MEETING MINUTES
PUBLIC WORKS COUNCIL COMMITTEE
West Des Moines City Hall Training Room
May 26, 2015

Attending:

Council Member – Rick Messerschmidt	Public Works Director – Bret Hodne
Council Member – Kevin Trevillyan	Principal Engineer – Jason Schlickbernd
City Manager – Tom Hadden	Traffic Engineer – Eric Petersen
Finance Director – Tim Stiles	Traffic Engineer – Jim Dickinson
Assistant City Attorney – Greta Truman	Communications Specialist – Lucinda Stephenson
City Engineer – Duane Wittstock	Rod VanGenderen – Chief Building Official

Meeting called to order at 11:32 AM.

1. **FEMA Flood Plain Update**

Issue Summary:

Jason Schlickbernd, Principal Engineer, reported on the feedback provided by FEMA after staff submitted comments regarding the Polk Countywide FEMA mapping update. A handout was provided showing comments from staff in black text and responses from FEMA in red text (Item 1). Staff explained that FEMA does not map every possible flood plain, they generally only map where risks are anticipated. In addition, through the City's site plan review process, staff ensures that a design engineer addresses any potential flooding issues and obtains the necessary permits since FEMA doesn't map everything.

Staff responded to questions from the PWCC about current undeveloped areas being included in the mapping, stating that FEMA manages the federal flood insurance program so their assessment is from an insurance risk perspective and generally they wouldn't map an area until it is developed. If the City wants to map an area before it's developed, the City conducts their own studies to determine where flood plains are, but FEMA is under no obligation to use the City's studies. The studies conducted by the City evaluate a storm event in time and model it to determine elevations and make recommendations for developers. Staff stated that a study doesn't provide any guarantee other than a probability if development is above a certain elevation the area would probably remain dry.

Mr. Schlickbernd stated that the corporate limits for the City were not accurate so FEMA has been supplied with additional information regarding corporate limits. The next step is to share the maps with the public and obtain comments from the public and finalize the maps. It could potentially take a year or more to receive feedback from the public. Staff stated that the last time mapping was conducted by FEMA in 2006, there were 20 foot contours but new technology has enabled the data to be more accurate and the contours are now down to approximately 2 feet.

Direction: Information Only.

2. **Barnes Heights Sanitary Sewer – Deerr Property at 6225 Brookview Drive**

Issues Summary:

Regarding the Deerr Property at 6225 Brookview Drive, which is in the proposed Barnes Heights Sanitary Sewer Connection fee district, the current property owner has contacted the City stating the

previous property owner had an agreement with the contractor when the Wrenwood Plat 1gravity sewer system was built that the contractor would make accommodations for 6225 Brookview Drive to hook up to the gravity sewer. Staff has found no evidence of the agreement. A copy of the letter received from the current property owner as well as a map identifying the 6225 Brookview Drive property outlined in red was provided (Item 2). Staff is seeking recommendation from the PWCC on whether or not to allow the property owner to hook into the gravity sewer system in Wrenwood Plat 1 and exclude them from the proposed Barnes Heights Sanitary Sewer Connection fee district. Staff responded to questions from the PWCC stating if a connection fee district for Barnes Heights is created, the sewer line would not have to be immediately installed. Discussion included the option of property owners in the fee district paying the connection fee in advance even if a sewer line isn't installed immediately and the concern of the increase in cost of construction if installation was deferred until there was demand for it.

Direction: The PWCC concurs that the Barnes Heights Sanitary Sewer Connection Fee District be created but to defer the construction of the sewer line until there is demand for it. The PWCC concurs that all properties within the Barnes Heights Sanitary Sewer Connection Fee District be charged a connection fee without regard if the property is served via gravity or pressure sewer.

3. Review of Public Works Items for Council Meeting (June 1, 2015)

A. Order Construction

i. 22nd Street & Kingman Avenue Turn Lane Extension – The project is to lengthen the north bound left turn bay. Some of the inside lanes will be closed during the project, which staff anticipates should only take 2-3 days. Staff is recommending to give the contractor permission to work nights and weekends to alleviate any potential delays and traffic congestion. The PWCC's concern with overnight work is the noise created by breaking pavement. Staff stated they can allow the contractor to work nights and weekends with a restriction to end pavement breaking by 10 PM.

ii. 318 5th Street Improvements – City Manager Tom Hadden will provide an MOU (Memorandum of Understanding) at the June 2, 2015, Council meeting. Council will decide on the level of renovations for the building.

B. Award Contract

i. Grand Avenue Improvements, Phase 5
ii. Alluvion Yellow Fiber Route

C. Accepting Work

i. 2014 HMA Resurfacing Program
ii. 139 6th Street Fiber Optic Connection Project

D. Approval of Railroad Construction Agreement – Grand Avenue Improvements, Phase 5

E. Approval of Professional Services Agreement for Bridge Inspection

F. Approval of First Reading - Barnes Heights Sanitary Sewer Connection Fee District

G. Approval of Acquisition of Agricultural Property – Grand Prairie Parkway Interchange at I-80

H. Approval of Amendment to 28E Agreement with Warren County – Joint Maintenance of Corporate Line Roads

I. Approval of Traffic Code Amendments (2nd Reading)
   i. Special Stops Recommended Due to Visibility Issues
      a. 63rd Street & Orchard Drive
      b. 65th Street & Orchard Drive
   ii. No Parking Zone – West Side of 13th Street, from Locust Street to Walnut Street

J. Approval of Agreement for Traffic Safety Improvement Program Funding

Direction: The PWCC concurs with staff recommendations on the Council Agenda items.

4. Staff Updates

A. Dixie Acres Fee District – Staff stated that Veenstra & Kimm, Inc. provided a detailed report of the results of the evaluation of alternatives to provide sanitary sewer service to the Dixie Acres area (Item 4A). Staff met with the property owners of Dixie Acres on May 19th and all are in agreement to proceed with the gravity sewer along 54th Street flowing to the south, which is the map of Alternative 1, Figure 2 in the handout. Staff still has to obtain permanent easements since the sewer line will follow the property line along the sidewalk.

Direction: The PWCC concurs with staff recommendation.

B. 2015 Annual Spring Clean-Up Event – Bret Hodne, Public Works Director, stated that staff met with two code enforcement officers and representatives from Waste Connections and the Metro Waste Authority to coordinate and discuss anticipated changes to the new guidelines for this year's event. Staff anticipates the biggest challenge will be bagged/boxed items still being left out for pick-up this year. Waste Connections will have supervisors on the streets, code enforcement will patrol the neighborhoods throughout the event and Public Works staff will also try and monitor the areas.

Direction: Information Only.

5. Other Matters

A. High Street – Mr. Hodne informed the PWCC that there is a resident on High Street with regular complaints about the amount of dust and potholes on High Street. High Street has extremely low traffic volumes and staff monitors the condition of the road on a regular basis. The road has an asphalt milling base so dust issues are typically not prevalent. Mr. Hodne wanted the PWCC to be aware of the complaint in case any Council members are contacted about it.

Direction: Information Only.

B. MWA Board Meeting – Mr. Hodne reported that he attended the MWA board meeting last week and a controversial item regarding the disposal of waste material from the bird flu outbreak was voted on. The vote was in favor of allowing the waste material to be placed in the landfill.

Direction: Information Only.

Meeting adjourned at 12:47 PM. The next Public Works City Council Subcommittee meeting is scheduled for June 8, 2015. Copies of handouts are available at Public Works upon request.

