Feasibility Report for

North Industrial Park

City of Worthington, MN

April, 2016

Project Number F17.110543

Prepared by:
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BOLTON & MENK, INC.
Consulting Engineers & Surveyors

CERTIFICATION

Feasibility Report

For the

North Industrial Park

City of Worthington, Minnesota

Project Number: F17.110543

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: Travis L. Winter

Travis L. Winter, P.E.
License No. 46649
Bolton & Menk, Inc.

Date: April 21, 2016

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INTRODUCTION AND BACKGROUND

The purpose of this report is to determine the feasibility of improving the following described street by necessary grading, base construction, curb and gutter construction, and by concrete surfacing; by extension of the municipal sanitary sewer collection system; by extension of the municipal water distribution system; and by extension of the storm water collection system.

North Industrial Park – Bioscience Drive Extension

The following report summarizes the existing site conditions, needed infrastructure improvements, and estimated costs for the proposed extension of Bioscience Drive in the North Industrial Park. The development area is located north of Interstate 90 and west of U.S. Highway 59 in the city of Worthington, Minnesota.

An 850 foot extension of Bioscience Drive is currently under construction to provide access to the new North Industrial Park. An interested party for Outlot A led to a change in the original street and lot layout for the entire site of the North Industrial Park to meet their needs. The City of Worthington approved the new layout. See Figure 1 of Appendix A for location map.

This report will deal with an approximate 1,400 foot street and utility infrastructure extension needed to provide service into the development in the new layout. Installation of private utilities, such as electric, gas, and telephone, would also be necessary, but are not defined in this report. Private utilities are generally installed at the expense of the serving utility.

This report has been prepared pursuant to Council Resolution of April 25, 2016. These improvements have not been petitioned for and need to proceed as a Council initiated project.

PROJECT NEED

Infrastructure extension is needed to provide both construction and permanent access to Outlot A and future expansion west. The City of Worthington currently has an ongoing project to extend the street surfacing of Bioscience Drive west of U.S. Highway 59 to County Ditch 12, the east boundary line of Outlot A. Further roadway extension is needed to fully access Outlot A. The infrastructure extension proposed includes the construction of a 40-foot wide street with associated sanitary sewer, watermain, and storm sewer extensions. The proposed improvements are indicated on Figures 2 and 3. The proposed improvements would provide infrastructure for the development of the Outlot A, west of County Ditch 12, as well as access to future development west in the North Industrial Park.

EXISTING CONDITIONS

The existing land west of County Ditch 12 is designated for commercial and industrial use and is currently utilized for agricultural purposes. There are two existing storm water infiltration basins, a North Basin & a South Basin in this area that are intended to serve the two large watershed areas that extend just north of 240th Street to the north and over a ½ mile to the west of the North Industrial Park limits. The North Watershed is approximately 160 acres. The South Watershed is approximately 190 acres. Storm water flow for both watersheds is overland in an easterly direction to the storm water infiltration basins. The basins were designed for the 100 year storm and utilize iron enhanced filters to remove phosphorus from the runoff of the street extension before discharging into County Ditch 12.

Existing infrastructure on site includes a 12-inch water main and a 24-inch trunk sanitary sewer stubbed into the site along Bioscience Drive past the east lot line of Outlot A. An existing 12-inch water main and an 8-inch sanitary sewer are located within the right-of-way of 240th Street and are currently stubbed to the northwest corner of the site. No other utilities are currently on or adjacent to the site.

PROPOSED CONDITIONS

STREET

The street improvements include construction of a curvilinear roadway corridor from the west side of County Ditch 12, starting approximately 850 feet west of the existing intersection of T.H. 59, to approximately 1,400 feet west. A 40-foot wide (curb back to curb back) urban section with a 10-ton pavement design to handle heavy commercial or industrial traffic is proposed for this proposed extension. The preliminary pavement design is assumed to include 12-inches of select granular borrow, 5-inches of Drainable Stable Base aggregate, and 7-inches concrete pavement with B6 curbs and underdrains for subsurface drainage. It is recommended that a geotechnical report be performed to assist in final design of the pavement structure.

