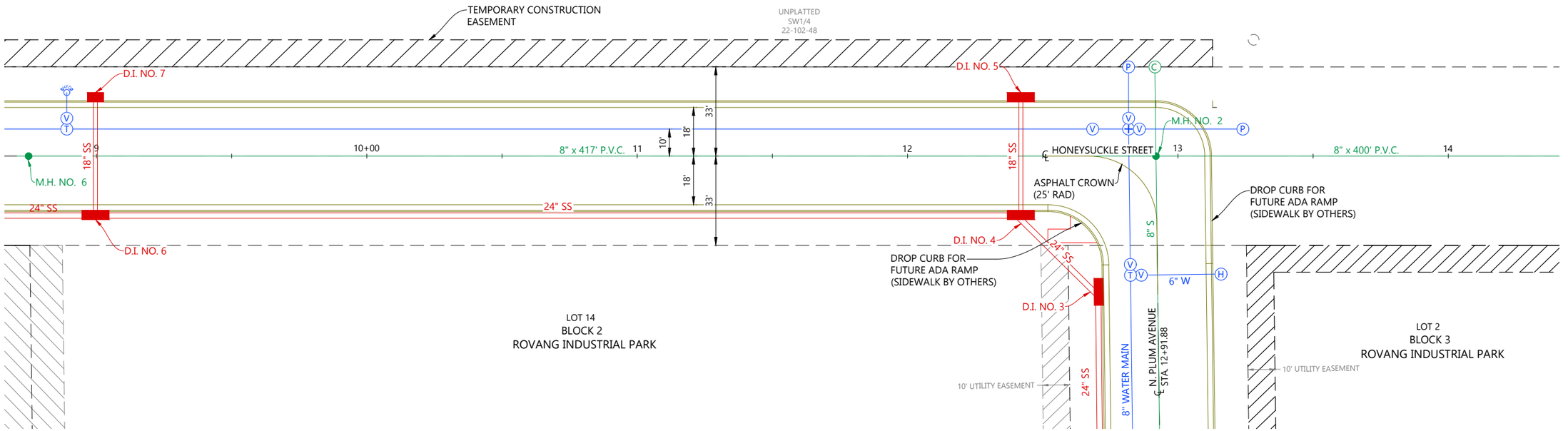
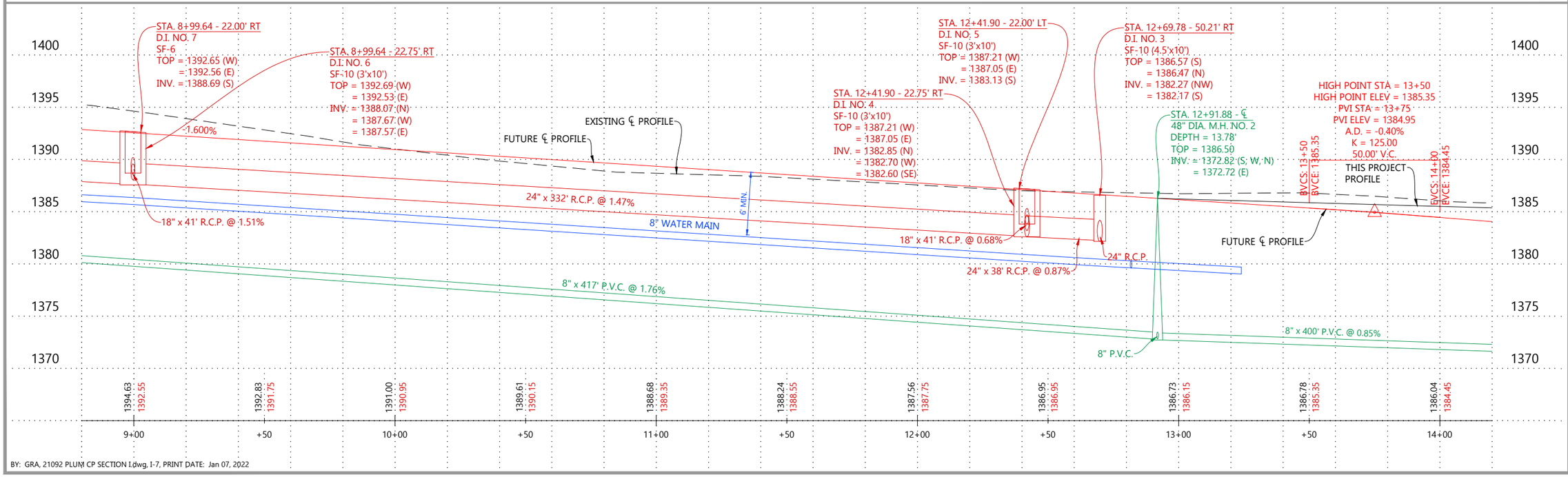
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)



HONEYSUCKLE STREET



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-7, PRINT DATE: Jan 07, 2022

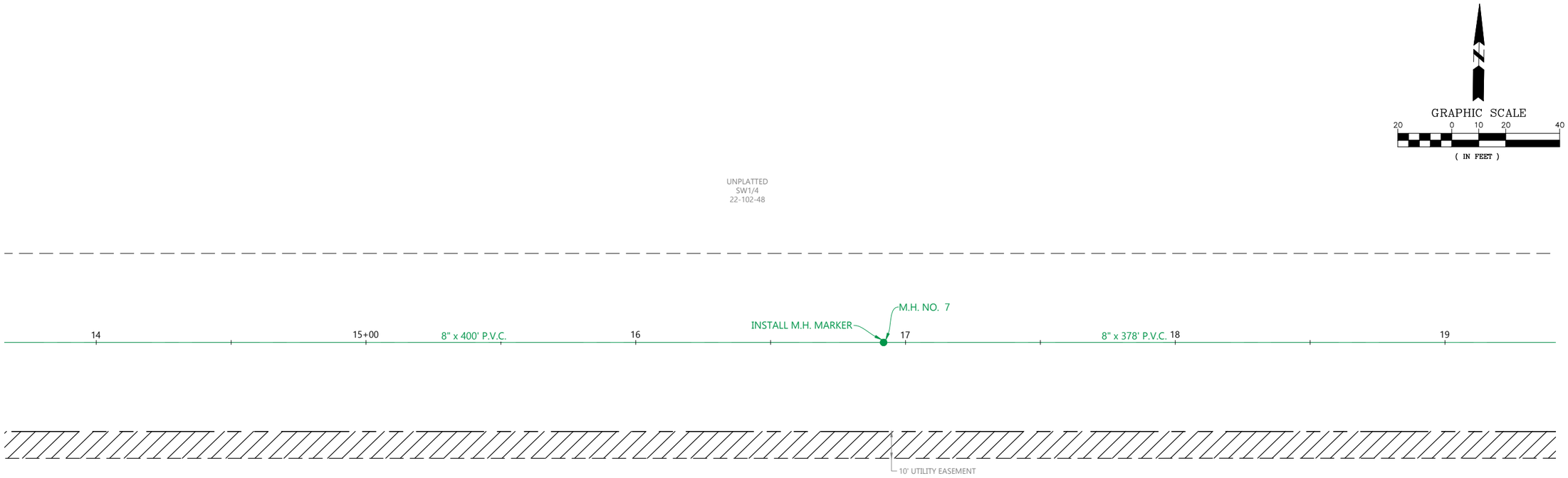
Sayre Associates
Engineering Solutions
216 S. Dakota Avenue • Sioux Falls, SD 57104
Phone: (605) 332-7221 • Fax: (605) 332-7222

ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 9+00 TO 14+00

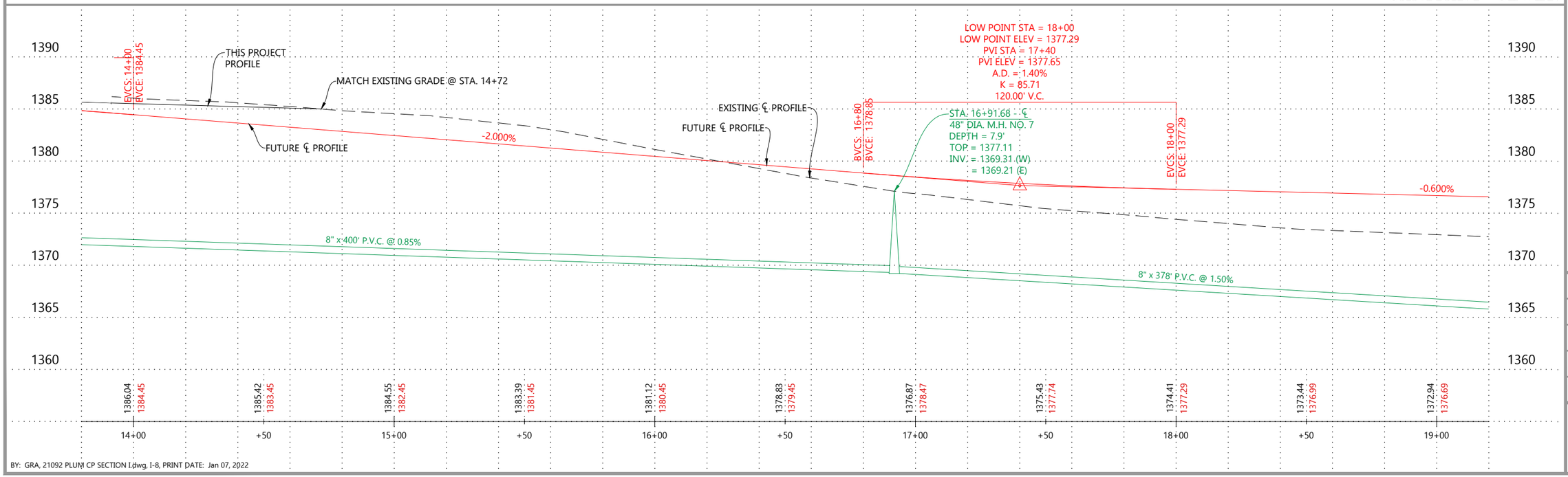
I-7



NOTES:

1. THE CONTRACTOR SHALL VERIFY THE NUMBER OF SERVICES AND LOCATION OF SERVICES PRIOR TO INSTALLATION. OWNER IS WORKING W/ POTENTIAL BUYERS ON WHAT THEY NEED FOR SERVICES AND HOPES TO HAVE DECISIONS PRIOR TO CONSTRUCTION. OWNER RESERVES THE RIGHT TO ADD OR DELETE SERVICES AS NEEDED.
2. ALL FITTINGS AND VALVES SHALL HAVE MECHANICAL RESTRAINING DEVICES.

SANITARY SEWER



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-8, PRINT DATE: Jan 07, 2022

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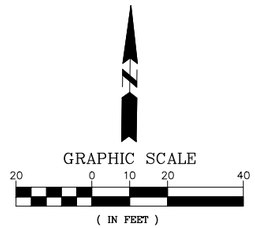
ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

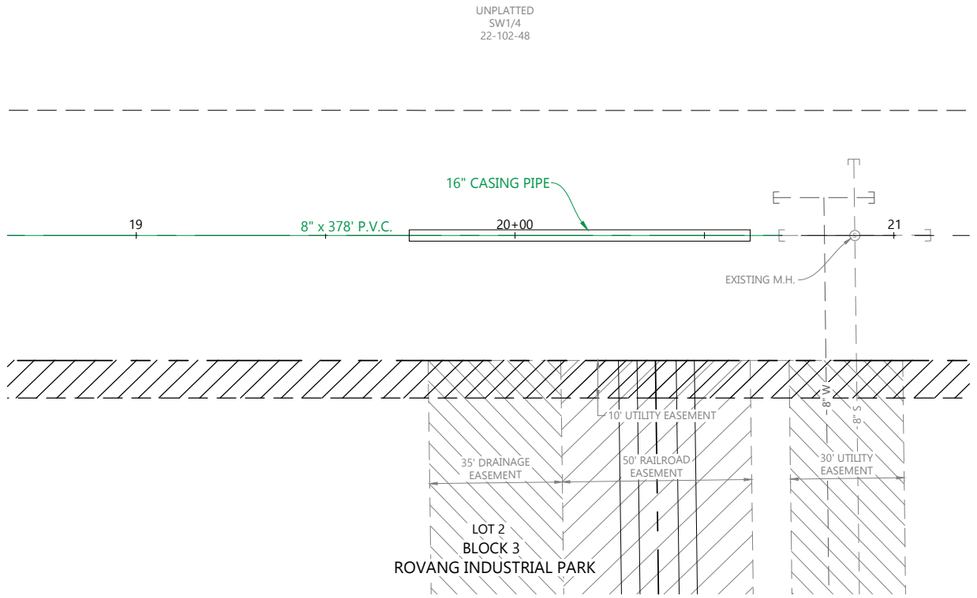
PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 14+00 TO 19+00

I-8

STA. 19+72.07 - ℄ TO
STA. 20+62.07 - ℄
INSTALL 16" x 90 LF SANITARY
SEWER PIPE CASING & APPURTENANCES





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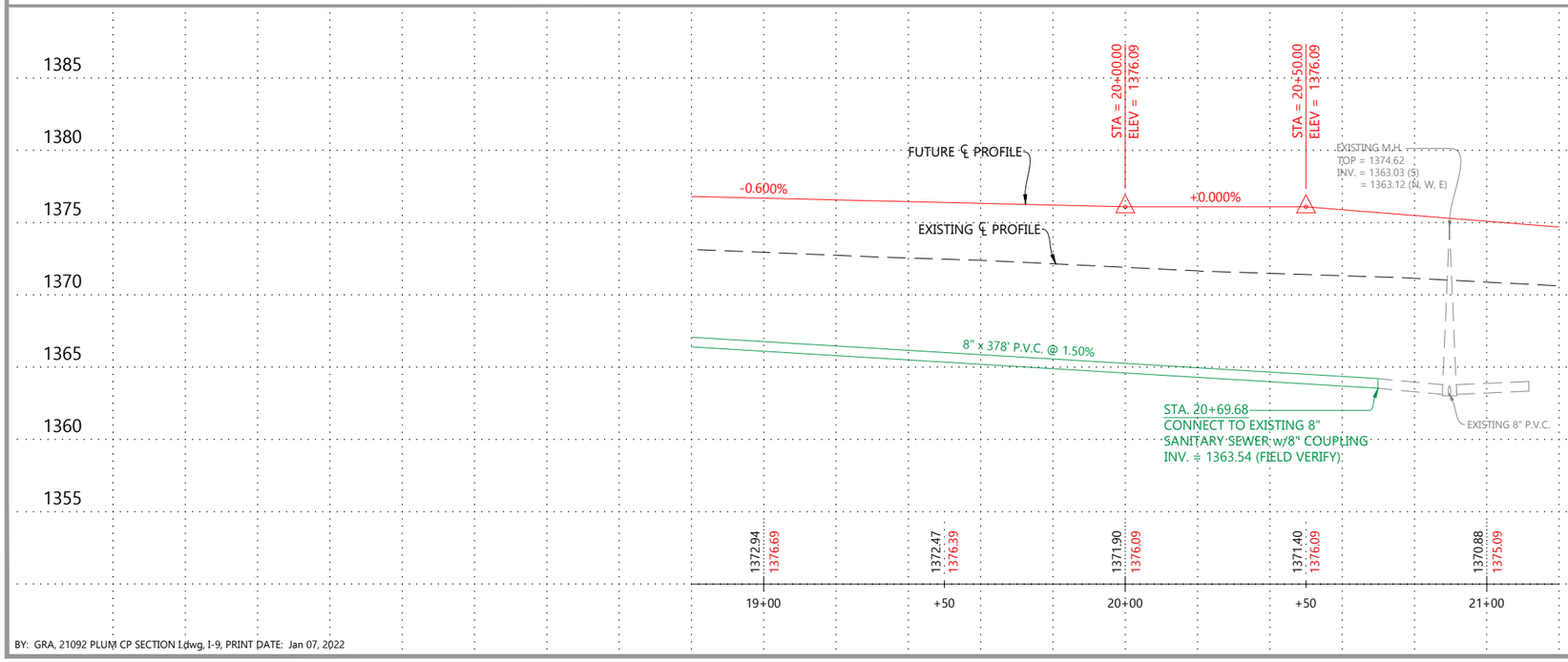
SANITARY SEWER



BY: GRA, 21092 PLUM CP SECTION I.dwg, I-9, PRINT DATE: Jan 07, 2022

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

PLAN & PROFILE
STA. 19+00 TO 21+00

I-9

NOTE:
ONLY THE UTILITIES WILL BE INSTALLED WITHIN HONEYSUCKLE STREET. THE SURFACING OF HONEYSUCKLE STREET MAY OCCUR AT A LATER DATE. CONTRACTOR SHALL GRADE HONEYSUCKLE TO THE FINISHED GRADE SHOWN ON THIS PLAN.