A recording was made. Respectfully submitted by Kimberly Pinegar, Secretary.

West Des Moines

PUBLIC WORKS COUNCIL COMMITTEE MEETING AGENDA

Tuesday, May 26, 2015 – 11:30 AM

Location: West Des Moines City Hall – Training Room
4200 Mills Civic Parkway

1. FEMA Flood Plain Update
2. Barnes Heights Sanitary Sewer – Deerr Property at 6225 Brookview Drive
3. Review of Public Works Items for Council Meeting (June 1, 2015)
4. Staff Updates
5. Other Matters

This agenda is created for planning purposes and is subject to change.

Any discussion, feedback or recommendation by Sub-committee member(s) should not be construed or understood to be an action or decision by or for the West Des Moines City Council.

FLOOD HAZARD REVIEW SUMMARY
CITY OF WEST DES MOINES - 190231
MAY 18, 2015

The Federal Emergency Management Agency (FEMA) is conducting a Countywide Flood Hazard Mapping Project for government agencies in Polk County. Since the City of West Des Moines is in Polk County, FEMA has provided flood mapping for areas of West Des Moines in Dallas, Madison, and Warren Counties as well. Preliminary flood maps were issued electronically to the City of West Des Moines for review on April 22, 2015. Comments have been requested by May 18, 2015. Preliminary flood maps are tentatively scheduled to be made available to the public in June 2015.

STARR responses to comments in red.

The following comments will be provided to FEMA:

All Maps

- 'Notes To Users' mentions that 2013 photography was used to create base map. However, aerial photography does not appear to be taken in 2013. – Imagery is NAIP2013, aerial fly dates were 7/11 and 7/12 2013.
- Determine whether 500-year flood information should be included for Zone A mapping. Typically only shown with Zone AE.
  - According to current Standards for Flood Risk Projects, Nov 2014, FEMA Program Standard ID 84 requires calculation of the 0.2 percent chance event and ID 133 requires delineation of 0.2 percent chance event.
  - Comments regarding accuracy or mapping – 2006 effective data were modeled using 20 foot contours. All updated studies were mapped using 2 foot LiDAR data. It is expected that when compared with effective data, changes may be significant.
  - Comments regarding jurisdiction inaccuracy- Can the city provide a spatial boundary shapefile?

Panel 0280 (Map No. 19153C0280F)

- Update jurisdiction boundary and include appropriate flood mapping. (see All Maps)
- Review accuracy of inclusion of two ponds on Des Moines Golf and Country Club property near NW 141st Street and University Avenue (City of Clive). – These ponds were included in the leverage model for South Walnut Creek provided by IFC.
- Approximate 9-foot hydraulic drop downstream of EP True Parkway structure along Jordan Creek may need additional review – varies significantly from 2006 FIS. Flood area in between 81st Street and EP True Parkway appears to be larger because of this. –Jordan Creek was restudied in 2013, new hydrology and hydraulics produced from new LiDAR. Reference the Polk County Fact Sheet or the Polk County FIS Volume 1A, Table 13, pg 59 for summary of analyses.

Panel 0285 (Map No. 19153C0285F)

- No comments.

Panel 0290 (Map No. 19153C0290F)

- Update jurisdiction boundary and include appropriate flood mapping. (see All Maps)

Panel 0295 (Map No. 19153C0295F)

- Update jurisdiction boundary and include appropriate flood mapping. (see All Maps)
- Jurisdiction boundary along Dallas/Polk County line south of Raccoon River is incorrect. Jurisdiction boundary along Polk/Warren County line west of I-35 is incorrect. (see All Maps)
- A LOMR has been approved for 6000 Raccoon River Drive and needs to be taken into account. – If this LOMR is case number 09-07-0043A, it has been revalidated but not incorporated (reflected in the preliminary floodplain) due to scale limitations.
- Review mapped area west of South 35th Street and south of Hidden Creek for accuracy. – Area reviewed and determined accurate. This area was redelineated, existing water surface was plotted on new LiDAR
- Review mapped area near cross section 'AJ' south of the Raccoon River floodway and north of Army Post Road. 2006 mapping excluded buildings in this area. – Area reviewed and determined accurate. This area was restudied, hydrology and hydraulics produced from new LiDAR.

Panel 0301 (Map No. 19153C0301F)

- Review limits of mapped area near 22nd Street and University Avenue intersection for accuracy.

Panel 0302 (Map No. 19153C0302F)

- No comments.

Panel 0303 (Map No. 19153C0303F)

- It is believed that Blue Creek theoretically overtops 22nd Street south of I-235. Verify flood mapping in this area.
- It is believed that Blue Creek theoretically overtops 20th Street south of I-235. Verify flood mapping in this area.
- Take into account approximately 48 approved LOMCs along Fairmeadows Creek. – LOMCs for individual properties are not large enough to be mapped and are classified as superseded or revalidated and delivered to home owners. These LOMC's will be addressed on the Summary of Map Actions (SOMA) please find the draft SOMA as an enclosure.
- Determine accuracy of flood mapped area in Hy-Vee parking lot north of Railroad Avenue and east of Grand Avenue. – Area reviewed and determined accurate. This area of Fairmeadows Creek was leveraged from IFC as a digital conversion.
- Determine accuracy of flood mapped area southeast of Railroad Avenue and Grand Avenue intersection in Western Village. - Area reviewed and determined accurate. There is visible drainage in the Ag fields with a culvert under Fuller Rd. The entire area was previously mapped as a ZONE A.
- Determine accuracy of flood mapped area south of Lincoln Street and east of South 16th Street. – Area will be revised. Two areas not hydraulically connected will be removed in the Preliminary Maps.

Panel 0304 (Map No. 19153C0304F)

- Examine flood limits southwest of railroad north of levee near 8th Street and Office Park Road. – Area reviewed and determined accurate. This area was restudied, hydrology and hydraulics produced from new LiDAR. Please clarify specific floodplain area in question.
- Zone X from approximately Grand Avenue to the north is substantially different than 2006 flood mapping and may need to be revisited. – This Zone X is based on updated LiDAR data.

Panel 0315 (Map No. 19153C0315F)

- The City of West Des Moines' South Area Lift Station along the '821' water surface elevation near the south edge of the Raccoon River floodway was constructed above the 100-year flood elevation (finished floor ~ 824). – A LOMR would need to be submitted to FEMA to remove an individual structure. Please note a valid LOMR for an individual structure would not be reflected in the mapped floodplain.
- Determine accuracy of flood mapped area east of Grand Avenue near railroad. The newest facility for Chow's Gymnastics within this area was theoretically constructed above the 100-year flood elevation. – Floodplain delineation based on 2010 LiDAR provided by IDNR. A LOMR would need to be submitted to FEMA to remove an individual structure. Please note a valid LOMR for an individual structure would not be reflected in the mapped floodplain.

April 27, 2015

Jason M. Schlickbernd, P.E.
Principal Engineer
City of West Des Moines
4200 Mills Civic Parkway, Suite 2D
PO Box 65320
West Des Moines, IA 50265-0320

Mr. Schlickbernd,

My name is Dennis Deerr and when we purchased our home in November 1994 from D. Allen and Linda Blazicek, we were informed by them and the City, that an agreement had been made regarding sewer hookup for our home at 6225 Brookview Drive, then 6121 Sue Avenue.