WATERMAIN

The proposed watermain construction includes the extension of the existing main parallel to the proposed sanitary sewer. The extension would be 12-inch diameter PVC along the main trunk route. Provisions should be made to continue the main as 12-inch to connect to another existing 12-inch main south of 240th Street. Hydrants with a spacing of approximately 500 feet would provide fire protection for the development and gate valves would be placed as needed for isolation purposes. The larger diameter service lines will provide additional potable water for the demands of industrial users and/or on-site fire protection.

STORM SEWER

Drainage analysis for the Worthington North Industrial- Commercial development reflects the following assumptions:

- The land use is a mixture of Commercial and Industrial uses as generally reflected in the 2008 "Master Corridor Study" prepared by SEH. For design considerations only, the future land use of the area north of 240th Street is also assumed to be Commercial although the distribution of assessments will be based on the Master Corridor Study which outlines that this area will remain agricultural.
- Future development will be required to detain the first ½-inch of runoff from the site. Preliminary basin detention has been included in the modeling to reflect the influence on the runoff hydrographs. The exception is the lots that discharge directly to the two existing easterly detention basins, which are not required to provide additional detention.
- Storm Drain improvements within the development area are sized for the 5-year storm event using NOAA Atlas 14 rainfall depths. HGLs may surcharge the pipe, but should be below finished grade.
- Drainage patterns and future finished grade elevations assume development will generally follow existing terrain, and also assume a proportional drainage area to each of the two existing detention basins on the east end of the site.
- Option 2 includes a 66-inch equalization pipe between the two basins, constructed at a 0.2% slope.

Table 1: North Detention Basin

	Option 1			Option 2		
	5-year	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**
Qin	383	427	499	588	682	688
Qout	37	41	50	40	43	53
				142 *	167 *	161 *
WSEL	1572.7	1574.0	1577.5	1573.6	1574.8	1578.2

* Option 2 includes a 66-inch RCP equalizer pipe between the two basins.

Table 2: South Detention Basin

	Option 1			Option 2		
	5-year	10-year	100-year	5-year	10-year	100-year
Qin	412	464	568	185	229	322
				140 *	165*	158 *
Qout	41	45	56	39	42	56
WSEL	1574	1575.4	1578.0	1573.2	1574.5	1578.0

PROJECT COST AND FINANCING

Total project cost for the improvements as recommended in the preceding is estimated to be $2,716,389, including engineering and contingencies. The distribution of assessable costs of each of the improvement types is proposed as outlined in the City's Assessment Ordinance.

STREET

The total estimated cost of the street work, including engineering and contingencies, is $880,576. All costs of the street improvements are assessable to the property abutting and benefitted by the street extension. Per the assessment ordinance, costs of the project equaling that which would be incurred for construction of a collector street are to be assessed. Since the proposed street design is not greater than the standard criteria for a collector street the entire cost can be assessed.

The regional retention area on the north side of the street extension is not considered to be benefitted by the street extension. The costs associated with the frontage of this basin will be a city share of the street extension.

Although there is currently a proposed single use for the tract on the south side of the street extension, it is intended that special assessments be levied on the basis of potential uses. This tract in whole or a subpart of it may be considered a corner lot and eligible for a corner lot allowance. While the City's Assessment Policy does provide that a corner lot is subject to assessment in full on its short side and for one half of its long side abutting a street improvement, the policy does not address large tracts that are capable to be subdivided. In order to address this tract's current and potential status, a modified allowance is proposed. This modified allowance reflects the practice utilized by the City in assessing lateral sewer and water benefit to large tracts. It is proposed that 200 feet within the street along the north side of the tract not be assessed for the street extension

along the west side of the tract. The allowance will be measured along the chord of the curve between the east-west and north-south street segments.