N

GRAPHIC SCALE
100 0 50 100 200
(IN FEET)

UNPLATTED
SW1/4
22-102-48

EXISTING IRRIGATION PIVOT
(DO NOT DISTURB)

GRADING LIMIT

HONEYSUCKLE STREET

WALNUT STREET

PLUM AVENUE

LOT 14

INDUSTRIAL

LOT 2

PARK

LOT 3

BLOCK 3

481ST AVENUE
481ST AVENUE

ROVANG

GRADING LIMIT

GRADING LIMIT
(SLOPE @ 4:1 ALONG AREA OF LOT 15
THAT WILL BE GRADED BY BUYER)

LOT 15

BLOCK 2

GRADED
BY BUYER
OF LOT 15

LOT 2

50' ROVANG PRIVATE ROAD

LOT 1

LOT 4
(DETENTION POND)

BLOCK 1

LOT 1

LOT 16

LOT 1

ROVANG'S

SW SEC. COR.
22-102-48

HEMLOCK BOULEVARD

S1/4 COR.
22-102-48
(CHISELED 'X')

BRANDON

WALNUT STREET

INDUSTRIAL

PARK

PLUM AVENUE

CORSON

DEVELOPMENT

1ST AVENUE

PARK

ADDITION

ADDITION

SECOND

BY: GRA, 21092 PLUM CP SECTION G.dwg, I-10, PRINT DATE: Jan 06, 2022

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ROVANG INDUSTRIAL PARK

STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
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APPROVED BY:	TAR
REVISION DATE:	

OVERALL GRADING

I-10

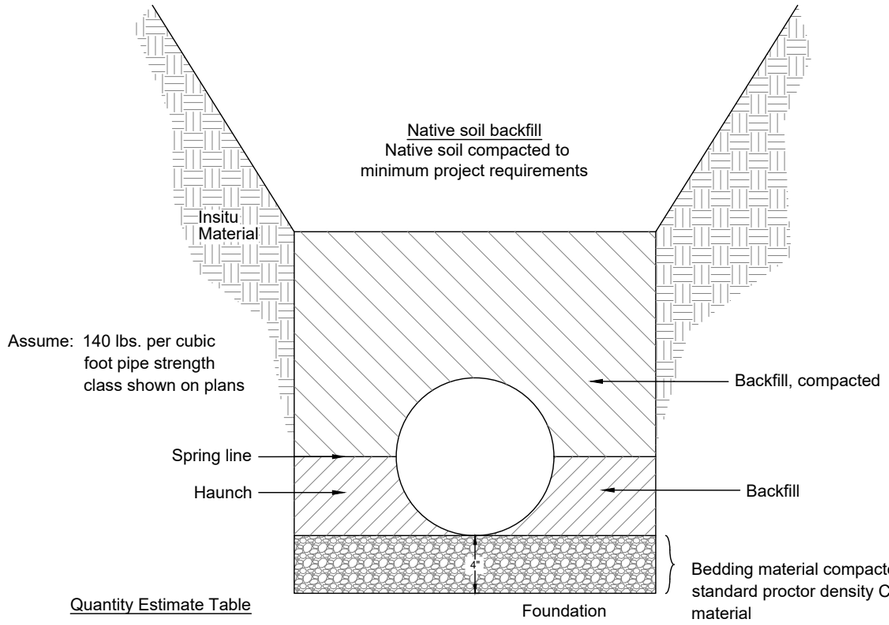
For 12" Thru 84" Diameter Pipe

Type D Installation

Material

Class I: Crushed rock or gravel
100% passing 1 1/2" sieve
<5% passing #200 sieve

Class II: Coarse grained soils includes sand
100% passing 1 1/2" sieve
<5% passing #200 sieve



Assume: 140 lbs. per cubic foot pipe strength class shown on plans

Quantity Estimate Table

For Bedding Material

12"	0.07 Ton/L.F.
15"	0.08 Ton/L.F.
18"	0.09 Ton/L.F.
21"	0.10 Ton/L.F.
24"	0.11 Ton/L.F.
27"	0.12 Ton/L.F.
30"	0.12 Ton/L.F.
33"	0.13 Ton/L.F.
36"	0.14 Ton/L.F.
42"	0.15 Ton/L.F.
48"	0.16 Ton/L.F.
54"	0.17 Ton/L.F.
60"	0.18 Ton/L.F.
66"	0.20 Ton/L.F.
72"	0.21 Ton/L.F.
78"	0.22 Ton/L.F.
84"	0.24 Ton/L.F.

Note: Trench width to be twice the outside diameter, or the outside diameter plus two feet, which ever is less.

Revised: January 2008

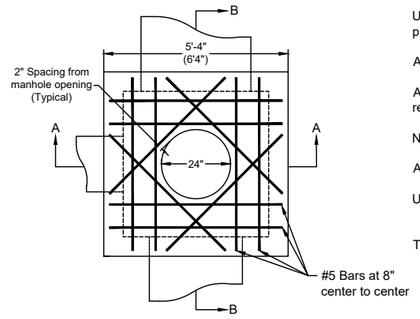
CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Bedding and Backfill for RCP Type D Installation

Specification Reference: Special

Plate Number: 450.08

Top View



General Notes

Use South Dakota Standard Specifications for Roads and Bridges, latest edition and required provisions, supplemental specifications and/or special provisions.

All reinforcing steel shall conform to A.S.T.M. A615, Grade 60.

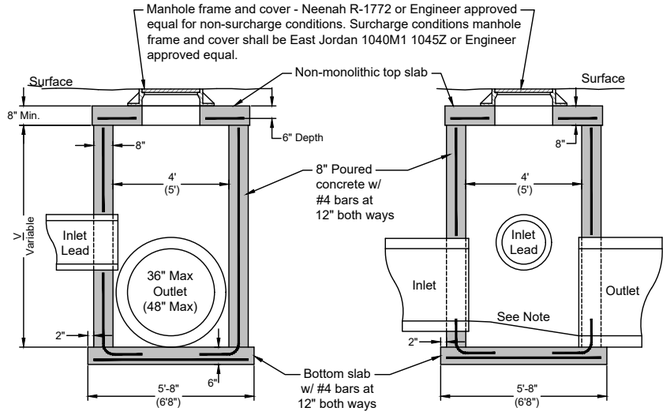
All reinforcing steel shall be cut and/or bent in the field to maintain a minimum of 2" cover on all reinforcing steel.

No vertical construction joints are allowed.

All concrete shall be class M-6.

Unit stresses: Concrete Fc = 1600 P.S.I.
Reinforcing steel Fc = 20,000 P.S.I.

Top of manhole cover to be set flush with finished surface elevation.



Section A-A

Section B-B

Estimated Quantities

Item	Unit	4' X 4' Junction Box		5' X 5' Junction Box	
		Constant	Variable	Constant	Variable
* Class M6 concrete	CuYds	1.29	0.46V	1.93	0.56V
Reinforcing Steel	LBS	103	23V	131	35V
Manhole rim & cover-as specified	Each	1	----	1	----

* Constant shall be reduced for the appropriate pipe or combination of pipes, thus;
12" Dia.=-0.03 C.Y., 15" Dia=-0.04 C.Y., 18" Dia.=-0.05 C.Y., 21" Dia.=-0.07 C.Y., 24" Dia.=-0.09 C.Y.,
27" Dia.=-0.11 C.Y., 30" Dia=-0.14 C.Y., 33" Dia.=-0.17 C.Y., 36" Dia.=-0.20 C.Y., 42" Dia.=-0.26 C.Y.,
48" Dia.=-0.34 C.Y.

Notes:

Top slab steel reinforcement requires 12-#5 bars 5'(6') long to be placed as shown.
2" From manhole opening and 8" center to center at a depth of 6" w/min. cover thickness of 8".

Floor of junction box to be finished in such a manner to insure uninterrupted flow thru the box.

When pipe sizes differ thru junction box, top of pipe to match when possible.

( ) Indicates specifications for a 5' x 5' junction box. Maximum pipe size allowed for 4' x 4' junction box is 36" R.C.P. Maximum pipe size allowed for a 5' x 5' junction is 48" R.C.P. Standard plate is applicable to variable depth up to 8'

Exhibit depicts a 4'x4' junction box at 8' variable height.

Revised: May 2019

CITY OF SIOUX FALLS
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Standard Storm Drainage Junction Box Type I

Specification Reference: No. 460

Plate Number: 460.05

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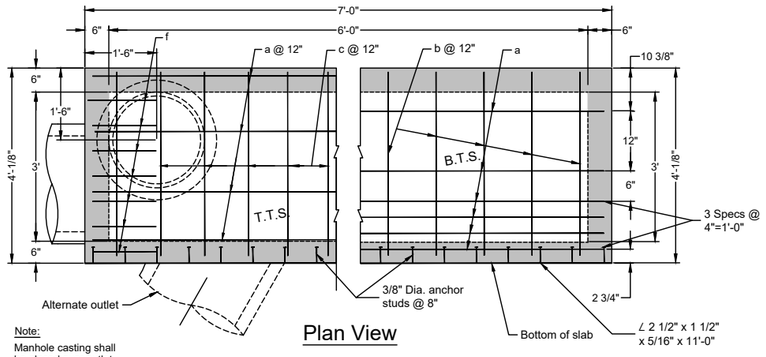
REVISION DATE:	

STANDARD DETAILS

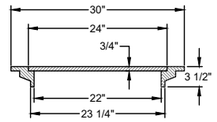
N-1



Note:
Manhole casting shall be placed over outlet.

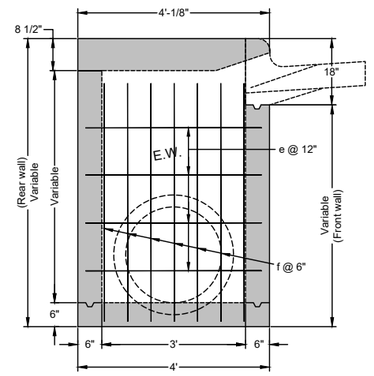
Plan View

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

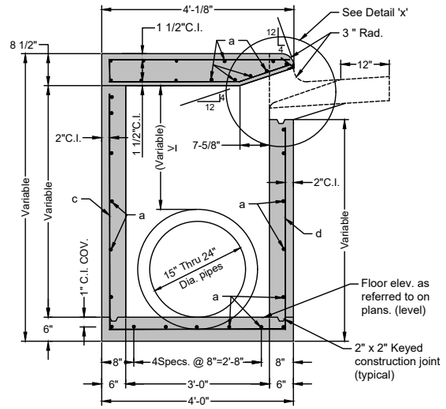


Typical Section Thru Manhole Assembly

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

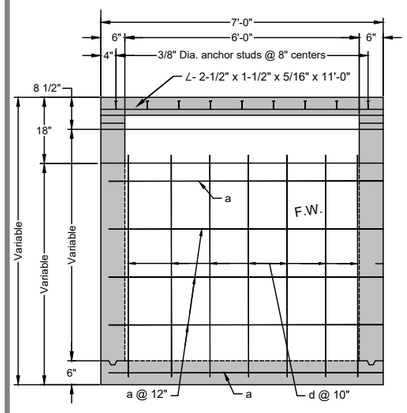


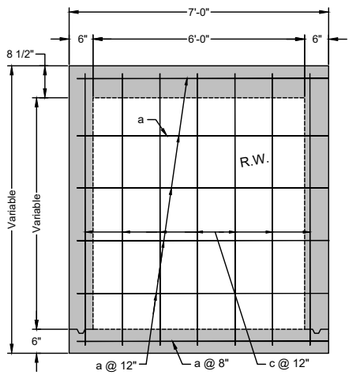
End Elevation

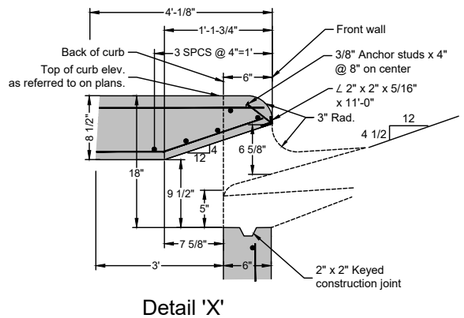


Typical Section

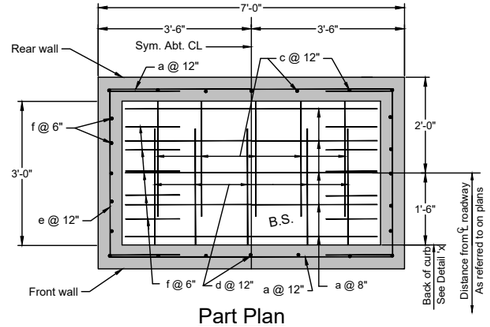
Note: Rebar for the back wall shall be placed similar to the front.







Detail 'X'



Part Elevation

Part Plan

Estimated Quantities

Item	Unit	6" Long inlet					
		15" Dia. outlet		18" Dia. outlet		24" Dia. outlet	
		Constant	Variable	Constant	Variable	Constant	Variable
* Class M6 concrete	CuYds	1.72	0.35V	1.82	0.35V	2.02	0.35V
Reinforcement-conc. masonry	Lbs	278	43.9V	290	43.9V	303	43.9V
Manhole rim & cover-type Y	Each	1	----	1	----	1	----

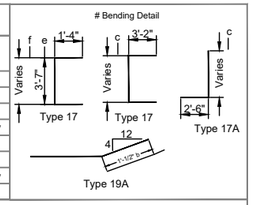
* Constant shall be reduced for the appropriate pipe or combination of pipes, thus;
15" Dia=-0.04 C.Y., 18" Dia. =-0.05 C.Y., 24" Dia. =-0.09 C.Y.

Reinforcing Schedule

			15" Dia. Pipe		30" Dia. Pipe		18" Arch Pipe	
MK	SZ	Type	No.	Length	No.	Length	No.	Length
"a	5	STR	21+2V	6'-3"	21+2V	6'-3"	21+2V	6'-3"
"b	4	19A	6	3'-9"	6	3'-3"	6	3'-3"
"c	4	17	7	7'9 3/4"+V	7	9'-1"+V	7	8'7 1/2"+V
d	6	17A	7	3'4 3/4"+V	7	3'-8"+V	7	4'-2"+V
"e	4	17	4+2V	6'-3"	4+2V	6'-3"	4+2V	6'-3"
"f	4	17	14	4'8 3/4"+V	14	5'-0"+V	14	5'6 1/2"+V

* Cut and bend in field as necessary to fit

All reinforcing steel dimensions are outside to outside.