Permission was asked by the City of West Des Moines to put the sewer line and manhole cover partially on our legal property. In return, it was promised that should we need to, we would be allowed to hook into that existing sewer line with no connection fee.

The Blaziceks are willing to testify to this fact, and we are consulting an attorney regarding this. This may mean you need to recalculate the amount you are charging others in the connection fee district, so we needed to make you aware of this prior to the public hearing.

You can contact me via email: deerrfamily@msn.com or our home phone at 515-225-6609.

Sincerely,

Dennis Deerr
6225 Brookview Dr.
West Des Moines, IA 50266


BRADFORD DR
65TH ST
ASHWORTH RD
63RD ST
Barnes Heights Plat 1
Barnes Heights Plat 2
66TH ST
Wrenwood Plat 1
COLT DR
60TH ST
BROOKVIEW DR
55TH ST
Enclave of Ashworth Plat 1
ASPEN DR
62ND ST
Pemberley Hills Plat 1 & 2
ACADIA DR
Barnes Heights Sanitary Sewer Connection Fee District
Vicinity Map
August 26, 2014
THE CITY OF WEST DES MOINES
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0 50 100 200 300 400 Feet

VEENSTRA & KIMM, INC.
3000 Westown Parkway • West Des Moines, Iowa 50266-1320
515-225-8000 • 515-225-7848(FAX) • 800-241-8000(WATS)

May 22, 2015

Jason
File

Duane Wittstock
City of West Des Moines
Public Services Dept./Engineering
4200 Mills Civic Parkway
P.O. Box 65320
West Des Moines, Iowa 50265

WEST DES MOINES, IOWA
DIXIE ACRES SANITARY SEWER
CONNECTION FEE DISTRICT
EVALUATION OF ALTERNATIVES

This letter is to present the results of the evaluation of alternatives to provide sanitary sewer service to the Dixie Acres area. Enclosed is Figure 1 showing the proposed boundary of a Dixie Acres Connection Fee District. The district encompasses eight residential lots located on 54th Street north of Ashworth Road.

Figure 1 shows the location of the existing onsite treatment systems. For seven of the eight lots the onsite treatment system is located in the rear yard area. For the one lot located on the east side of 54th Street the onsite treatment system is located in the front yard adjacent to the right-of-way of 54th Street.

Figure 1 shows three wells in the Dixie Acres area. The location of the wells may impact some of the alternatives for sewer service. The Iowa Department of Natural Resources requires a separation distance of 50 feet between a sanitary sewer and a private well. Sewers may be constructed within 25 feet of a private well if the sanitary sewer is constructed using water main materials.

For the sanitary sewer and low pressure sewer alternatives located along the street right-of-way the separation distance between wells and the new sewer will not be a factor in the design or construction. For the alternatives that locate sewers along the rear lot line the location of the wells will be a factor in the design that might require abandonment of a well if the minimum 25-foot separation distance cannot be achieved.

4A

The alternatives considered included alignments located along the street right-of-way and alignments in the rear yard area. The street alignments are preferable to the City from the perspective of maintenance. The City can easily perform maintenance from the street right-of-way. Alignments in the rear yard area are more challenging for access for maintenance. One of the requirements of the City is to have access to the sewer for future maintenance. This requirement means the area of the permanent easement for sewers located in the rear yard area must be kept free of obstructions.

For any sanitary sewer project the City must have an easement where the sewer is located in street right-of-way. For the gravity sewer alternatives the City of West Des Moines policy is to have a 30-foot wide permanent easement centered on the sanitary sewer. For the alignments located adjacent to street right-of-way a portion of this permanent easement area can fall within the street right-of-way. In that instance, the only permanent easement required is for the portion of the 30-foot strip located outside of the right-of-way.

For a low pressure sewer located in the street right-of-way the City generally does not acquire any permanent easement. For a low pressure sewer located in a rear and side yard areas, the City will require a 30-foot wide permanent easement. The permanent easement is necessary for the City to have future access to the low pressure sewer for maintenance activities.

For any of the sewer projects, the City will need to acquire temporary easements to allow for construction of the project. The width of the temporary easement will vary with the type and location of the sewer.

For connection fee district projects the City will compensate the property owners for the cost of the easements. The City will include the cost of easement acquisition in the project cost for purposes of determining the connection fee.

For estimating the need for easements for the alternatives for the Dixie Acres Sanitary Sewer Connection Fee District the used the general policy regarding easements widths. The permanent easement costs were based on the assumed value of $1.00 per square foot. This value is based on the assumption the underlying property value is $2.00 per square foot and the City compensates property owner at a rate of 50% of the land value.

For the temporary easements the normal compensation is 10% of the land value per year. For a short duration project, such as Dixie Acres the City will acquire an easement based on 10% of the property value, or $0.20 per square foot.

4A

The City of West Des Moines currently has sanitary sewer located on the north side of Ashworth Road one-half block west of 54th Street and on 54th Street south of Woodland Avenue. The ground slope along 54th Street is gradually southwesterly. Although there are two outlet nearby sanitary sewers the only sanitary sewer that would be deep enough for gravity sewer service is the manhole on Ashworth Road at the southwest corner of Dixie Acres.

For the low pressure sewer alternatives the outlet could be to the manhole on Ashworth Road or the manhole on 54th Street. For the pressure sewer alternative the total length of sewer is shorter with a design extending north to the manhole on 54th Street.

Historically, the City of West Des Moines has evaluated gravity sewer alternatives to provide sewer service to unsewered areas, such as Dixie Acres. Since 2012 the City of West Des Moines has considered the use of low pressure sewer in areas that could be served by gravity sewer. The City of West Des Moines has considered low pressure sewers as a means of reducing the impact of construction and achieving an overall cost savings.

For the gravity sewer alternative the City constructs the public sanitary sewer and sewer service stubs to the individual lot lines. It is the responsibility of the property owner to construct the sanitary sewer service from the property line to connect to their onsite sewer service.

When the City first considered the low pressure sewer alternative in the Thornwood area the City had already established connection fee districts and the project involved a mix of gravity sewer and low pressure sewer. The cost for the public low pressure sewer is significantly less than the cost for the public gravity sewer. For the Thornwood area the City of West Des Moines decided to include the grinder pump and service line installation as part of the connection fee district improvements. The inclusion of the grinder pumps provided a benefit to the property owners.

The City of West Des Moines continued the same approach on the recently constructed Ashworth Road low pressure sewer system. However, one of the major issues with the approach of including the grinder pumps is how to address property owners that do not connect as part of the original construction. The City is not in a position to install grinder pumps after the original project construction. The practice of including the grinder pumps results in an apples to oranges comparison of costs as the gravity sewer alternative does not include the service line and the low pressure sewer includes the grinder pump and service line. A comparison of the cost of the gravity sewer and low pressure sewer alternatives has been somewhat misleading as it does not include the cost of the sewer service under the gravity sewer alternative.

4A

On future projects the City of West Des Moines has determined the preferred approach would be to limit the City's connection fee district improvements to the public improvements for the gravity sewer alternative and the low pressure sewer alternative. In doing so, the City will provide an estimate of the overall cost for property owners when they factor in the cost for a sewer service or onsite grinder pump and low pressure sewer service line. This approach provides a better cost comparison of the alternatives.

A comparison of the overall costs of alternatives is necessary because the gravity sewer alternative has a higher cost for the public improvements and lower cost for the private improvements. The low pressure sewer alternative has a lower cost for the public improvements and a higher cost for the private improvements.