The following provides the estimated costs, city share, assessments receivable, and assessment rates for the street extension:

City share for non assessable costs[1]	$304,853.03	
City share of assessable costs	$0.00	
Total city share	$304,853.03	(34.6%)
Assessments receivable	$575,722.97	(65.4%)
TOTAL	$880,576.00	

The estimated assessment rate is $310.92./ft

[1] City share for non-assessable costs includes $216,894.93 for allowance and $87,958.11 for non-assessable frontages.

SANITARY SEWER AND WATERMAIN

The total estimated improvement project cost for sanitary sewer and watermain, including engineering and contingencies, is $411,965 and $229,845 respectively.

Of the total cost for a sanitary sewer and watermain project, that portion which would be incurred in constructing mains of the size adequate for only providing service to abutting properties is to be considered lateral water costs. Sanitary sewer lateral costs are based on the installation of an 8-inch main at a depth of up to 10-feet. Water main lateral costs are based on the installation of an 8-inch main and excludes the installation of fire hydrants. The remaining costs would be defined as trunk costs or those additional costs associated with providing service to an area larger than that which abuts on the project. Trunk sanitary sewer costs of the proposed improvements include those relating to additional burial depth and pipe size.

	Sanitary Sewer	Watermain
Trunk Cost:	$228,022	$100,855
Lateral Cost:	$183,943	$128,990
Total:	$411,965	$229,845

Special assessments for sanitary sewer and water main projects are levied in two components, trunk assessments and lateral assessments. Trunk assessments are levied on the basis of area benefitted by an extension and the current trunk assessment rate which is independent of a particular project's cost. The trunk rate is defined by ordinance and originates from a July 1975 determination of estimated costs for all trunk improvements needed at that time and the total area to be served by those improvements. An adjustment using a construction cost index maintains current value of the trunk rate. A trunk fund receives all trunk

assessments and is utilized to retire those debt costs attributable to trunk project costs. The trunk fund may receive more or less assessments than trunk costs for each project undertaken.

Lateral assessments are based on the lateral costs as previously defined and the rate determining frontage or Residential Equivalent Connections (RECs) applicable to the project. The lateral costs divided by the rate determining units establishes the assessment rate. The amount of assessments is equal to the assessment rate multiplied by assessable units. Assessable units may be less than rate determining units when a portion or portions of the project abut property that is not benefitted by the project. The selection of REC or frontage units tends to be based on the status of the abutting property. Frontage is generally, but not always, used when assessments are to be levied to undeveloped property. The use of frontage units yields a uniformly distributed rate which is beneficial in equitably reapportioning assessments at the time development occurs. REC units are typically used where the number of individual connections or lots is able to be identified at the time the project is undertaken. Whereas one or both of the tracts abutting the sewer and water improvements may potentially be subdivided it is proposed to utilize frontage units.

The regional retention basin site on the north side of the street extension is not considered to be benefitted by the sewer and water extension. The costs associated with the frontage of this basin will be a city share of the sewer and water extensions. Trunk assessments will not be levied as to the area of either of the regional retention basin sites.

As has been the practice in other sewer and water extension projects benefitting large tracts such as Water Improvement 74-09 and Sanitary Sewer 88, it is proposed in regard to the tract on the south side of the Bioscience Drive that the 200 feet within the extensions along the north side of the tract not be assessed for the extensions along the west side of the tract. The rate determining non-assessable frontage associated with this tract is to be measured along the chord of the curve between the east-west and north-south extensions.