Note: For 15" to 24" pipes - max.

Revised: December 2009

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.

Standard 6'-0" S.F. Type Storm Sewer Inlet

CITY OF SIOUX FALLS
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Specification Reference	Plate Number
No. 460	460.01

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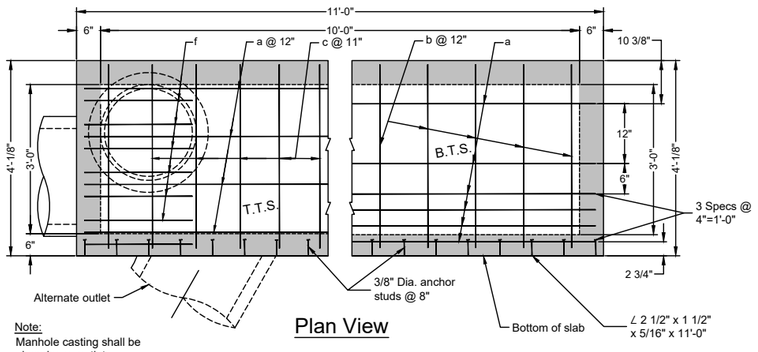
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

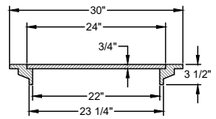
N-2



Plan View

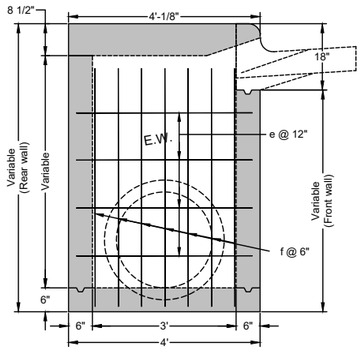
Note:
Manhole casting shall be placed over outlet.

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

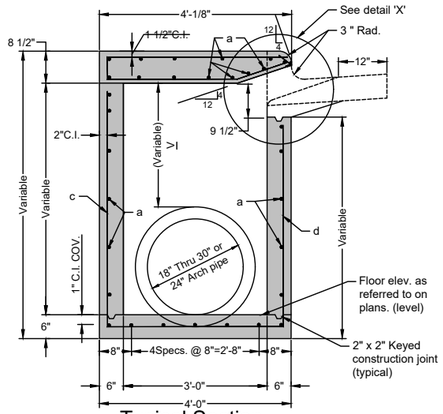


Typical Section Thru Manhole Assembly

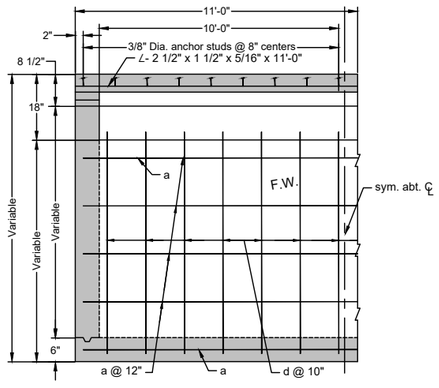
Manhole frame and cover shall be a Neenah R-6040, Type Y or engineer approved equal.

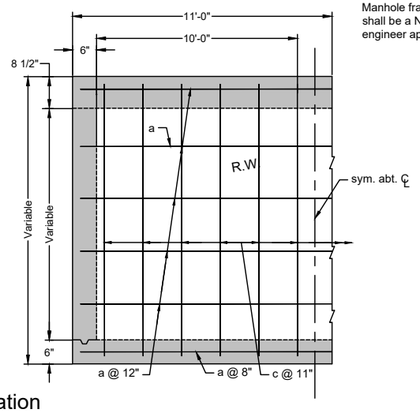


End Elevation

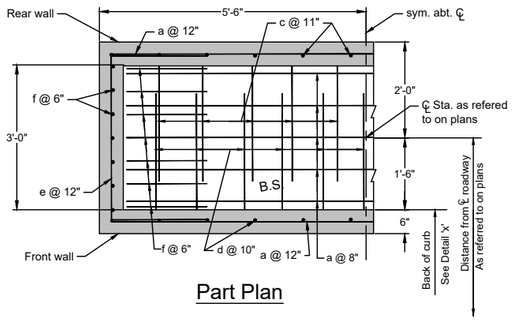


Typical Section

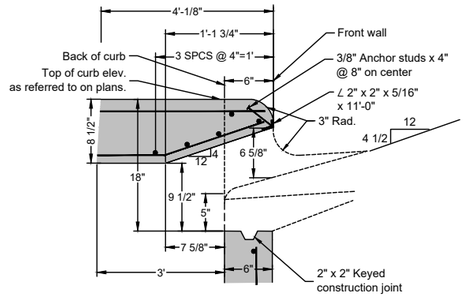




Part Elevation



Part Plan



Detail 'X'

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.
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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.

Estimated Quantities

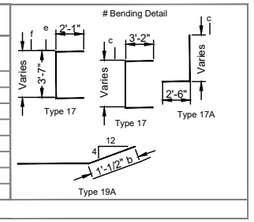
Item	Unit	10' Long Inlet											
		18" Dia. Outlet		21" Dia. Outlet		24" Dia. Outlet		27" Dia. Outlet		30" Dia. Outlet		24" Arch Outlet	
		Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable
* Class M6 concrete	CuYds	2.75	0.49V	2.89	0.49V	3.03	0.49V	3.17	0.49V	3.31	0.49V	2.79	0.49V
Reinforcement-conc. masonry	LBS	466	68.6V	476	68.6V	485	68.6V	528	68.6V	538	68.6V	469	68.6V
Manhole rim & cover-type Y	Each	1	----	1	----	1	----	1	----	1	----	1	----

* Constant shall be reduced for the appropriate pipe or combination of pipes, thus: 18" Dia.=-0.05 C.Y., 21" Dia. =-0.07C.Y., 24" Dia. =-0.09 C.Y., 27" Dia. =-0.11 C.Y., 30" Dia. =-0.14 C.Y. and arch =-0.09 C.Y.

Reinforcing Schedule

			18" Dia. Pipe		21" Dia. Pipe		24" Dia. Pipe		27" Dia. Pipe		30" Dia. Pipe		24" Arch Pipe	
MK	SZ	Type	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
*a	5	STR	21+2V	10'-3"	21+2V	10'-3"	21+2V	10'-3"	23+2V	10'-3"	23+2V	10'-3"	21+2V	10'-3"
*b	4	19A	11	3'-9"	11	3'-3"	11	3'-3"	11	3'-3"	11	3'-3"	11	3'-3"
*c	4	17	12	8'-1"+V	12	8'-41/4"+V	12	8'-71/2"+V	12	8'103/4"+V	12	9'-2"+V	12	8'-2"+V
d	5	17A	13	3'-8"+V	13	3'-11"+V	13	4'-2"+V	13	4'-6"+V	13	4'-9"+V	13	3'-9"+V
*e	4	17	4+2V	7'-9"	4+2V	7'-9"	4+2V	7'-9"	6+2V	7'-9"	6+2V	7'-9"	4+2V	7'-9"
*f	4	17	14	6'-6"+V	14	6'-91/4"+V	14	7'-1/2"+V	14	7'-33/4"+V	14	7'-7"+V	14	6'-7"+V

* Cut and bend in field as necessary to fit



All reinforcing steel dimensions are outside to outside.

Note: For 18" to 30" pipes - max.

Revised: December 2009

Standard 10'-0" S.F. Type Storm Sewer Inlet

CITY OF SIOUX FALLS
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Specification Reference No. 460

Plate Number 460.02

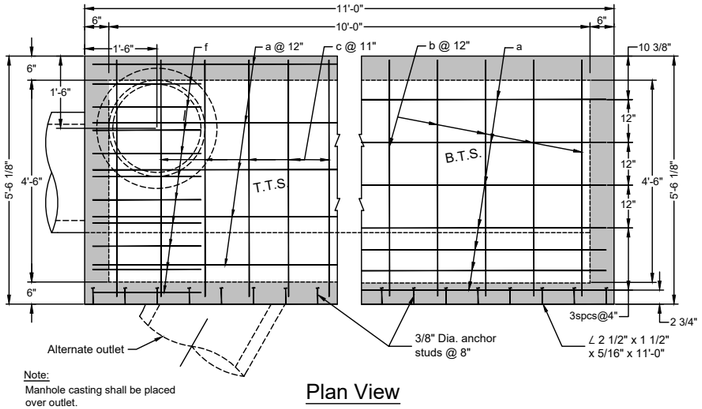
Sayre Associates
Engineering Solutions
216 S. Duluth Avenue•Sioux Falls, SD 57104
Phone: (605) 332-7221 • Fax: (605) 332-7222

ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

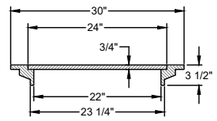
N-3



Note:
Manhole casting shall be placed over outlet.

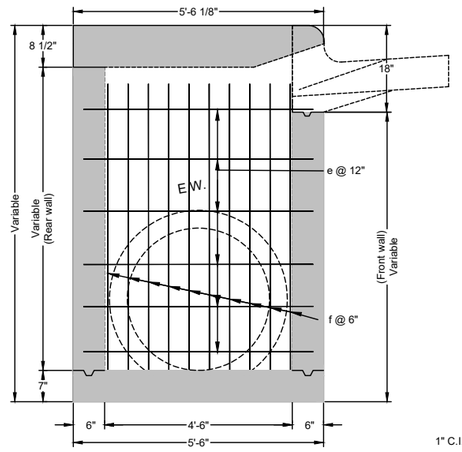
Plan View

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

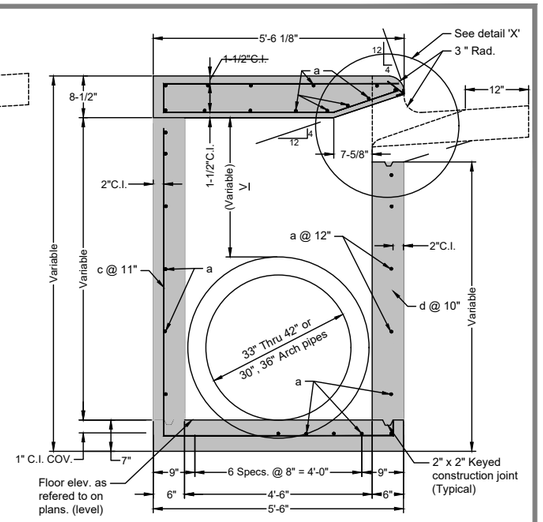


Typical Section Thru Manhole Assembly

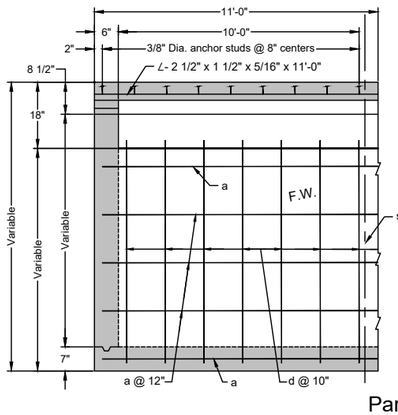
Manhole frame and cover shall be a Neenah R-6040, Type Y or engineer approved equal.

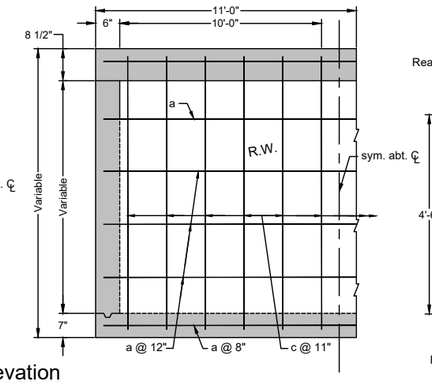


End Elevation

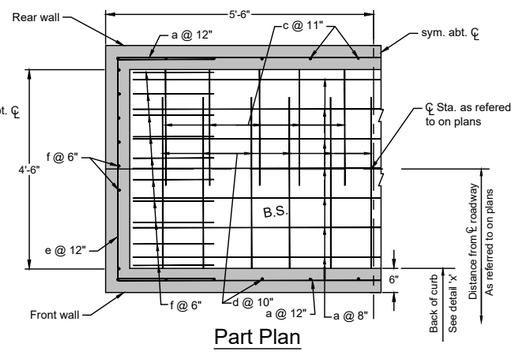


Typical Section

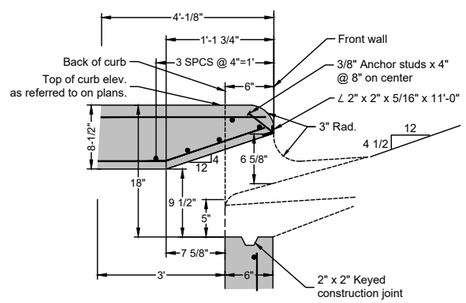




Part Elevation



Part Plan



Detail 'X'

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.

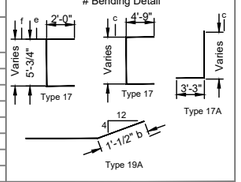
Estimated Quantities

Item	Unit	10' Long Inlet									
		33" Dia. Outlet		36" Dia. Outlet		42" Dia. Outlet		30" Arch Outlet		36" Arch Outlet	
		Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable	Constant	Variable
* Class M6 concrete	CuYds	4.56	0.55V	4.72	0.55V	5.03	0.55V	4.07	0.55V	4.29	0.55V
Reinforcement-conc. masonry	LBS	722	78.8V	734	78.8V	793	78.8V	650	78.8V	700	78.8V
Manhole rim & cover-Type Y	Each	1	----	1	----	1	----	1	----	1	----

Reinforcing Schedule

			33" Dia. Pipe		36" Dia. Pipe		42" Dia. Pipe		30" Arch Pipe		36" Arch Pipe	
MK	SZ	Type	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
*a	5	STR	27+2V	10'-3"	27+2V	10'-3"	29+2V	10'-3"	25+2V	10'-3"	27+2V	10'-3"
*b	4	19A	11	4'-9"	11	4'-9"	11	4'-9"	11	4'-9"	11	4'-9"
*c	5	17	12	11'4 1/2"+V	12	12'-3/4"+V	12	12'7 1/4"+V	12	10'11 1/4"+V	12	11'-4"+V
d	6	17A	13	5'-9"+V	13	6'-0"+V	13	6'-7"+V	13	4'-11"+V	13	5'-3"+V
*e	4	17	6+2V	9'-0"	6+2V	9'-0"	8+2V	9'-0"	4+2V	9'-0"	6+2V	9'-0"
*f	4	17	20	7'8 1/4"+V	20	7'11 1/2"+V	20	8'-6"+V	20	6'-10"+V	20	7'2 3/4"+V

Bending Detail



* Cut and bend in field as necessary to fit

All reinforcing steel dimensions are outside to outside.

* Constant shall be reduced for the appropriate pipe or combination of pipes, thus; 33" Dia.=-0.17 C.Y., 36" Dia.=-0..20 C.Y., 42" Dia.=-0.26 C.Y., 30" arch=-0.14 C.Y., 36" arch=-0.19

Note: For 33" to 42" pipes - max.