With a traditional gravity sewer system an 8-inch diameter gravity sewer is constructed to provide sewer service to all of the properties. The gravity sewer is typically constructed at a depth between 8 feet and 12 feet to allow each property owner to construct a sewer service to the public gravity sewer. The public gravity sewers must be laid on a grade always sloping downhill. The sewer must be constructed on straight lines between manholes.

For the gravity sewer alternative the City will extend sewer service stubs to the property line when the sewer is constructed in the street right-of-way. When the sewer is constructed in an easement area a short sewer stubs will be installed for each residence.

For the gravity sewer alternative the individual property owners are responsible for the abandonment of their onsite treatment systems and the construction of the sewer service line extending from the public sewer to connect to their individual sewer service.

The estimate of cost for the connection fee improvements in the gravity sewer alternative includes the public sewer system and sewer service lines to the property line. Individual property owners will incur the cost to extend the sewer service at the time they connect to the public sewer system.

With a low pressure sewer system the sewer constructed and owned by the City consists of a small diameter pressure sewer. The sewer is generally 2 inches in diameter and laid at a depth of at least 5 feet to provide protection against freezing during the winter months.

4A

It is not necessary for the low pressure sewer to be laid on a uniform slope. The low pressure sewer can follow the lay of the land. The low pressure sewer is not required to be laid on a straight grade and curves can be used in the pipe alignment.

The low pressure sewer can be constructed sloping downward or sloping upward. For most low pressure sewer systems there are operational advantages to sloping the sewer upward toward its outlet. For the Dixie Acres extending the sewer north on 54th Street shortens the length of the sewer and slightly improves the operational characteristics of the system by sloping the sewer upward to the outlet.

For the low pressure sewer alternative each property owner must install a grinder pump. The grinder pump consists of a below grade tank with a volume of about 150 gallons. Located within each system is a pump designed to force the wastewater through a small 1-1/4-inch diameter service line. The service line extends to the public low pressure sewer.

The grinder pump operates on a fill and pump cycle in which the tank first fills. Once the water level reaches its maximum the pump automatically turns on to pump down the tank. With a low pressure sewer system each property owner must provide an electric service to operate the grinder pump. The electric service is a dedicated 220 volt single phase four wire electric service.

The low pressure sewer system with grinder pumps is a mechanical pumping system to convey the wastewater to the public sewer system. This system differs from the gravity sewer that requires no mechanical assistance as the wastewater flows by gravity.

There are generally two advantages to the low pressure sewer system. One advantage is the low pressure sewer system is often less costly to construct. This lower cost is reflected as a comparison of the total cost as well as a comparison of the connection fee established to fund the public improvements.

Second, the installation of the low pressure sewer system is much less disruptive to the area. For a low pressure system the 2-inch public sewer is bored in place. The work can be done with minimal impact on streets, sidewalks, yards and landscaping.

The low pressure sewer system is less disruptive for the private improvements consisting of the grinder pump and service line. The grinder pump generally requires only a small excavation adjacent to the existing onsite treatment system. The low pressure sewer service line is typically bored in place to minimize disruption.

4A

For the gravity sewer alternative the public sewer and the service lines must be constructed in open excavations. For the public sewer the corridor necessary to install the sewer is typically at least 40 feet in width. For the sewer service line, the plumber installing the service will often require a corridor of 15 feet to 20 feet in width. The width of the disruption will depend on the depth of the sewer service.

The primary disadvantage of the low pressure sewer alternative is the grinder pump is a mechanical system. As a mechanical system the system will not operate in the event of a power failure. As a mechanical system there is a risk of a mechanical failure.

The grinder pumps are equipped with a 150 gallon tank designed to provide storage volume for water use during a power failure. However, during a power failure the only capacity available is the volume available in the tank between the water level at the time of power failure and the full tank volume. In the event of a power failure it is necessary to significantly reduce water usage to avoid over filling the tank.

A grinder pump system can experience mechanical failures. The grinder pumps are reliable, typically experiencing a relatively low failure rate of less than 1% per year during the first 10 to 15 years of operation. While the grinder pump systems are very reliable there is no guarantee the system would not experience a mechanical failure.
For the Dixie Acres area a total of five alternatives were identified. These alternatives include two gravity sewer alternatives, two low pressure sewer alternatives and one alternative that utilizes a combination of gravity sewer and low pressure sewer.

The five alternatives evaluated are as follows:

- Alternative 1: Gravity sewer along 54th Street
- Alternative 2: Gravity sewer in rear yard area
- Alternative 3: Low pressure sewer along 54th Street
- Alternative 4: Low pressure sewer in rear yard area
- Alternative 5: Combination of gravity sewer and low pressure sewer

A description of the alternatives and the estimated cost for the alternatives are as follows:

Alternative 1: Gravity Sewer along 54th Street

Under this alternative a gravity sewer would be constructed along the north side of Ashworth Road extending from the existing sanitary sewer east approximately 200 feet to the northwest corner of the intersection of Ashworth Road and 54th Street. The gravity sewer would continue north and would extend a distance of approximately 420 feet to the north set of lots.

4A

The anticipated location of the gravity sewer is on the west side of 54th Street. The existing water main is on the east side of 54th Street the required separation distance between sanitary sewer and water main would make it difficult to install both the water main and sanitary sewer on the east side of 54th Street.

The expected alignment for the gravity sewer would be near the existing sidewalk line. With this alignment most of the 54th Street pavement should not be disrupted by construction. The construction corridor would extend from the west curb line of 54th Street westerly approximately 40 feet. The City would need to acquire easements from the property owners on the west side of 54th Street to accommodate the location of the sewer.

Sewer service lines would be extended to each of the property lines. For the properties on the east side of 54th Street a sewer service line would be extended in open cut across 54th Street. The service line installations would require closure of 54th Street along with some pavement replacement.

The project would include replacement of the pavement as well as the sidewalk and the driveways that would be crossed by construction. The area disturbed would be sodded at the end of the project.

Alternative 1 involves approximately 620 feet of sanitary sewer. Of the two gravity sewer alternatives this alternative has the lower cost for the public improvements. However, the onsite treatment systems for seven of the eight lots are located in the rear yard area. This alternative would require a longer service line for these seven residences.

The improvements in Alternative 1 are shown on Figure 2.

4A

The estimated cost for the public improvements in Alternative 1 is as follows:

Description	Units	Estimated Quantity	Unit Price	Extended Price
8" Sanitary Sewer	LF	620	$95	$58,900
Manholes	EA	1	$4,500	$9,000
Connection to System	EA	1	$2,500	$2,500
Service Wye	EA	8	$300	$2,400
Sewer Service	LF	300	$60	$18,000
9" PCC Pavement	SY	250	$60	$15,000
Driveway	SY	220	$50	$11,000
PCC Sidewalk	SY	470	$35	$16,450
Sodding	SQ	500	$45	$22,500
Erosion Control	LS	1	$15,000	$15,000
Staking	LS	1	$5,000	$5,000
Traffic Control	LS	1	$6,000	$6,000
			Construction Subtotal	$181,750
			Contingency @ 10%	$18,175
			Construction Engineering	$13,500
			Permanent Easement 13,500 SF @ $1.00/SF	$13,500
			Temporary Easement 13,500 SF @ $0.20	$2,700
			Estimated Project Cost	$229,906
				$230,000 (Rounded)

Alternative 2: Gravity Sewer in Rear Yard Area.