Estimated assessments, trunk fund obligations, and city share costs of the sanitary sewer and water main extensions are as follows:

WATER MAIN

	LATERAL	TRUNK	TOTAL	
Assessments	$84,503.67	$116,184.47	$200,688.14	(87.3%)
Trunk Fund (due to)		($15,329.47)	($15,329.47)	
City Share	$44,486.33	$0.00	$44,486.33	
TOTAL	$128,990.00	$100,855.00	$229,845.00	

SANITARY SEWER

	LATERAL	TRUNK	TOTAL	
Assessments	$122,172.99	$185,894.64	$308,067.63	(74.8%)
Trunk Fund (due from)		$42,127.36	$42,127.36	
City Share	$61,770.01	$0.00	$61,770.01	
TOTAL	$183,943.00	$228,022.00	$411,965.00	

STORM SEWER

The total estimated project cost for the storm water collection system is $1,194,003. The City's Assessment Ordinance states that the costs for storm water improvements are to be assessed to the properties within the drainage district. The assessment rate is to be derived by dividing the cost of the improvement by the total number of assessable units within the area to be served by the storm sewer improvement. The assessable units of each parcel or tract is its area within the storm sewer district, expressed in square feet, multiplied by a land use factor. Land use factors range from .75 for open spaces to 1.5 for commercial and industrial properties. Assessable units for properties that are not to be assessed or immediately assessed are typically referred to as rate determining units. Assessable and rate determining units may be more or less than that part of any tract or parcel within the storm sewer district depending on the land use factor. The assessment for each tract or parcel is determined by multiplying its assessable units times the project's assessment rate.

The assessment rate limit established in the City's Assessment Policy is greater than the calculated rate for the storm water improvements and therefore will not be in effect.

The following provides the estimated costs, city share, assessments receivable, and assessment rates for the storm water improvements:

City share for non assessable costs[1]	$898,776.62	
City share of assessable costs	$0.00	
Total city share	$898,776.62	(75.3%)
Assessments receivable	$295,226.38	(24.7%)
TOTAL	$1,194,003.00	

The estimated assessment rate is $0.0592/sq ft

[1] City share for non-assessable costs includes $870,909.56 for areas outside the city limits, and $679.77 for excluded areas.

TOTAL COST OF IMPROVEMENTS

Total cost for the project is as follows:

Net Due from Trunk Funds	$26,797.89	(1.0%)
City Share	$1,309,885.99	(48.2%)
Assessments	$1,379,705.12	(50.8%)
TOTAL COST	$2,716,389.00	

It is proposed that the project be initially financed by PIR bonding. Temporary use of 401 Construction Fund reserves may be needed until bond proceeds are received. Revenues from special assessments levied as a result of the project along with the annual special tax levy required to recover the city share of the project would be utilized for bond repayment.

CONCLUSION

From an engineering standpoint, this project, as proposed, is feasible, cost effective and necessary for the development of the proposed North Industrial Park in the City of Worthington. The proposed construction of streets and underground utilities described in this report can best be accomplished by requesting competitive bids for the project. It is recommended that the work be done under one contract in order to complete the work in an orderly and efficient manner.

These preliminary estimated costs have been prepared based on current, average bidding prices and are subject to variation due to construction timing, contractor workloads, etc. The cost estimates include the estimated cost of engineering and contract administration, but do not include the cost of any fiscal fees related to the project financing.