Revised: December 2009

Standard 10'-0" S.F. Type Storm Sewer Inlet

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Specification Reference No. 460

Plate Number 460.03

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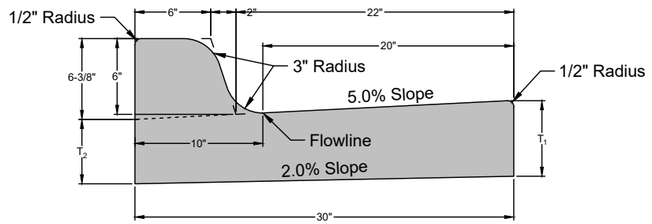
ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

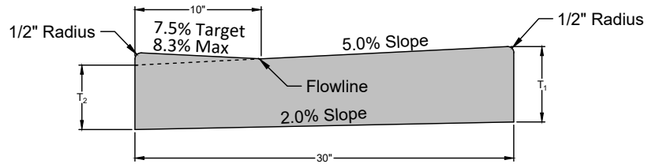
PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

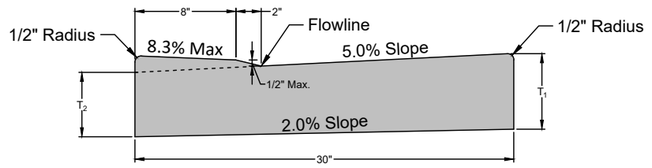
N-4



Standard Curb and Gutter



Drop Curb for ADA Curb Ramps



Drop Curb for Driveway Approach

T_1 = Thickness shall be equal to the depth of the adjacent pavement but not less than 6"
T_2 = T_1-7/8"

GENERAL NOTES:

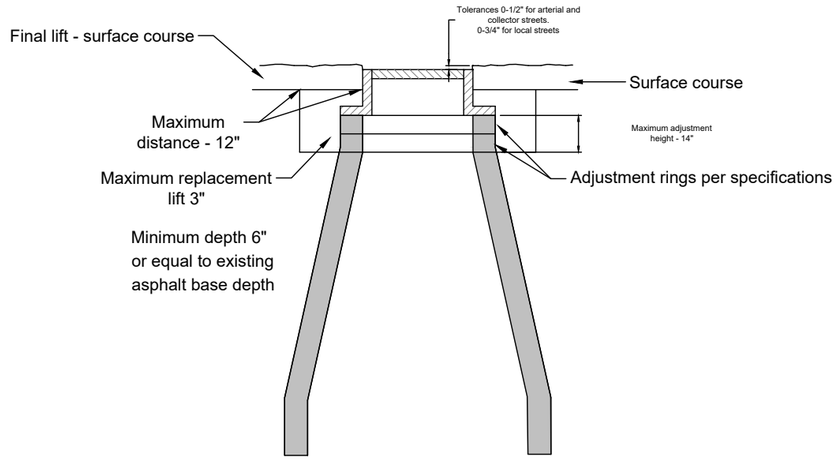
1) On PCC pavement a keyway longitudinal joint with tie bars shall be used when curb and gutter is poured separately.

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.

Issued: January 2017

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Concrete Curb and Gutter	Specification Reference No. 650	Plate Number 650.01



Note:

1. Asphalt concrete - manhole and casting shall be adjusted to final grade prior to placement of surface course.

2. 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.

3. For chip seal projects, the entire manhole cover and frame shall be protected from the chip seal installation.

Revised: January 2021

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Manhole Casting and Cover Adjustment	Specification Reference No. 671	Plate Number 671.01

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-5

VTC

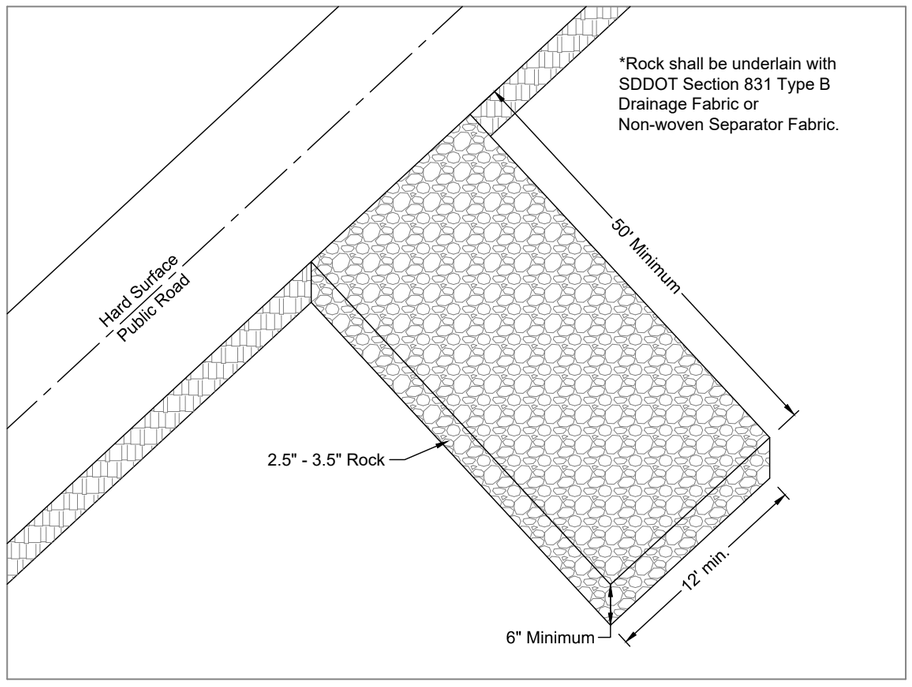
Vehicle Tracking Control

Definition:

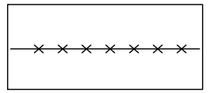
A stone stabilized pad located at points of vehicular ingress and egress on a construction site.

Purposes:

To reduce the amount of mud transported onto public roads by motor vehicles or runoff.



Revised: May 2019



Silt Fence

SF

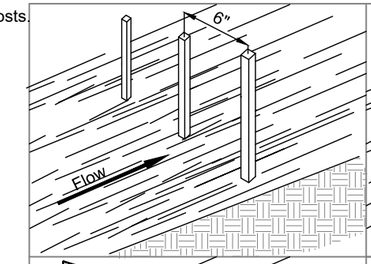
Definition:

A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched. The silt fence is a temporary linear barrier constructed of synthetic filter fabric and supported by wooden or steel posts.

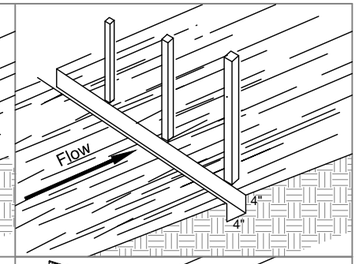
Purposes:

1. To intercept and detain small amounts of sediment from disturbed areas during construction operations in order to reduce sediment in runoff from leaving the site.
2. To decrease the velocity of sheet flows and low-to-moderate level concentrated flows.

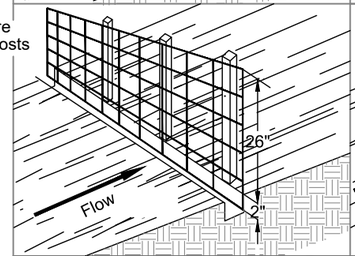
1. Set posts.



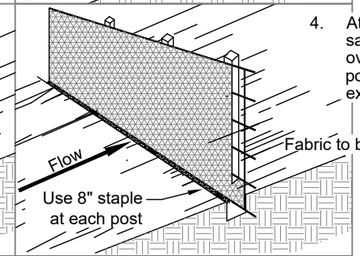
2. Excavate a 4" x 4" trench upslope along the posts.



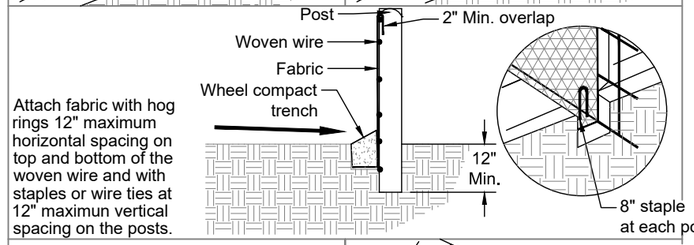
3. Attach a supporting wire fence to the posts



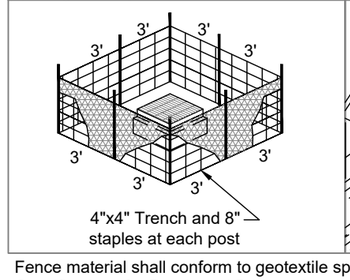
4. Attach fabric, sandwich fabric overlap between posts and wire and extend into trench.

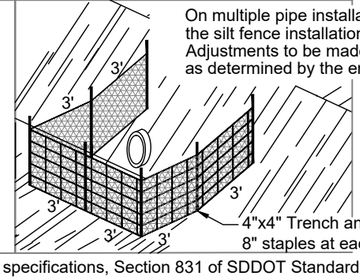


5. Backfill trench. If rock type soils are encountered, utilize 30 to 40 lb sandbags butted end to end to prevent underflow.



Attach fabric with hog rings 12" maximum horizontal spacing on top and bottom of the woven wire and with staples or wire ties at 12" maximun vertical spacing on the posts.





On multiple pipe installations, the width of the silt fence installation will increase. Adjustments to be made on the construction as determined by the engineer.

Fence material shall conform to geotextile specifications, Section 831 of SDDOT Standard Specifications for Roads and Bridges, latest edition.

Revised: October 2005

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Temporary Vehicle Tracking Control**	Specification Reference No. 734	Plate Number 734.02	CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Silt Fence (Woven Wire)**	Specification Reference No. 734	Plate Number 734.09

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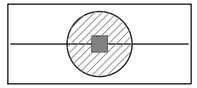
ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-6

BY: GRA, 21092 PLUM CP SECTION N.dwg, N-6, PRINT DATE: Jan 06, 2022



Inlet Protection

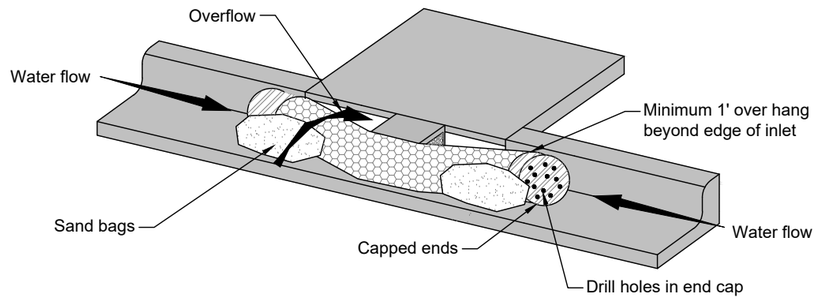
IP

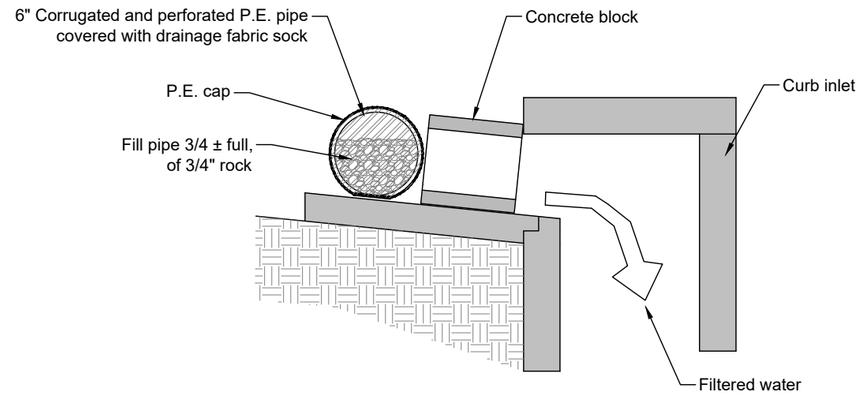
Definition:

A sediment filter or an excavated impounding area around a storm drain drop inlet or curb inlet. To be used at sump conditions.

Purposes:

To reduce sediment from entering storm drainage systems prior to permanent stabilization of disturbed areas.



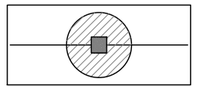


Specific Application:

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas. Clean out as necessary to prevent blockage of runoff conveyance.

Revised: November 2008

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Corrugated Pipe and Fabric Inlet Protection - Overflow**	Specification Reference No. 734	Plate Number 734.16



Inlet Protection

IP

Definition:

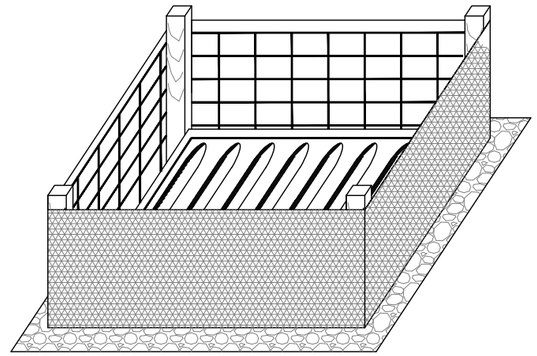
A sediment filter or an excavated impounding area around a storm drain drop inlet or curb inlet.

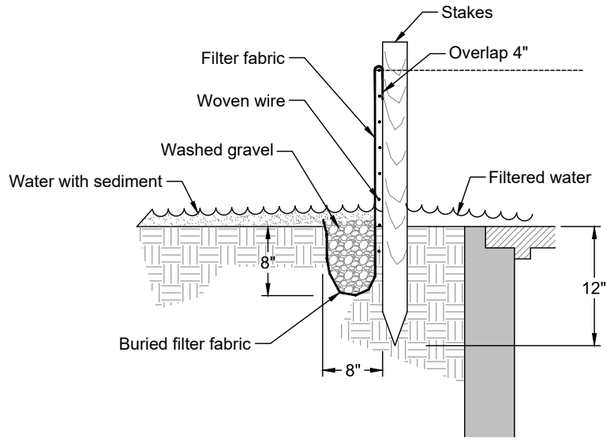
Purposes:

To reduce sediment from entering storm drainage systems prior to permanent stabilization of disturbed areas.

1. Set posts.
2. Excavate an 8" x 8" trench upslope along the posts.
3. Attach a supporting wire fence to the posts
4. Attach fabric sandwich 4" fabric overlap between posts and wire and extend into trench.
5. Back fill trench. If rock type soils are encountered, utilize 30 to 40 lb sandbags butted end to end to prevent underflow.

   Attach fabric with hog rings 12" maximum horizontal spacing on top and bottom of the woven wire and with staples or wire ties at 12" maximum vertical spacing on the posts.





Filter fabric shall conform to Section 831 of SDDOT Standard Specifications for Roads and Bridges, latest edition.