Under this alternative two gravity sewers would be constructed. The gravity sewers would be located in the rear yard areas on both the east side and west side of 54th Street. The project would include a sewer east on Ashworth Road from the existing sanitary sewer to the rear yard area on the east side of 54th Street. This alternative would include gravity sewer that would extend north along the rear yard of both sides of 54th Street.

This construction corridor would require less extensive replacement of street and driveway as it would involve only one driveway crossing and one street crossing. The disruption to the rear yard areas would be more significant as a 40-foot to 50-foot wide corridor along the rear lot line would be disrupted for the construction. Trees and vegetation in the 40-foot to 50-foot wide construction corridor would be removed. There are also some backyard amenities that would be in conflict with the sewer construction would need to be moved to accommodate the sewer construction.

The sewers under this alternative are close to the wells in the neighborhood. Special construction procedures would be required to meet the requirements of the Iowa Department of Natural Resources as it relates to the separation of the wells and sanitary sewers.

4A

This alternative locates the sewer much closer to the onsite treatment systems for seven of the eight properties. This alternative would reduce the cost for these seven property owners to extend their service line from the public sewer to connect to their onsite treatment system.

One of the challenges with Alternative 2 is the location of the onsite treatment systems. On some of the properties the gravity sewer may be so close to the onsite system it may adversely impact its performance. If the onsite treatment system is compromised by the construction of the sewer there is a possibility some property owners may be required to connect to the sewer, even though the City's general policy does not require connection.

Alternative 2 is shown on Figure 3.

The estimated cost for the public sewer in Alternative 2 is as follows:

Description	Units	Estimated Quantity	Unit Price	Extended Price
8" Sanitary Sewer	LF	1,280	$95	$121,600
Manholes	EA	4	$4,500	$18,000
Connection to System	EA	1	$2,500	$2,500
Service Wye	EA	8	$300	$2,400
Sewer Service	LF	80	$60	$4,800
9" PCC Pavement	SY	70	$60	$4,200
Driveway	SY	45	$50	$2,250
PCC Sidewalk	SY	200	$35	$7,000
Sodding	SQ	750	$45	$33,750
Erosion Control	LS	1	$15,000	$15,000
Staking	LS	1	$5,000	$5,000
Traffic Control	LS	1	$6,000	$6,000
			Construction Subtotal	$222,500
			Contingency @ 10%	$22,250
			Construction Engineering	$16,500
			Permanent Easement 30,000 SF @ $1.00/SF	$30,000
			Temporary Easements 30,000 SF @ $0.20/SF	$6,000
			Estimated Project Cost	$297,250
				$298,000 (Rounded)

Alternative 3: Low Pressure sewer along 54th Street

Under Alternative 3 the City would construct a low pressure sewer along 54th Street. The low pressure sewer would start at the existing manhole on 54th Street one lot south of Woodland Avenue. The low pressure sewer would extend south a distance of approximately 450 feet to serve the southerly pair of lots.

4A

Under this alternative the City would construct the low pressure sewer that would be bored in place. The City would construction 1-1/4-inch service lines and service line valves for the eight properties. The service lines would extend to the property line on both sides of 54th Street. The service lines would be bored in place on 54th Street.

With the exception of a small excavation to connect to the manhole on 54th Street there would be no disruption to the street, sidewalk or driveway under this alternative. The contractor will a number of small excavations to install the low pressure sewer service connections and valves. These areas would be restored and sodded.

It is recognized there is an alternative to locate the low pressure sewer along an alignment that would extend south of 54th Street and west on Ashworth Road to the existing manhole. This alternative involves approximately 300 feet of additional low pressure sewer. Constructing the sewer to the Ashworth Road manhole would result in the sewer sloping downhill. While the low pressure sewer will operate with a downward slope it is less advantageous than a sewer that would slope slightly upward. Because there are no identified advantages to the low pressure sewer alternative connecting to the manhole on Ashworth Road that concept was not developed as a separate alternative.

Alternative 3 is shown in Figure 4.

The estimated cost for the public sewer in Alternative 3 is as follows:

Description	Units	Estimated Quantity	Unit Price	Extended Price	
2" Low Pressure Sewer	LF	450	$25	$11,250	
Connection to Existing System	EA	1	$1,500	$1,500	
1-1/4" Service Line	LF	300	$25	$7,500	
Service Line Valve	EA	8	$500	$4,000	
Service Line Check Valve	EA	8	$500	$4,000	
End of Line Cleanout	EA	2	$3,000	$6,000	
Spot Sodding	EA	16	$1,200	$19,200	
Erosion Control	LS	1	$1,000	$1,000	
Staking	LS	1	$500	$500	
Traffic Control	LS	1	$2,000	$2,000	
			Estimated Construction Cost	$56,950	
			Contingency @ 10%	$5,695	
			Engineering Design	$4,991	
			Construction Engineering	$4,159	
			Easements	$0	
			Estimated Project Cost	$71,795	
				$72,000	(Rounded)

4A

Alternative 4: Low Pressure Sewer in Rear Yard Area

Under this alternative the low sewer system would involve a low pressure sewer in the rear yard areas on both the east side and west side of 54th Street. The low pressure sewer would start at the manhole of 54th Street south of Woodland Avenue and continue southerly to the south line of the north pair of lots in Dixie Acres. From that point on low pressure sewer would extend westerly to the rear lot line and continue south to serve the three lots on the west side of 54th Street. A similar sewer would be constructed on the east side of 54th Street. The project would include the installation of sewer service stubs and valves to each of the eight properties.

The low pressure sewer under this alternative would be directly bored in place. The City would need to acquire easements for the rear yard construction. Unlike the gravity sewer alternative installation of the low pressure sewer in the rear yard area would not involve the loss of trees and vegetation. The design could work around the existing rear yard features, including sheds.

The location of two of the three wells in the neighborhood would require special construction procedures to satisfy the Iowa Department of Natural Resources requirements for separation of wells and pressure type sanitary sewers.

Alternative 4 involves a significantly longer length of low pressure sewer than Alternative 3. This alternative reduces the length of service line required for seven of the eight properties as it is closer to the onsite treatment system located in the rear yard area.

Alternative 4 is shown on Figure 5.

4A

The estimated cost for the public sewer Alternative 4 is as follows:

Description	Units	Estimated Quantity	Unit Price	Extended Price
2" Low Pressure Sewer	LF	1,080	$25	$27,000
Connection to System	EA	1	$1,500	$1,500
1-1/4" Service Line	LF	80	$25	$2,000
Service Line Valve	EA	8	$500	$4,000
Service Line Check Valve	EA	8	$500	$4,000
End of Line Cleanout	EA	2	$3,000	$6,000
Spot Sodding	EA	16	$1,200	$19,200
Erosion Control	LS	1	$1,000	$1,000
Staking	LS	1	$500	$500
Traffic Control	LS	1	$2,000	$2,000
			Estimated Construction Cost	$67,200
			Contingency @ 10%	$6,720
			Engineering Design	$5,913
			Construction Engineering	$4,928
			Permanent Easement 18,000 SF @ $1.00/SF	$18,000
			Estimated Project Cost	$102,761
				$103,000 (Rounded)

Alternative 5: Combination of Gravity and Low Pressure

Alternative 5 involves a combination of gravity sewer and low pressure sewer. Under Alternative 5 a gravity sewer would constructed along Ashworth Road extending east from the existing manhole to the west side of 54th Street. The gravity sewer would than extend north a distance of approximately 150 feet along the west side of 54th Street. The gravity sewer would extend north far enough to allow the two residences on Ashworth Road to have gravity sewer connections to the gravity sewer.