PRELIMINARY CONSTRUCTION COST ESTIMATE

NORTH INDUSTRIAL PARK - MARCH 2016
CITY OF WORTHINGTON, MINNESOTA
BMI PROJECT NO.: F17.110543 TRUNK SEWER & WATER COSTS

NO.	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
WATERMAIN					
1	MOBILIZATION	LS	1.00	$15,000.00	$15,000.00
2	12" PVC WATERMAIN	LF	1,500.00	$65.00	$97,500.00
3	6" PVC WATERMAIN	LF	35.00	$40.00	$1,400.00
4	12" GATE VALVE & BOX	EA	5.00	$3,500.00	$17,500.00
5	6" GATE VALVE & BOX	EA	4.00	$2,200.00	$8,800.00
6	HYDRANTS	EA	4.00	$3,500.00	$14,000.00
7	FITTINGS	LBS	1,200.00	$10.00	$12,000.00
8	UNCLASSIFIED MISCELLANEOUS EXCAVATION	LS	1.00	$10,000.00	$10,000.00
				SUBTOTAL=	$176,200.00
				CONTINGENCIES (15%)	$26,430.00
				ENGINEERING AND ADMINISTRATION	$27,215.00
				ESTIMATED WATERMAIN CONSTRUCTION COST=	**$229,845.00**
STORM SEWER					
1	MOBILIZATION	LS	1.00	$35,000.00	$35,000.00
2	48" STORM MANHOLE / CATCH BASIN	EA	2.00	$5,000.00	$10,000.00
3	108" STORM MANHOLE/ CATCH BASIN	EA	10.00	$15,000.00	$150,000.00
4	CATCH BASIN	EA	6.00	$2,500.00	$15,000.00
5	72" RCP APRON	LS	2.00	$5,000.00	$10,000.00
6	15" RCP STORM SEWER	LF	80.00	$40.00	$3,200.00
7	18" RCP STORM SEWER	LF	560.00	$45.00	$25,200.00
8	36" RCP STORM SEWER	LF	50.00	$55.00	$2,750.00
9	72" RCP STORM SEWER	LF	2,820.00	$225.00	$634,500.00
10	MANHOLE CASTING ASSEMBLY	EA	12.00	$600.00	$7,200.00
11	CATCH BASIN CASTING ASSEMBLY	EA	6.00	$750.00	$4,500.00
12	RIPRAP	CY	100.00	$100.00	$10,000.00
13	UNCLASSIFIED MISCELLANEOUS EXCAVATION	LS	1.00	$15,000.00	$15,000.00
				SUBTOTAL=	$922,350.00
				CONTINGENCIES (15%)	$138,353.00
				ENGINEERING AND ADMINISTRATION	$133,300.00
				ESTIMATED STORM SEWER CONSTRUCTION COST=	**$1,194,003.00**
SANITARY SEWER					
1	MOBILIZATION	LS	1.00	$25,000.00	$25,000.00
2	8" PVC SANITARY SEWER PIPE	LF	180.00	$40.00	$7,200.00
3	24" PVC SANITARY SEWER PIPE	LF	1,480.00	$120.75	$178,710.00
4	48" SANITARY MANHOLE	LF	250.00	$367.50	$91,875.00
5	CASTING ASSEMBLY	EA	7.00	$840.00	$5,880.00
6	UNCLASSIFIED MISCELLANEOUS EXCAVATION	LS	1.00	$10,000.00	$10,000.00
				SUBTOTAL=	$318,665.00
				CONTINGENCIES (15%)	$47,800.00
				ENGINEERING AND ADMINISTRATION	$45,500.00
				ESTIMATED SANITARY SEWER CONSTRUCTION COST=	**$411,965.00**
39' WIDE - 10 TON STREET - URBAN SECTION					
1	MOBILIZATION	LS	1.00	$35,000.00	$35,000.00
2	COMMON EXCAVATION	CY	2,250.00	$14.00	$31,500.00
3	SUBGRADE PREP	SY	6,700.00	$3.00	$20,100.00
4	4" PERF UNDERDRAINS	LF	2,800.00	$11.00	$30,800.00
5	GEOTEXTILE FABRIC	SY	6,700.00	$3.00	$20,100.00
6	DRAINABLE STABILIZING BASE	TON	2,560.00	$32.00	$81,920.00
7	7" CONCRETE PAVEMENT	SY	6,250.00	$50.00	$312,500.00
8	INTEGRAL CURB DESIGN B-6	LF	2,800.00	$12.50	$35,000.00
9	SUBGRADE EXCAVATION	CY	450.00	$15.00	$6,750.00
10	GRANULAR FOUNDATION	cy	450.00	$55.00	$24,750.00
11	UNCLASSIFIED MISCELLANEOUS EXCAVATION	LS	1.00	$58,000.00	$58,000.00
12	SEED, MULCH & FERTILIZE	AC	3.00	$3,000.00	$9,000.00
13	STABILIZED CONSTRUCTION EXIT	EA	2.00	$1,500.00	$3,000.00
14	EROSION CONTROL BLANKET	SY	500.00	$5.00	$2,500.00
15	INLET PROTECTION	EA	14.00	$250.00	$3,500.00
16	SILT FENCE	LF	4,100.00	$1.50	$6,150.00
17	BIOROLL / ROCK LOG	LF	200.00	$4.00	$800.00
				SUBTOTAL=	$681,370.00
				CONTINGENCIES (15%)	$102,206.00
				ENGINEERING AND ADMINISTRATION	$97,000.00
				ESTIMATED STREET CONSTRUCTION COST=	**$880,576.00**
				SUBTOTAL OF CONSTRUCTION=	**$2,716,389.00**