Revised: June 2000

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Silt Fence Drop Inlet Sediment Filter**	Specification Reference No. 734	Plate Number 734.17

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ROVANG INDUSTRIAL PARK
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SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-7

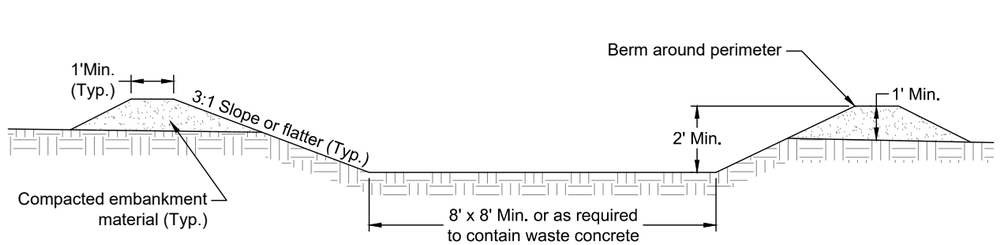
BY: GRA, 21092 PLUM CP SECTION N.dwg, N-7, PRINT DATE: Jan 06, 2022

Concrete Washout Facility

CWF

Notes:

1. Concrete washout facility shall be installed prior to any concrete placement on site.
2. A sign shall be installed adjacent to each washout facility to inform concrete equipment operators to utilize the CWF.
3. The concrete washout facility shall be repaired and enlarged or cleaned out as necessary to maintain capacity for wasted concrete.
4. When CWF are no longer required for the work, the hardened concrete and materials used to construct the CWF shall be removed and disposed of.
5. When the concrete washout facility is removed, the holes, depressions or other ground disturbance shall be backfilled, repaired and stabilized.



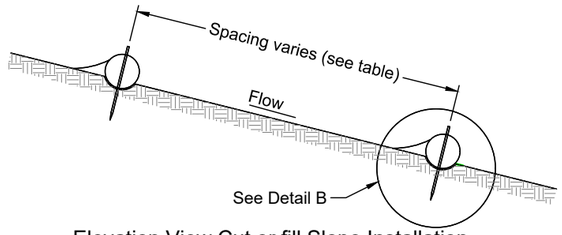
Cross Sectional View

Revised: December 2008

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Concrete Washout Facility	Specification Reference No. 734	Plate Number 734.28

Sediment Control Wattle

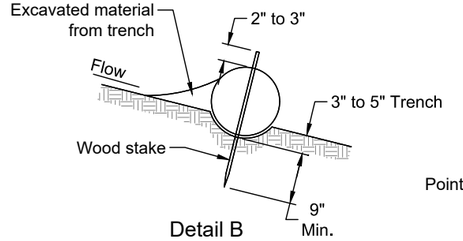
W



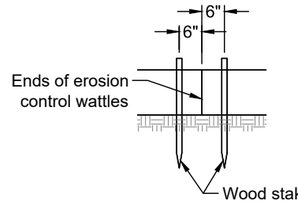
Elevation View Cut or fill Slope Installation

Cut or Fill Slope Installation	
Slope	Spacing (FT)
1:1	10
2:1	20
3:1	30
4:1	40

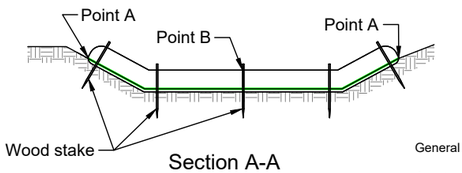
Note: If only one wattle is required, the slope shall not exceed 20:1.



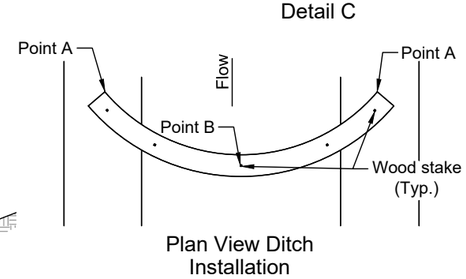
Detail B
(Typical of all installations)



Detail C



Section A-A



Plan View Ditch
Installation

Ditch Installation	
Grade	Spacing (FT)
2%	150
3%	100
4%	75
5%	50

General Notes:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point "A" must be higher than point "B" to ensure that water flows over the wattle and not around the ends.

The contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

Revised: October 2005

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Sediment Control Wattle	Specification Reference No. 734	Plate Number 734.29

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

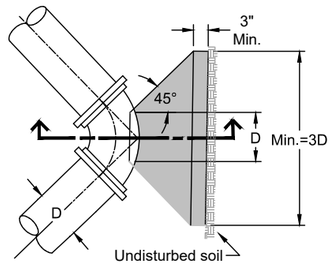
PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

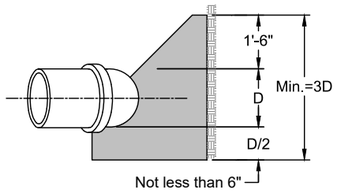
N-8

BY: GRA, 21092 PLUM CP SECTION N.dwg, N-8, PRINT DATE: Jan 06, 2022

Concrete Thrust Blocks

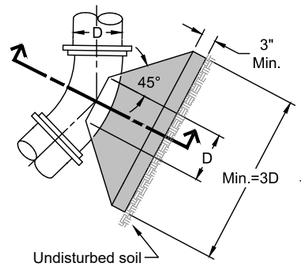


Plan View

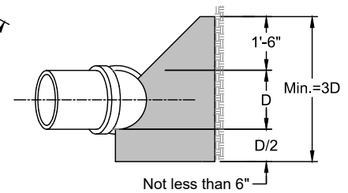


Section View

90 - Degree Bend

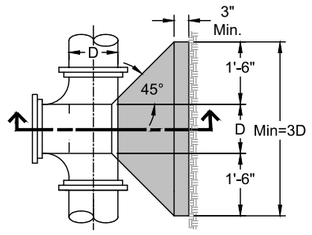


Plan View

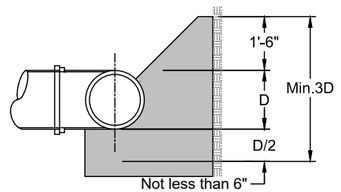


Section View

11 1/4 - Degree, 22 1/2 - Degree and 45 - Degree Bends

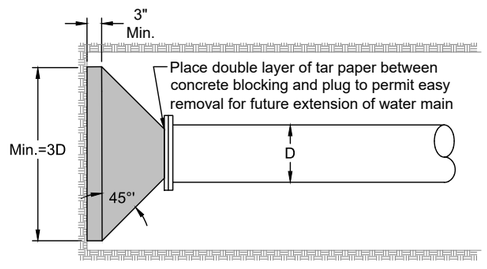


Plan View



Section View

Tee



S.J./M.J. Plug

Revised: December 2020

Concrete Thrust Blocks

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Specification Reference	Plate Number
No. 900	900.01

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
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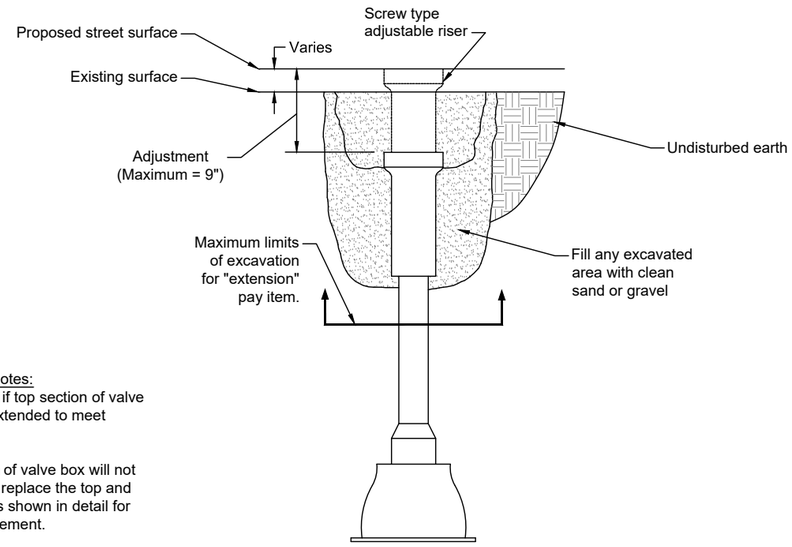
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-9

Valve Box Extension
(or replacement of top section)



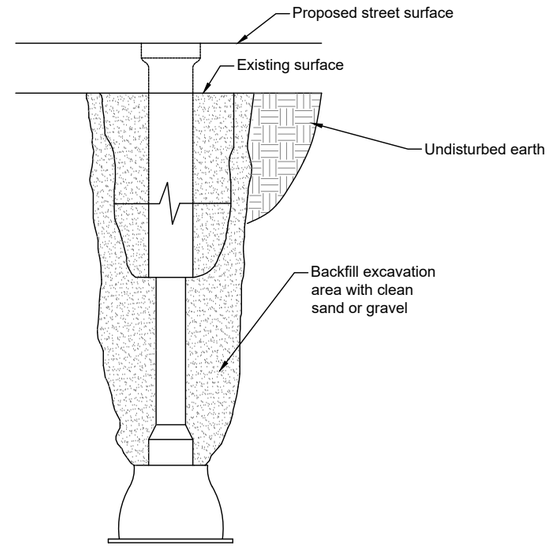
No Scale

Valve Box Extension Notes:

1. Use this method if top section of valve box cannot be extended to meet proposed grade.

2. If the top section of valve box will not accept the riser, replace the top and center section as shown in detail for valve box replacement.

Valve Box Installation



No Scale

General Notes:

1. Non-threaded adjustments will not be allowed.

2. Plumb valve box prior to backfilling. All valve boxes shall be adjusted to be flush with the pavement surface prior to placement of the pavement surfacing. The allowable vertical tolerance between the pavement surface and any part of the valve box shall be 0" to $\frac{1}{2}$" low. In no case shall the valve box be above the surface of the pavement.

3. It shall be the contractor's responsibility to provide a system to prevent material from entering the valve box during the work.

4. All adjustments shall be completed prior to opening up the street to traffic.

Revised: December 2020

Valve Box Installation and Extension

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Specification Reference No. 900

Plate Number 900.02

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

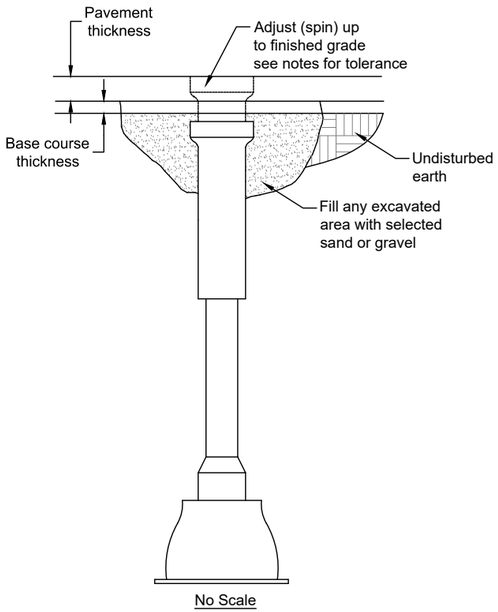
PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-10

Valve Box Adjustment

Spin Up Method



No Scale

Spin Up Method:

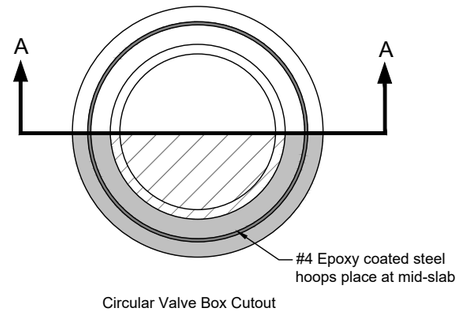
1. Use this method if top section of valve box can be adjusted to finished grade.

2. If the 0" to 1/2" tolerance cannot be met by the "spin up" method on asphalt streets, then the contractor shall be required to adjust the valve box by the circular cutout method. This additional work, if required, shall be incidental to the "valve box adjustment" bid item.

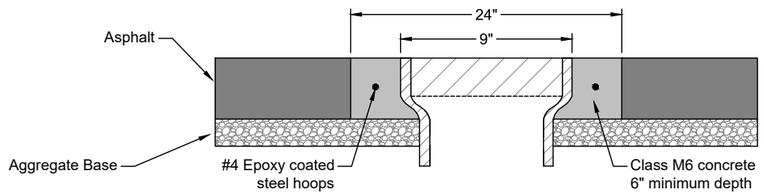
3. If the 0" to 1/2" tolerance can not be met by the "spin up" method on concrete streets, the repair method will be determined by the engineer. This additional work shall be incidental to the "valve box adjustment" bid item.

4. If the valve box needs minor adjustment, a minimal amount of heat can be applied to break the bond between the valve box and the asphalt. Full depth heating of the asphalt will not be allowed. If the asphalt appears to show signs of deterioration, it will be at the discretion of the engineer to require the cut out method.

Cutout Method



Circular Valve Box Cutout



Section A-A

Cut Out Method:

1. The circular concrete cutout shall be centered on the valve box frame.

2. The circular concrete cutout shall be constructed after the installation of the top lift of asphalt. The pavement shall be sawed full depth with a vertical face. The contractor shall ensure that the adjacent asphalt surface is left intact and undamaged when removing the circular cutout.

3. The circular concrete cutout diameter shall be 24".

4. Apply tack coat to the vertical asphalt surfaces prior to placement of concrete cutout.

5. Class M6 concrete shall be used for the cutout. Fast track concrete may be used at the discretion of the engineer.

6. Steel reinforcing shall be epoxy coated grade 40.

7. Steel reinforcing shall consists of #4 hoops (variable length) supported by approved chairs.

8. Maintain a minimum of 2" clearance on all steel reinforcing.

9. All work associated with constructing the circular concrete cutout, including, but not limited to: all materials, sawing, steel reinforcing, chairs, concrete, labor, tools, removal and replacement, excavation and backfilling and other appurtenances shall be incidental to the "valve box adjustment" bid item.

General Notes:

1. Non-threaded adjustments will not be allowed.
2. Plumb valve box prior to backfilling. All valve boxes shall be adjusted to be flush with the pavement surface prior to placement of the pavement surfacing. The allowable vertical tolerance between the pavement surface and any part of the valve box shall be 0" to $\frac{1}{2}$" low. In no case shall the valve box be above the surface of the pavement.
3. It shall be the contractor's responsibility to provide a system to prevent material from entering the valve box during the work.
4. All adjustments shall be completed prior to opening up the street to traffic.

Revised: December 2020

Valve Box Adjustment

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Specification Reference	Plate Number
No. 900	900.03

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
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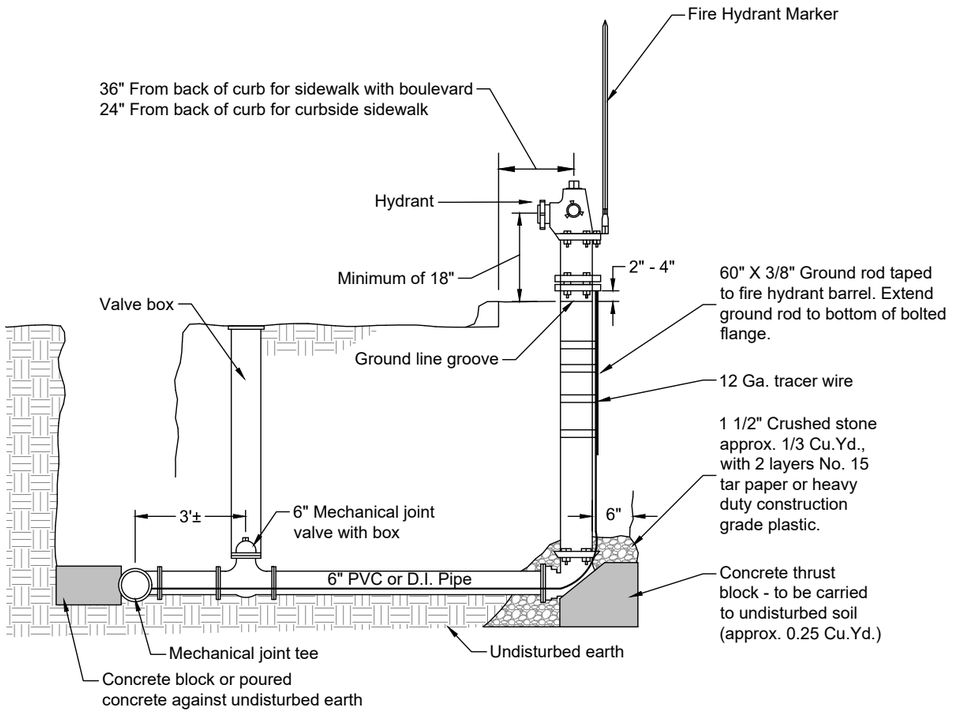
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-11

BY: GRA, 21092 PLUM CP SECTION N.dwg, N-11, PRINT DATE: Jan 06, 2022

Hydrant Connection



General Notes:

1. Hydrant grade to be shown on plans.
2. Valve on fire hydrant lateral shall be restrained.
3. All exposed pipe joints shall be restrained on hydrant lateral.
4. Install V-bio polywrap on fire hydrant barrel to the ground surface before installing tracer wire system. Do not cover weep holes with polywrap.