This alternative includes the installation of approximately 250 feet of low pressure sewer that would extend north on the west side of 54th Street to serve the north six lots.

The construction procedure for the gravity sewer portion of Alternative 5 would be identical to the construction of the gravity sewer under Alternative 1. The construction of the low pressure sewer under Alternative 5 would be identical to the construction of the low pressure sewer under Alternative 3.

4A

Alternative 5 was developed to determine if it could be cost effective to serve the residences closer to the gravity sewer with an extension of the gravity sewer while still achieving a cost savings to the overall project when compared to the gravity sewer alternatives.

Alternative 5 is shown on Figure 6.

The estimated cost for the public sewer in Alternative 5 is as follows:

Description	Units	Estimated Quantity	Unit Price	Extended Price
8" Sanitary Sewer	LF	370	$120	$44,400
Manholes	EA	2	$4,500	$9,000
Connection to Existing System	EA	1	$2,500	$2,500
Service Wye	EA	2	$300	$600
Sewer Service	LF	75	$60	$4,500
9" PCC Pavement	SY	60	$60	$3,600
Driveway	SY	60	$50	$3,000
PCC Sidewalk	SY	175	$35	$6,125
Sodding	SQ	180	$45	$8,100
2" Low Pressure Sewer	LF	250	$25	$6,250
1-1/4" Service Line	LF	225	$25	$5,625
Service Line Valve	EA	6	$500	$3,000
Service Line Check Valve	EA	6	$500	$3,000
End of Line Cleanout	EA	1	$3,000	$3,000
Spot Sodding	EA	6	$1,200	$7,200
Erosion Control	LS	1	$7,500	$7,500
Staking	LS	1	$4,000	$4,000
Traffic Control	LS	1	$4,000	$4,000
			Construction Subtotal	$125,400
			Contingency @ 10%	$12,540
			Engineering Design	$11,304
			Construction Engineering	$9,420
			Permanent Easement 8,000 SF @ $1.00/SF	$8,000
			Temporary Easement 8,000 SF @ $0.20/SF	$1,600
			Estimated Project Cost	$168,264
				$169,00 (Rounded)

One of the challenges with Alternative 5 is the mix of gravity sewer and low pressure sewer. The cost for the public improvements for a gravity sewer and the public improvements for a low pressure sewer are significantly different. For a combination alternative, such as Alternative 5, there are challenges in determining how to allocate the cost due to the significant difference between the public and private improvements for a gravity sewer and for a low pressure sewer.

A summary of the estimated cost for the five alternatives is as follows:

Alternative	Project Cost	Cost per Property
1	$230,000	$28,750
2	$298,000	$37,250
3	$72,000	$9,000
4	$103,000	$12,875
5	$169,000	$21,125

The cost for the public sewer does not include the cost for the private improvements. For the gravity sewer alternative the private improvement costs includes constructing the sewer service line. The cost for constructing a sewer service line will vary from property to property depending on the depth of the service, the length of the service and the physical features along the corridor of the service.

For the alternatives of a gravity sewer along 54th Street (Alternative 1 and 5) the length of the sewer service line to the seven lots with a rear yard onsite treatment system is approximately 130 feet. On previous projects the City has been given information indicating the cost for the sewer service is typically in the range of $40 per foot.

Using this average per foot cost a budgetary estimate of the average cost for the sewer service for the gravity sewer in Alternative 1 and Alternative 5 would be $6,000. It is recognized this is a budgetary number and the actual cost will vary for each lot. For example, the one resident with a front yard service will have a significantly lower cost.

For the rear yard gravity sewer under Alternative 2 the average length of the sewer service appears to be approximately 80 feet. For Alternative 2 the estimated average cost for the sewer service would be in the range of $3,200.

For the low pressure sewer alternatives the property owner's responsibility includes the grinder pump and the sewer service line. Based on the recent project on Ashworth Road the average cost for a grinder pump installed is estimated to be $12,500. The cost for a sewer service line directionally bored in place with the low pressure sewer alternative is approximately $20 per foot.

For the low pressure sewer alternatives each property owner must provide a dedicated 220 volt electric service. The cost for the electric service varies for each residence depending on the location of the grinder pump in relationship to the electric service and the capacity of their electrical system. Based on previous projects the estimated cost for an electric service is approximately $500. This cost is considered part of the estimated cost for the onsite improvements.

For Alternative 3 and Alternative 5 the properties with a low pressure sewer and grinder pump would incur the cost for a grinder pump and approximately 130 feet of service, or a cost of approximately $15,600. For Alternative 4 with the rear yard location of the low pressure sewer the average service length would be 80 feet. The combined cost for the grinder pump and service line would be $14,600.

The following table shows an approximate comparison of the overall cost of the alternatives, including both the public improvements and the estimated cost for the private onsite improvements.

Alternative	Public Improvements	On Site Improvements	Total
1	$28,750	$6,000	$34,750
2	$37,250	$3,200	$40,450
3	$9,000	$15,600	$24,600
4	$12,875	$14,600	$27,475
5 - Gravity Sewer	$21,125	$6,000	$27,125
5 - Low Pressure Sewer	$21,125	$15,400	$36,725

The general practice of the City providing sewer service to existing unsewered neighborhoods is to establish a connection fee district to fund the public improvements. The connection fee is established to spread the estimated cost for the public improvements over the number of properties that could potentially be served by the sewer. For the Dixie Acres area the connection fee would be the cost of the public improvements under each of the alternatives.

The historic methodology of spreading the cost uniformly to all of the properties would be the procedure for Alternative 1, Alternative 2, Alternative 3 and Alternative 4.

The City has not previously addressed how to allocate the cost for a combination alternative, such as Alternative 5. The illustration set forth above assumes the overall cost for the public improvements would be divided uniformly between the eight lots. This allocation procedure significantly increases the cost to the six lots with low pressure sewer as they experience a much higher cost for the grinder pump and service line compared to the cost for a traditional gravity sewer service that would be available to the two lots adjoining Ashworth Road.