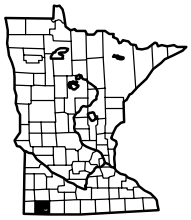
PRELIMINARY CONSTRUCTION COST ESTIMATE

NORTH INDUSTRIAL PARK - MARCH 2016 REDESIGN
CITY OF WORTHINGTON, MINNESOTA
BMI PROJECT NO.: F17.110543

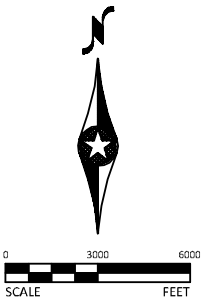
LATERAL SEWER AND WATER COSTS

NO.	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
WATERMAIN					
1	MOBILIZATION	LS	1.00	$10,000.00	$10,000.00
2	8" PVC WATERMAIN	LF	1,500.00	$36.00	$54,000.00
3	8" GATE VALVE & BOX	EA	5.00	$2,700.00	$13,500.00
4	FITTINGS	LBS	600.00	$10.00	$6,000.00
5	UNCLASSIFIED MISCELLANEOUS EXCAVATION	LS	1.00	$5,000.00	$5,000.00
				SUBTOTAL=	$88,500.00
				CONTINGENCIES (15%)	$13,275.00
				ENGINEERING & ADMINISTRATION	$27,215.00
				ESTIMATED WATERMAIN CONSTRUCTION COST=	**$128,990.00**
SANITARY SEWER					
1	MOBILIZATION	LS	1.00	$12,000.00	$12,000.00
2	8" PVC SANITARY SEWER PIPE	LF	1,660.00	$36.75	$61,005.00
3	48" SANITARY MANHOLE	LF	100.00	$315.00	$31,500.00
4	CASTING ASSEMBLY	EA	7.00	$840.00	$5,880.00
5	UNCLASSIFIED MISCELLANEOUS EXCAVATION	LS	1.00	$10,000.00	$10,000.00
				SUBTOTAL=	$120,385.00
				CONTINGENCIES (15%)	$18,058.00
				ENGINEERING & ADMINISTRATION	$45,500.00
				ESTIMATED SANITARY SEWER CONSTRUCTION COST=	**$183,943.00**