Revised: December 2020

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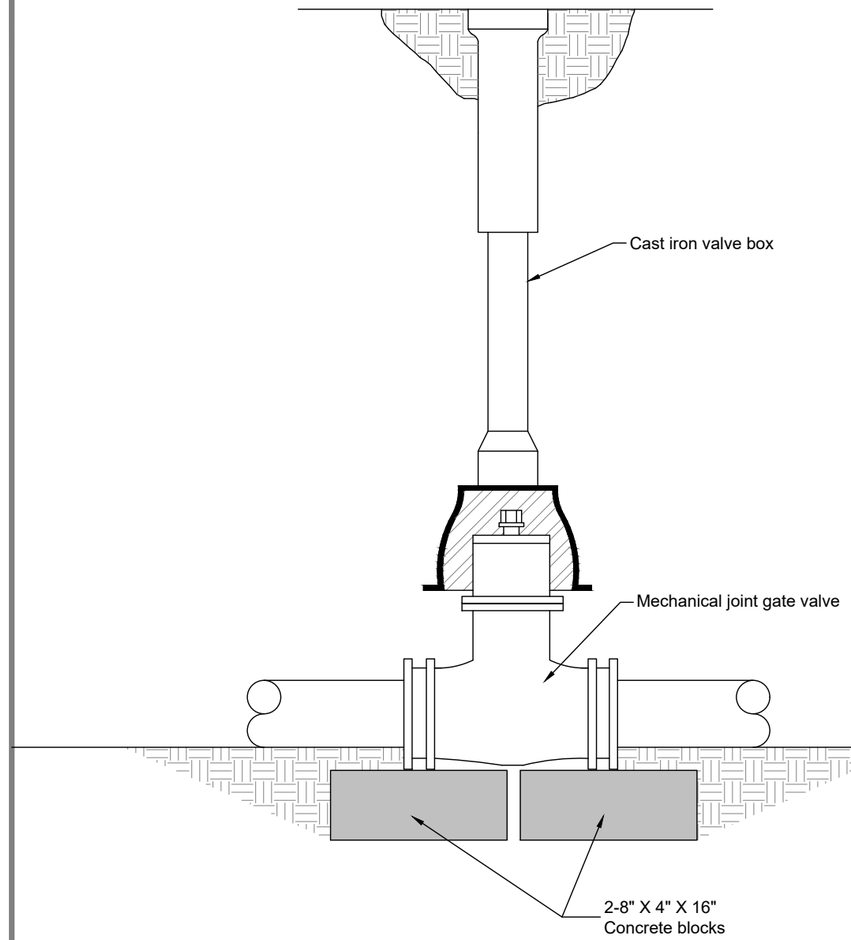

PVC Gate Valve Installation

Not to scale

Revised: January 1999

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**PVC Gate Valve Installation**	Specification Reference No. 900	Plate Number 900.08

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SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

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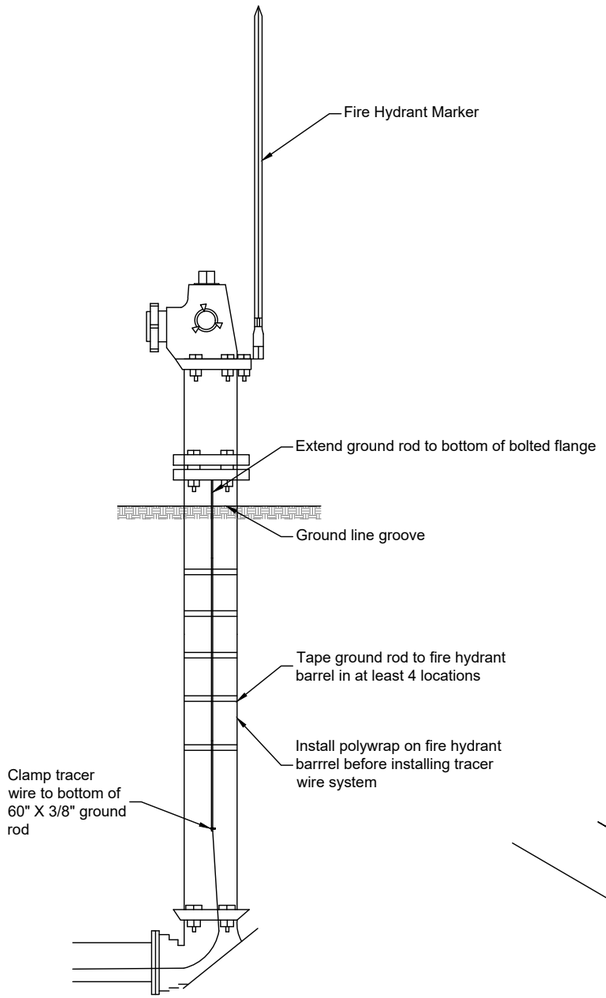
REVISION DATE:	

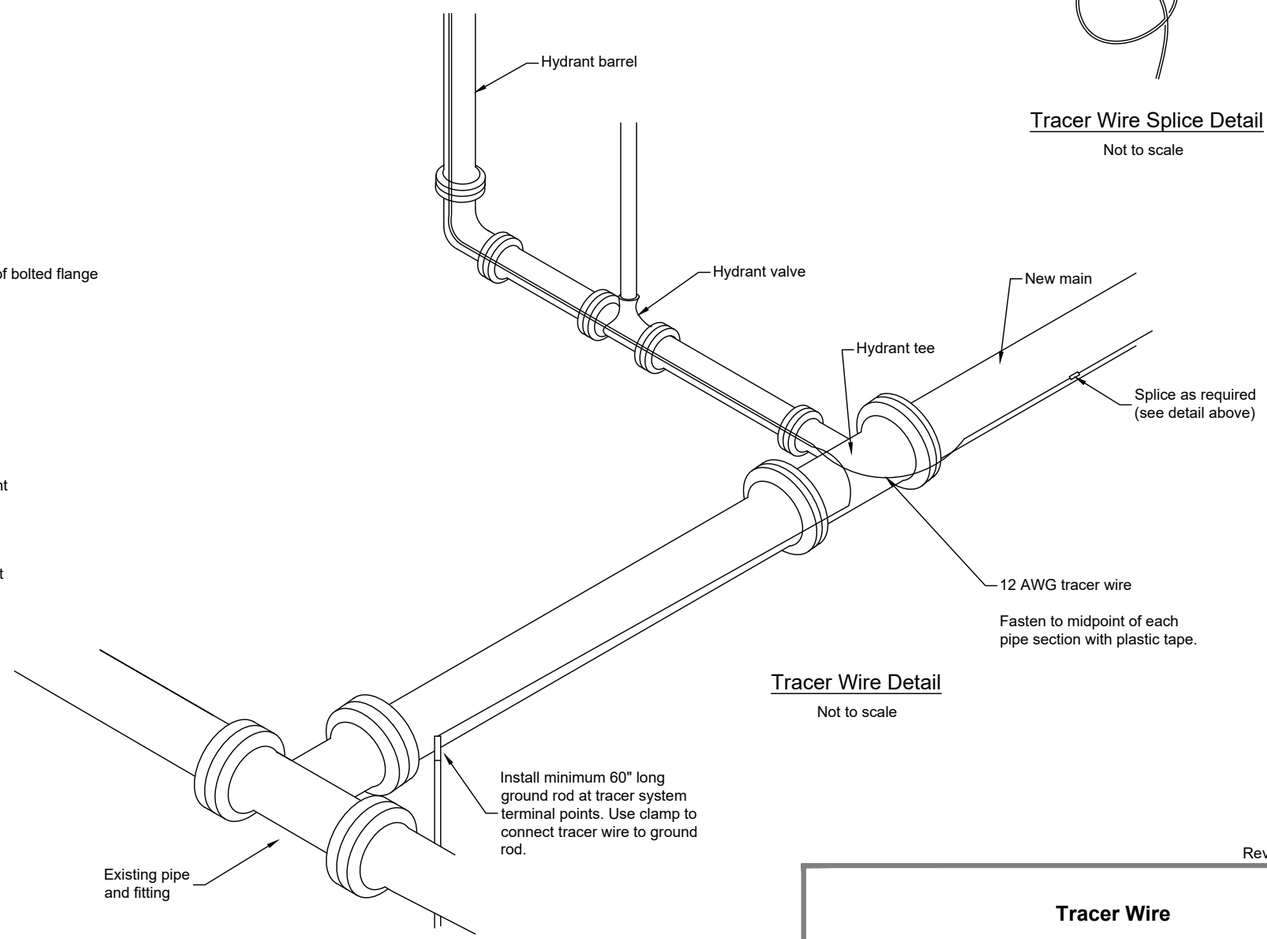
STANDARD DETAILS

N-12



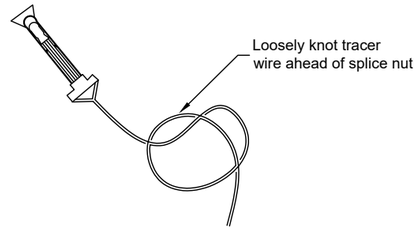
Tracer Wire Detail at Fire Hydrant

Not to scale



Tracer Wire Detail

Not to scale



Tracer Wire Splice Detail

Not to scale

Revised: December 2020

Tracer Wire

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Specification Reference No. 900

Plate Number 900.07

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
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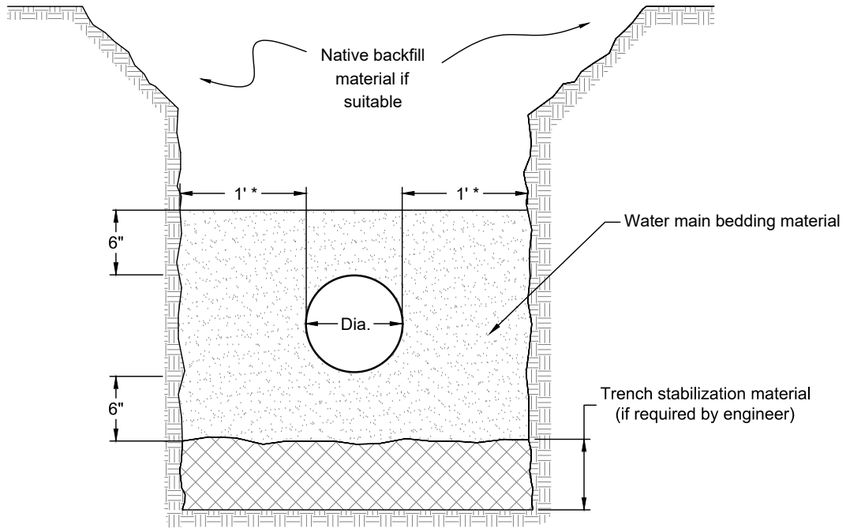
REVISION DATE:	

STANDARD DETAILS

N-13

Water Main Bedding



Pipe Size Diameter	Trench Width	Trench Height	Trench Area	Pipe Area	Water Main Bedding Mat. Area	Water Main Bedding Mat. Tons/LF
4"	28"	16"	3.11 Sq.Ft.	.09 Sq.Ft.	3.02 Sq.Ft.	0.21
6"	30"	18"	3.75 Sq.Ft.	.20 Sq.Ft.	3.55 Sq.Ft.	0.25
8"	32"	20"	4.44 Sq.Ft.	.35 Sq.Ft.	4.10 Sq.Ft.	0.29
10"	34"	22"	5.19 Sq.Ft.	.55 Sq.Ft.	4.65 Sq.Ft.	0.33
12"	36"	24"	6.00 Sq.Ft.	.79 Sq.Ft.	5.22 Sq.Ft.	0.37
16"	40"	28"	7.78 Sq.Ft.	1.40 Sq.Ft.	6.38 Sq.Ft.	0.45
20"	44"	32"	9.78 Sq.Ft.	2.18 Sq.Ft.	7.60 Sq.Ft.	0.53
24"	48"	36"	12.00 Sq.Ft.	3.14 Sq.Ft.	8.86 Sq.Ft.	0.62
30"	60"	42"	17.50 Sq.Ft.	4.91 Sq.Ft.	12.59 Sq.Ft.	0.88

* If >30" use dia./2 on each side of water main pipe.

* Length based on one (1) foot of main.

Revised: December 2020

CITY OF SIOUX FALLS
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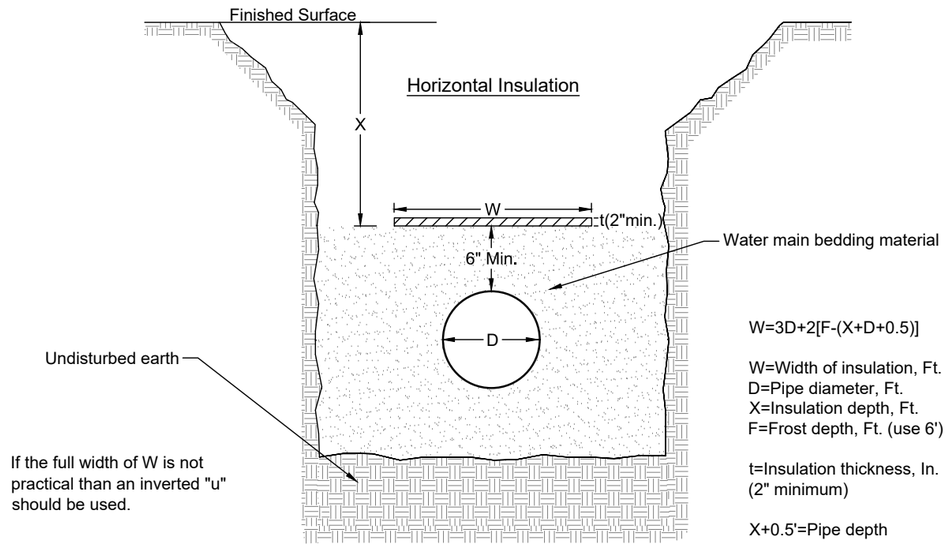
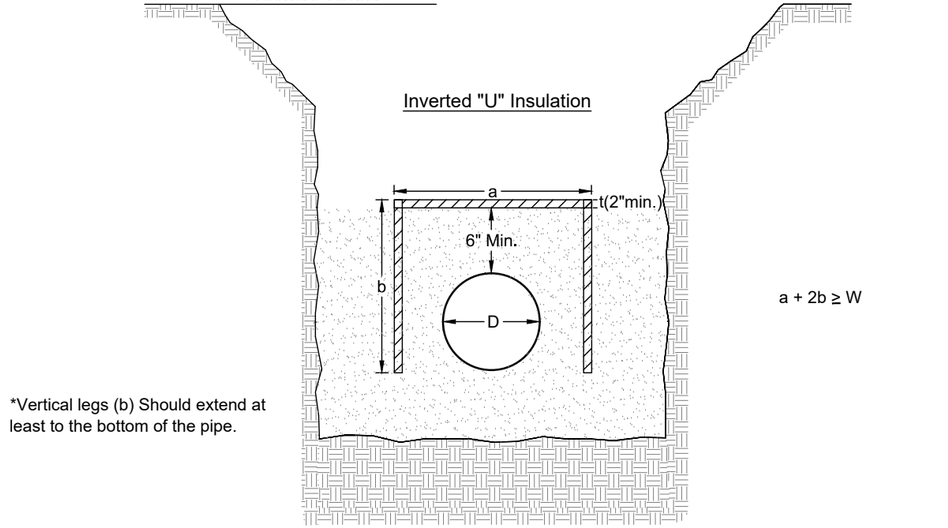
Water Main Bedding	Specification Reference	Plate Number
	No. 900	900.11

Water Main Insulation





*Vertical legs (b) Should extend at least to the bottom of the pipe.