4A

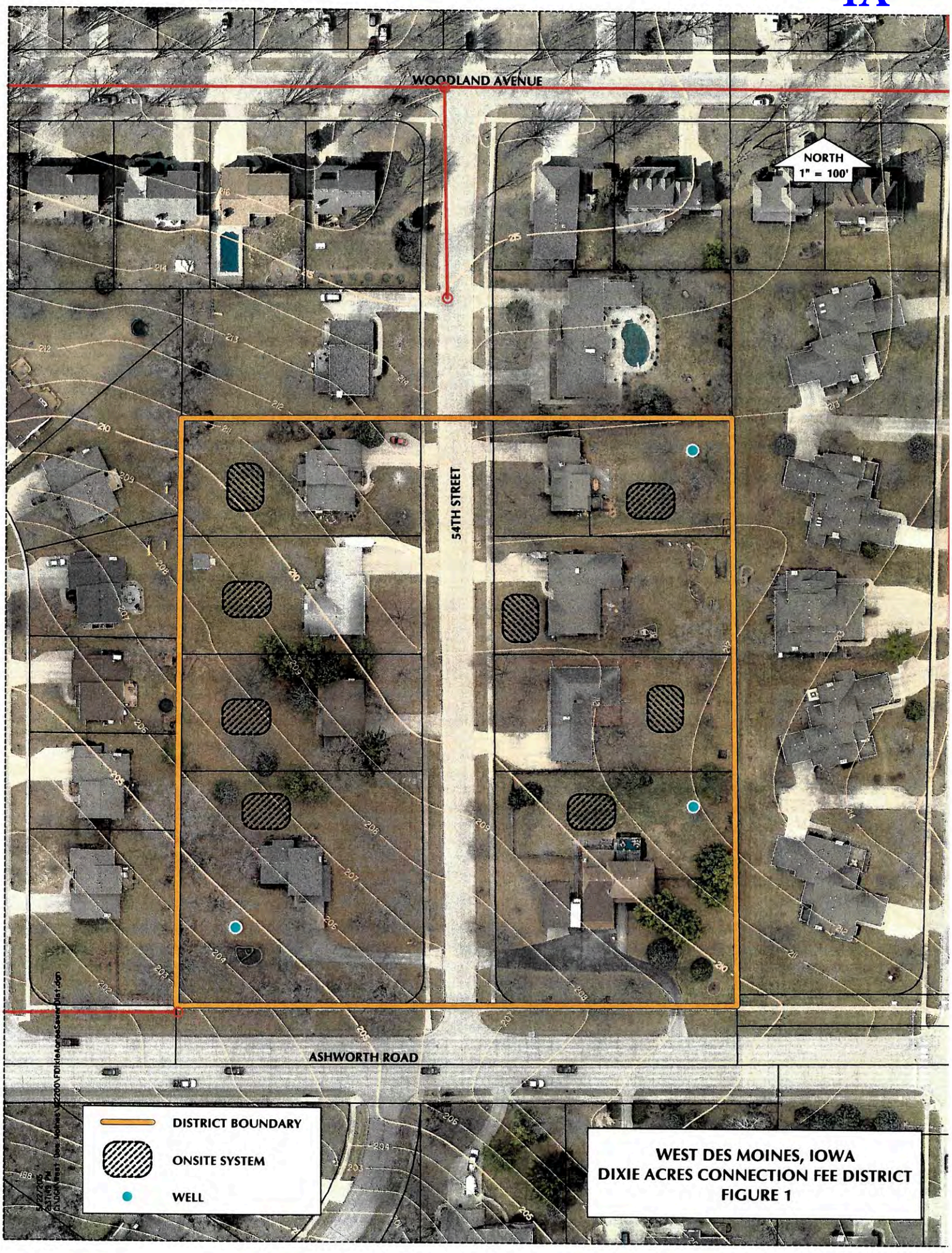
The City previously discussed the possibility of a tiered application of the connection fee in a mixed gravity and low pressure sewer system to achieve a more equitable overall cost between the gravity sewer service area and low pressure sewer service area. However, there have been no instances where the combination alternative appeared to be sufficiently viable to require the City to determine if it would consider a tiered connection fee. If the Dixie Acres area has an interest in Alternative 5 it would appear appropriate to consider the alternatives for a tiered application of the connection fee to achieve a more equitable overall cost between the gravity sewer and low pressure sewer parcels within the neighborhood.

If you have any questions or comments concerning the project, please contact the writer at 225-8000.

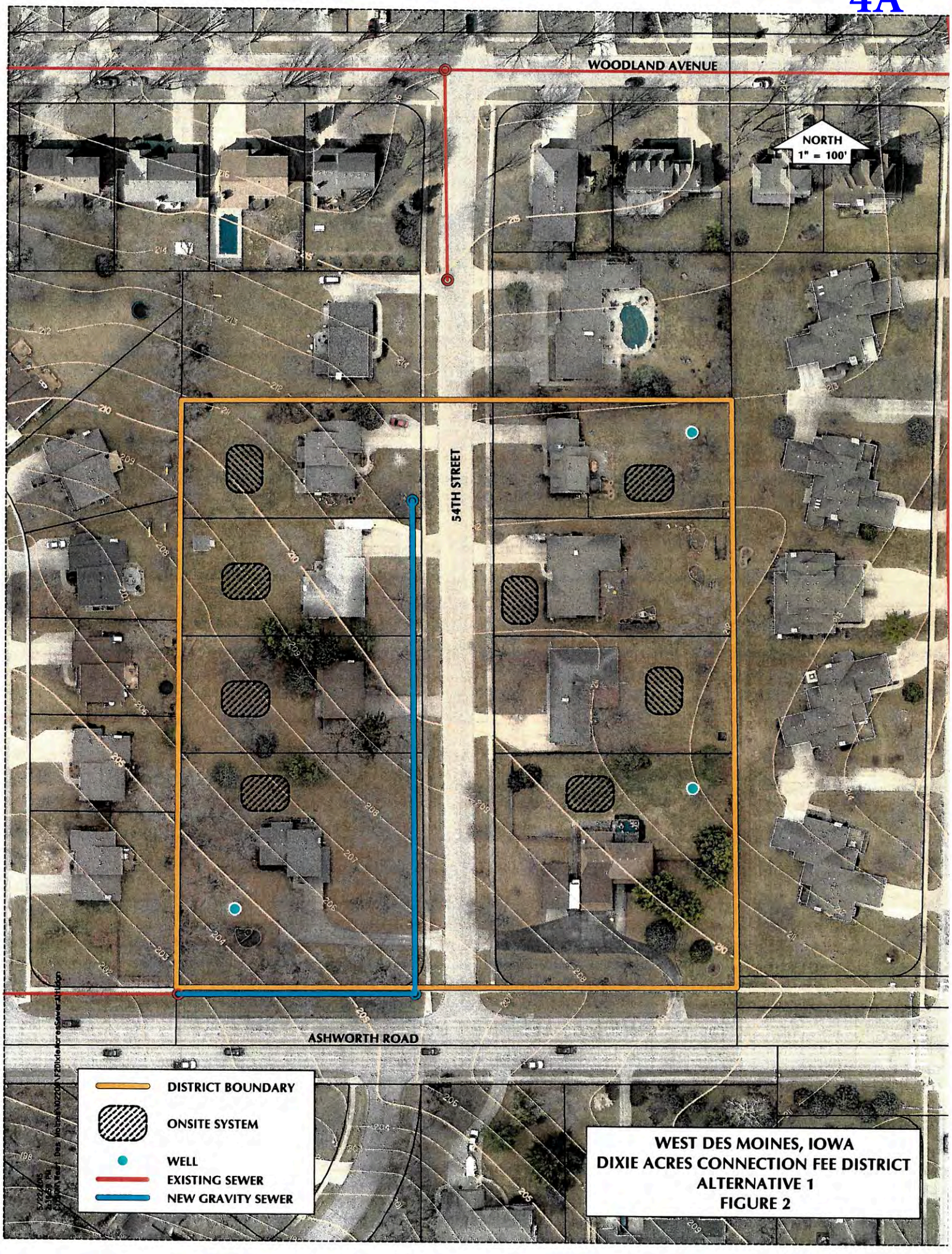
VEENSTRA & KIMM, INC.