City of Worthington



Nobles County



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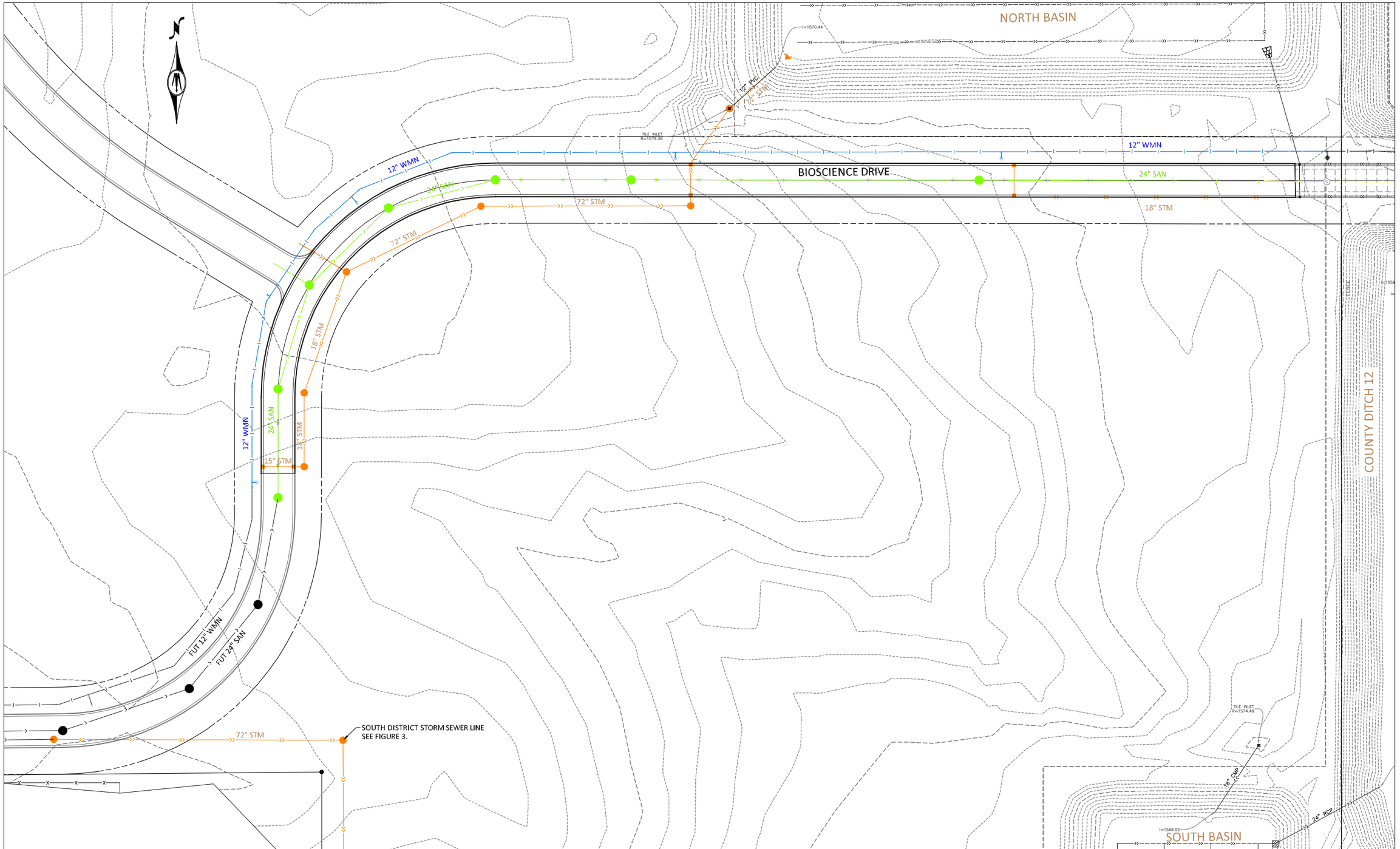
AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