**This detail is a general guideline. Insulation of water main will be determined on a case by case situation depending on the following factors: depth, pipe diameter, flow, location, and proximity to bedrock. Insulation material and installation methods should follow the water main supplemental specification Sec. 300.

Revised: December 2020

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Water Main Insulation	Specification Reference	Plate Number
	No. 900	900.13

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ROVANG INDUSTRIAL PARK
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

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SURVEYED BY:	JHC
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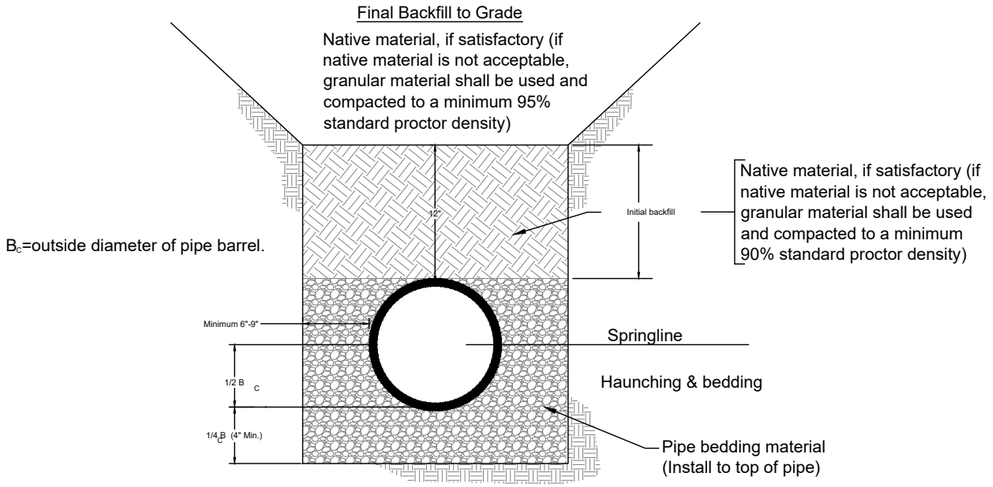
REVISION DATE:	

STANDARD DETAILS

N-14



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

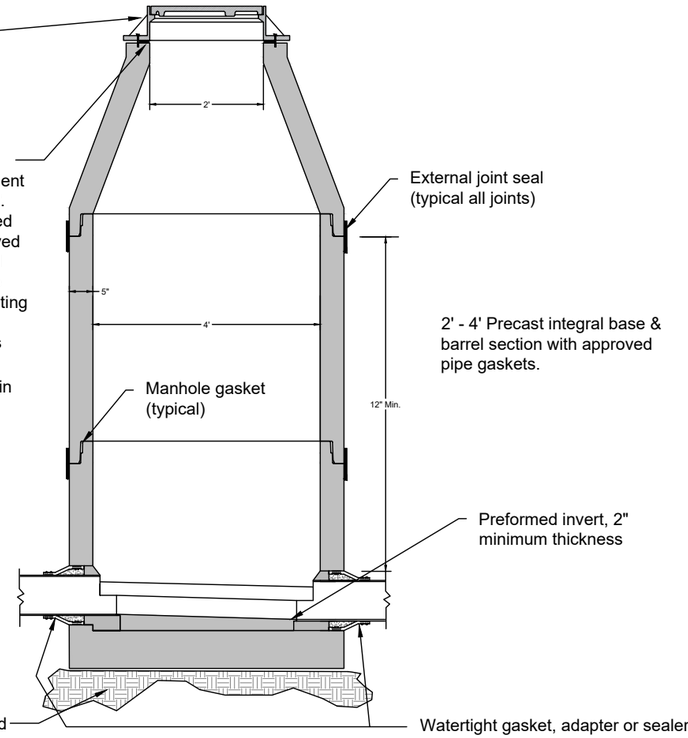
   (Clean angular, well-graded, crushed rock. Pea rock may be used for sanitary sewer service lines.)
3. The required bedding material under the bottom of the pipe shall be installed prior to pipe installation.

Revised: September 2020

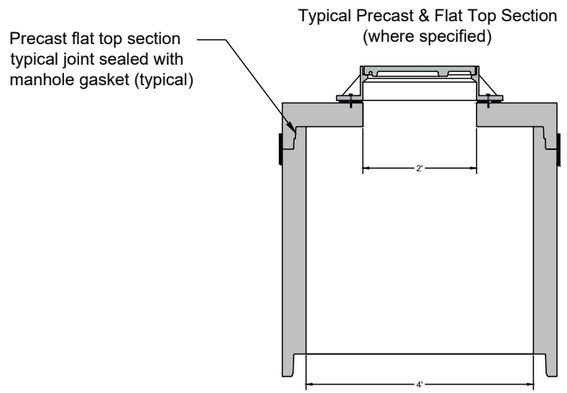
CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Bedding and Backfill Requirements For 4" to 12" Sanitary Sewer Pipe**	Specification Reference No. 950	Plate Number 950.01

Manhole cover per standard specifications for sanitary sewer construction.

- Adjusting rings are required in paved areas. Minimum adjustment of 2", maximum adjustment 14".
- Adjustment rings are not allowed on manholes placed in non-paved areas. Place two layers of butyl rope inside bolts located on the casting frame, between the casting and the manhole. Bolt frame to manhole cone using 4 stainless steel or galvanized "redhead" expansion bolts size $\frac{1}{4}$" x 2 $\frac{1}{2}$" min and 1 $\frac{1}{2}$" min washers



Typical Precast & Flat Top Section (where specified)



Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Sanitary Sewer Manhole**	Specification Reference No. 950	Plate Number 950.03

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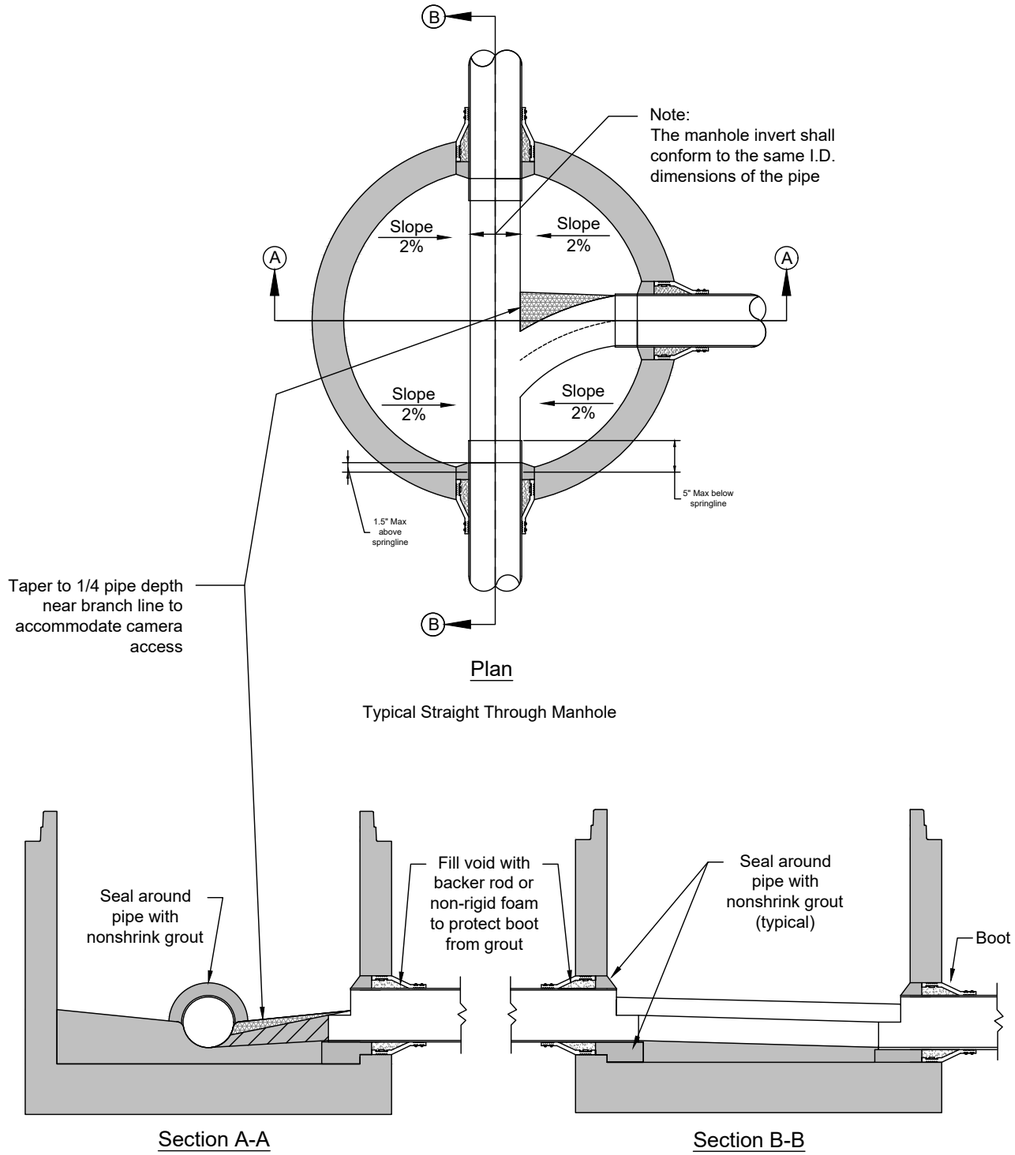
STREET CONSTRUCTION PHASE 2
SOUTHWEST QUARTER OF SECTION 22-102-48
BRANDON, MINNEHAHA COUNTY, SOUTH DAKOTA

PROJECT NO.:	21092
SURVEYED BY:	JHC
CREATED BY:	GRA
APPROVED BY:	TAR
REVISION DATE:	

STANDARD DETAILS

N-15

BY: GRA, 21092 PLUM CP SECTION N.dwg, N-15, PRINT DATE: Jan 06, 2022



Plan

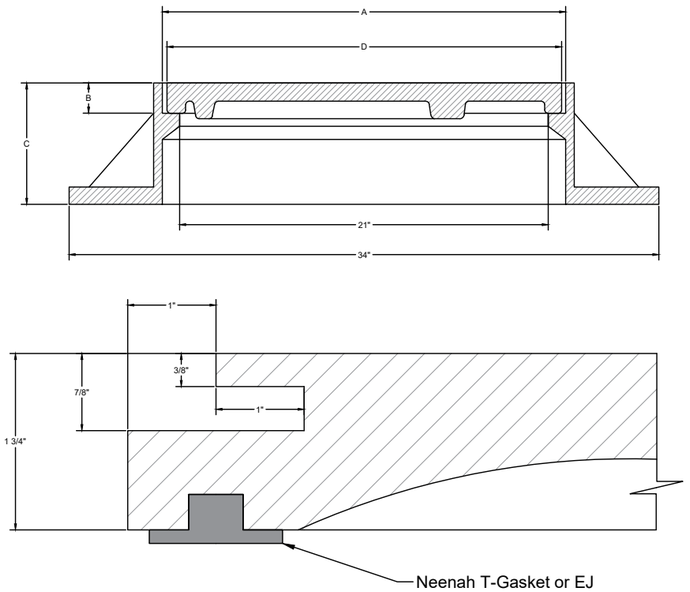
Typical Straight Through Manhole

Section A-A

Section B-B

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Manhole Bench and Invert Detail	Specification Reference No. 950	Plate Number 950.07



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.

Approved Frames:						
Applications	Neenah/Deeter Frame	EJ Series Number	EJ Product Number	Opening for Lid (in)	Thickness for Lid (in)	Frame Height (in)
				A	B	C
Asphalt and concrete streets less than or equal to 6 inches thick	R-1772	1022Z1	102310	23	1.75	7
Asphalt and concrete streets greater than 6 inches thick	R-1713	1050Z1	105015	23	1.75	9
Non-paved easement areas (grass, rock, landscaping, etc.)	R-1712	1050Z1	105011	23	1.75	9
Protection over cleanouts	R-1976	1578Z	157810	11.5	1.25	8

Approved Lids:					
Lid Applications	Neenah/Deeter Frame	EJ Series Number	EJ Product Number	Lid Diameter (in)	Lid Thickness (in)
				D	B
Standard lid for use in all applications	R-1772	1020A	102108	22.75	1.75
Composite lid with limited applications. City engineering approval required	N/A	COM1020	COM102057	22.75	1.75
Protection over cleanouts	R-1976	1578A	157824	11.25	1.25

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Concealed Pick Hole For Sanitary Manhole Covers	Specification Reference No. 950	Plate Number 950.11

Sayre Associates Engineering Solutions
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ROVANG INDUSTRIAL PARK
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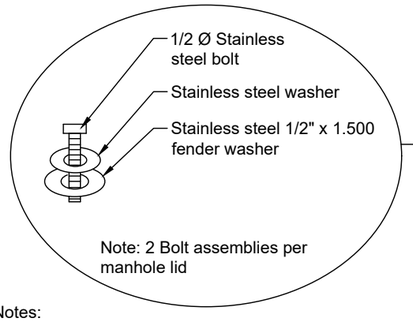
STANDARD DETAILS

N-16

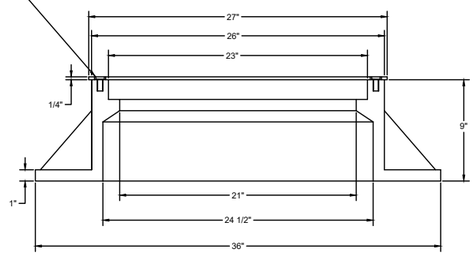
BY: GRA, 21092 PLUM CP SECTION N.dwg, N-16, PRINT DATE: Jan 06, 2022

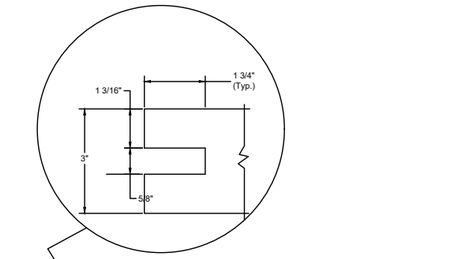


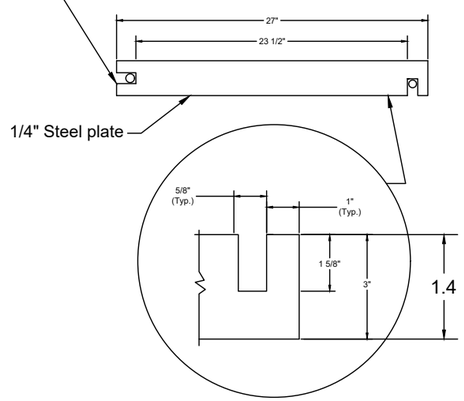
Notes:

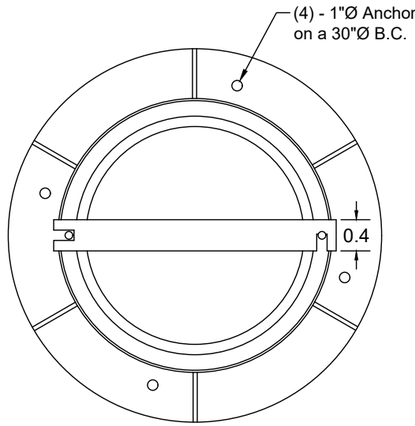
1. (2) Drill and tap frame for 1/2Ø-13 x 1" ss hex HD cap screws with reinforced rubber and stainless steel washers. The holes shall be 1 1/2" deep.
2. The bolts and threads shall be thoroughly coated with an anti-seize lubricant material. the anti-seize lubricant material shall be "Zep Groovy-Paste" as manufactured by Zep Manufacturing Company or approved equal.

Note:
The Neenah R1712 or East Jordan 1050Z1/105011 bolt down manhole casting shall be used in all easement areas and areas outside of paved roadways, unless otherwise notated by the city engineers office.







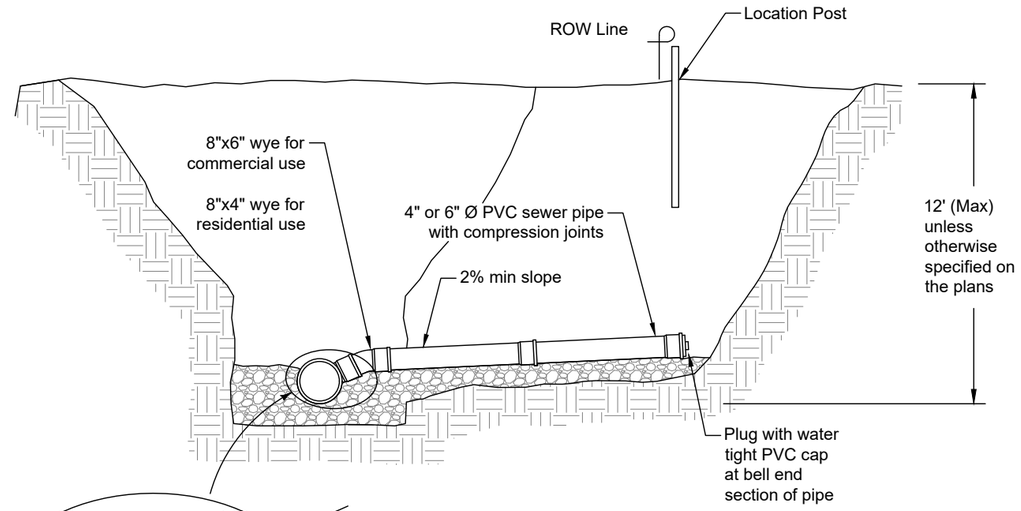


Note:
The plate shall be oriented such that when the bolts are tightened in a (clockwise) rotation, the plate is pulled into the bolt and not pushed away from it.

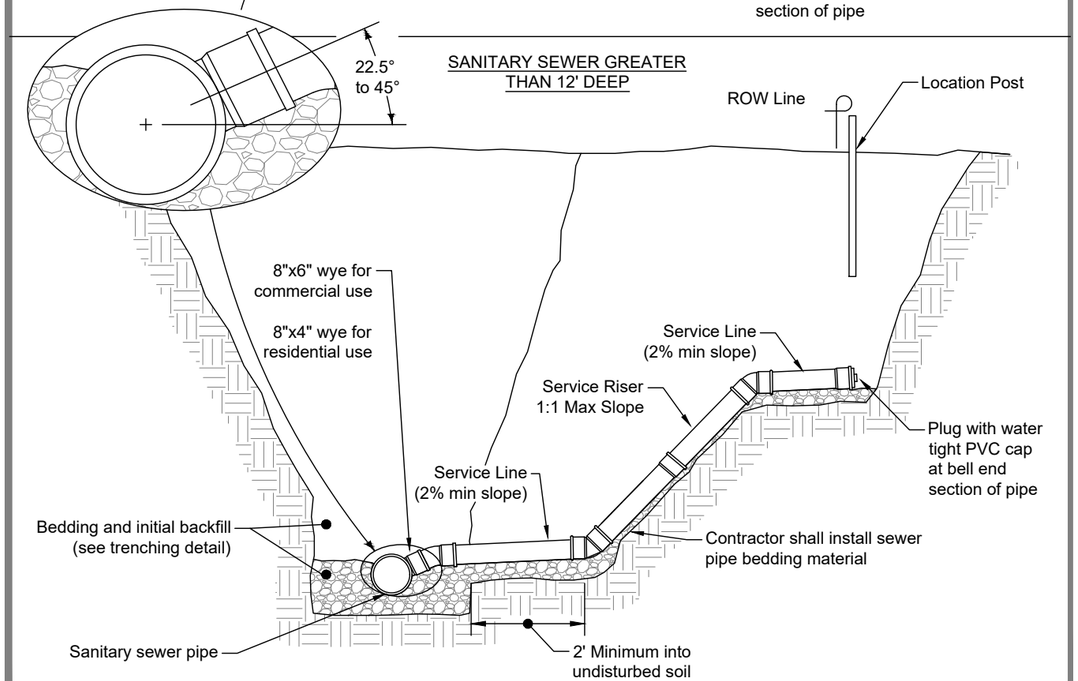
Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Sanitary Sewer Watertight Frame and Bolted Cover	Specification Reference No. 950	Plate Number 950.12

TYPICAL SANITARY SEWER LESS THAN 12' DEEP



SANITARY SEWER GREATER THAN 12' DEEP



Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Typical Sanitary Sewer Service and Riser	Specification Reference No. 950	Plate Number 950.13

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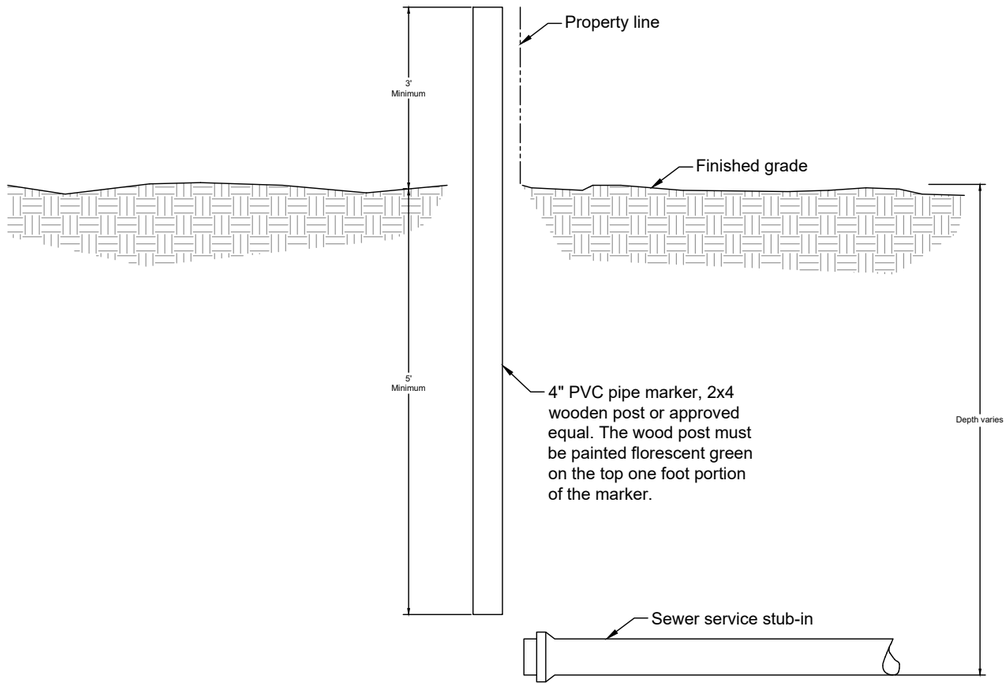
STANDARD DETAILS

N-17

BY: GRA, 21092 PLUM CP SECTION N.dwg, N-17, PRINT DATE: Jan 06, 2022

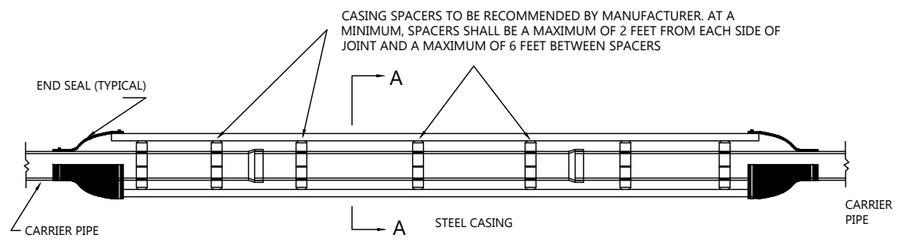


Notes:

1. Markers shall be maintained by the property owner until the service is extended to the house.
2. Property owner will be responsible for replacing damaged markers
3. Markers shall be placed vertical from the end of the stub-in and not offset.

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Sanitary Sewer Service Stub-in Marker Detail**	Specification Reference No. 950	Plate Number 950.14



ELEVATION

CASING SPACERS AND END SEALS SHALL BE MANUFACTURED BY ADVANCED PRODUCTS AND SYSTEMS, INC. P.O. BOX 60399 LAYAYETTE, LA. 70596–0399 OR EQUAL AND MEET THESE REQUIREMENTS.

CASING SPACERS – MODEL SSI8. (PIPE SIZES 36 INCHES IN DIAMETER AND SMALLER)
BAND – 14 GAUGE T–304 STAINLESS STEEL
RISER – 10 GAUGE T–304 STAINLESS STEEL

ROLLERS – SHALL BE APOGEE–AERO MANUFACTURED BY ADVANCE PRODUCTS AND SOLUTIONS INC. THE NUMBER OF ROLLERS SHALL BE RECOMMENDED BY THE MANUFACTURER, BUT FOUR IS THE MINIMUM

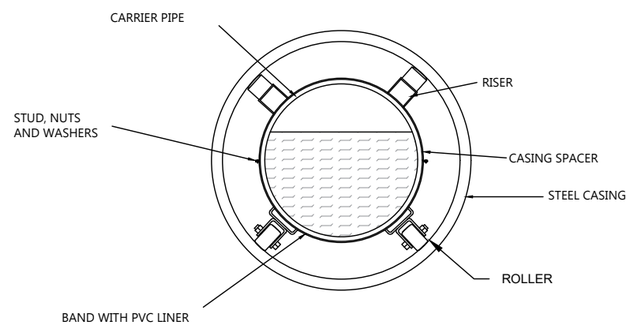
STUDS, NUTS, AND WASHERS – T–304 STAINLESS STEEL.

HEIGHT – AS REQUIRED FOR CENTER RESTRAINING OR AS SHOWN IN THE DRAWINGS

END SEALS – CONICAL SHAPED WRAP–AROUND ⅛ INCH SYNTHETIC RUBBER WITH T–304 STAINLESS STEEL STRAPS

CASINGS AND CARRIER PIPE: SHALL BE AS SPECIFIED IN THE SUPPLEMENTAL STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, OR DRAWINGS

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

REVISED: NOVEMBER 2018

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Standard Casing/Carrier For Sanitary Sewer Pipe**	Specification Reference No. 950	Plate Number 950.16

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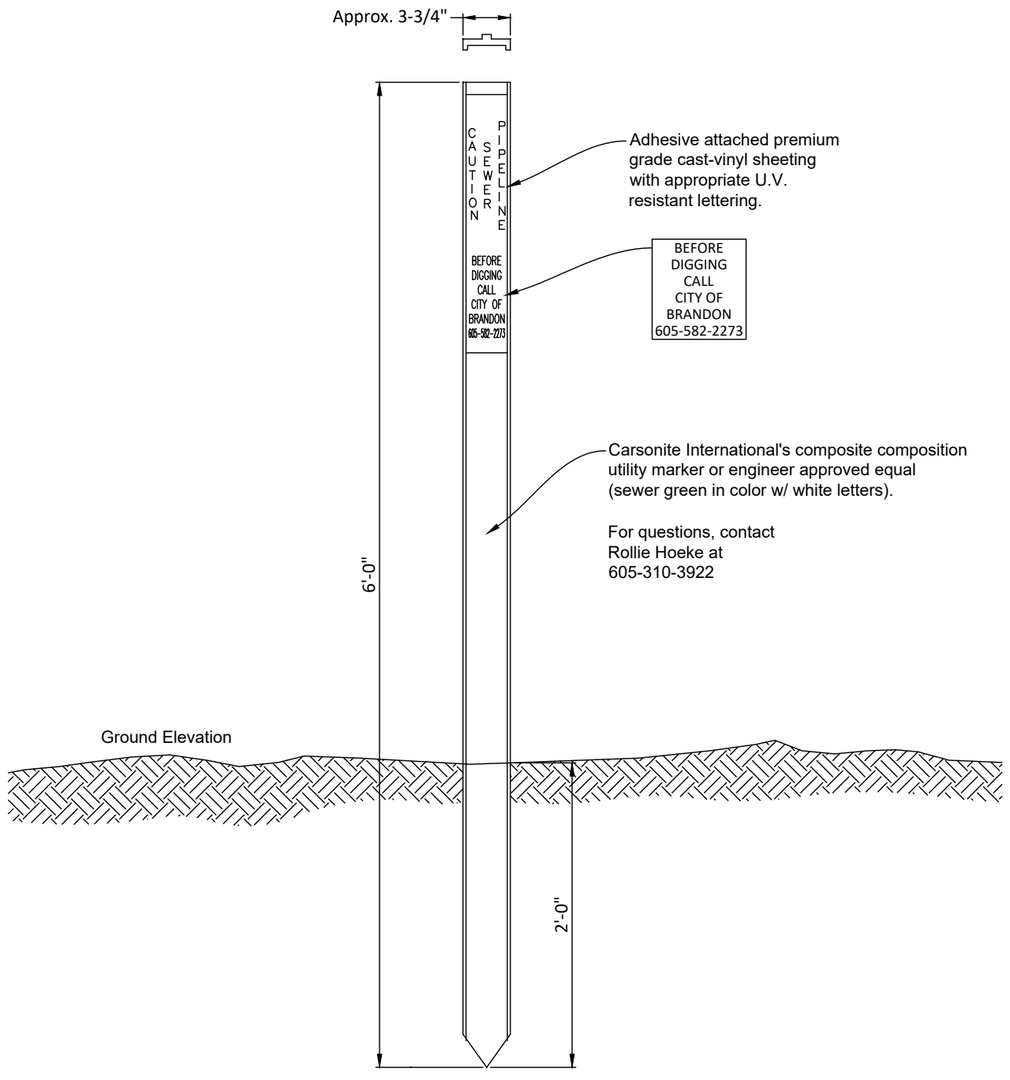

Sanitary Sewer Marker

Sayre Associates
Engineering Solutions
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