CITY OF WORTHINGTON, MINNESOTA
NORTH INDUSTRIAL PARK
PROJECT LOCATION MAP

APRIL, 2016

FIGURE NO. 1



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City of Worthington

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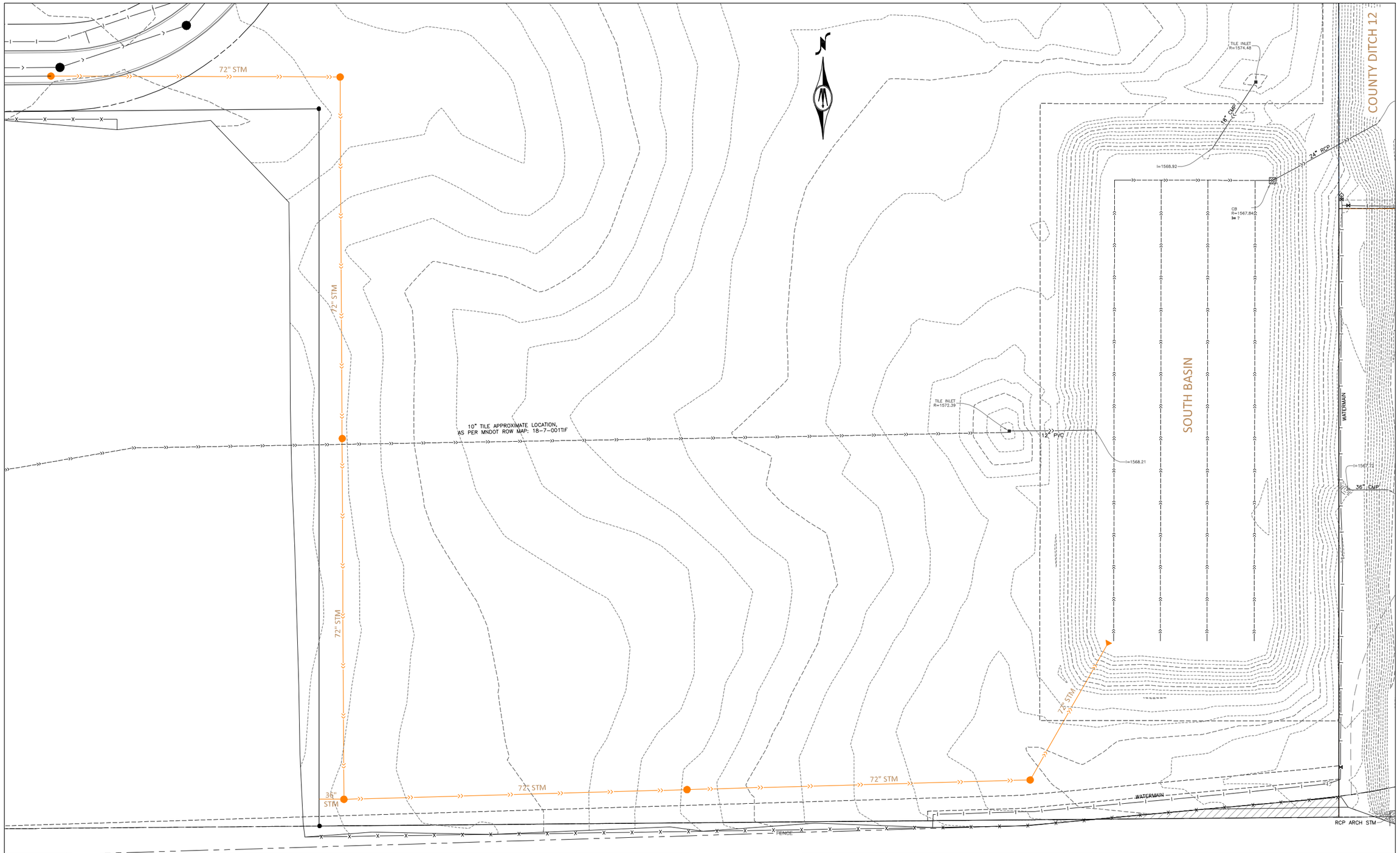
CITY OF WORTHINGTON, MINNESOTA
NORTH INDUSTRIAL PARK
PROPOSED UTILITY LAYOUT

FIGURE
2



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City of Worthington

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CITY OF WORTHINGTON, MINNESOTA
NORTH INDUSTRIAL PARK
PROPOSED SOUTH STORM SEWER LAYOUT

FIGURE
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