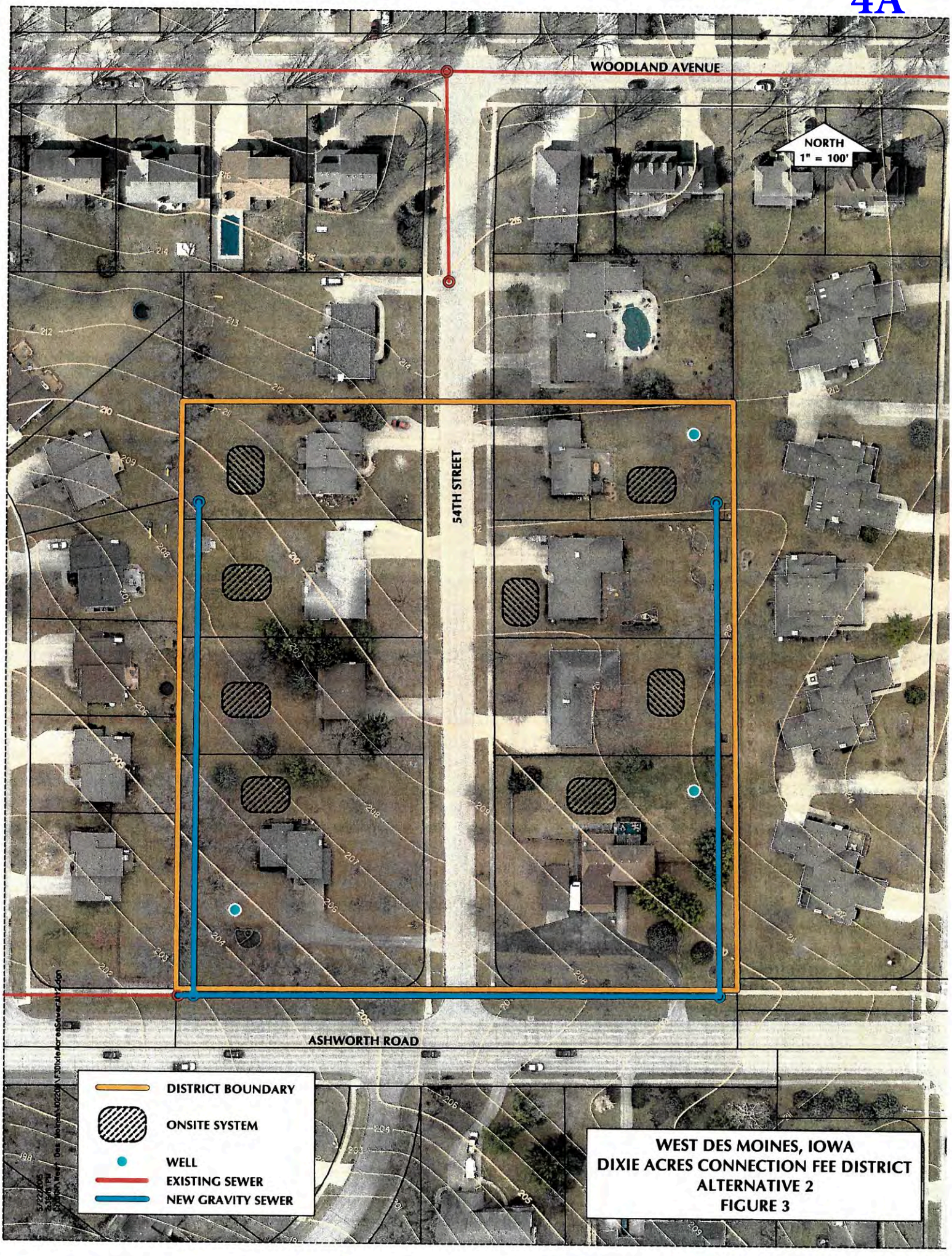
H. R. Veenstra Jr.

HRVJr:pjh
102200
Enclosure

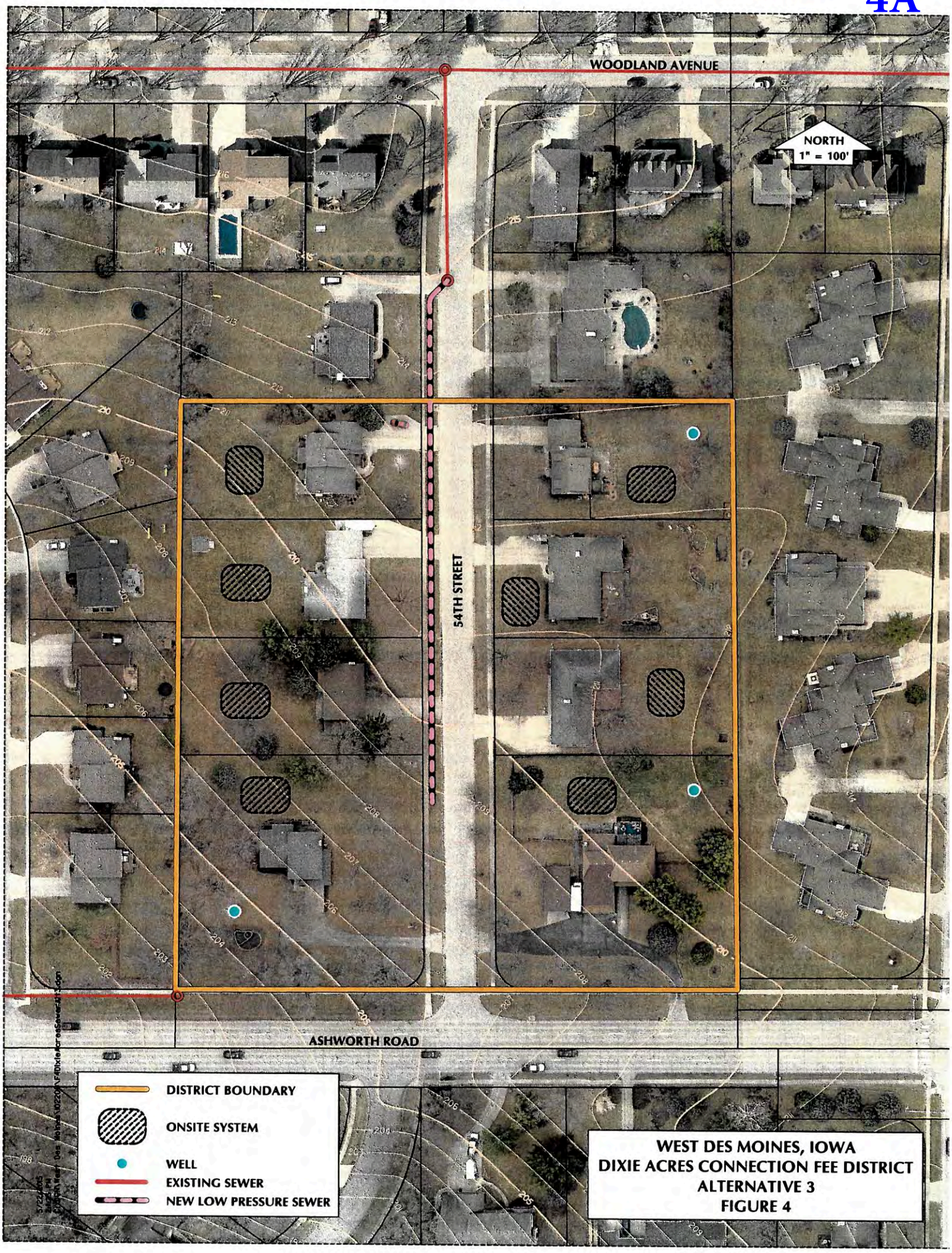

WOODLAND AVENUE
NORTH
1" = 100'
54TH STREET
ASHWORTH ROAD
DISTRICT BOUNDARY
ONSITE SYSTEM
WELL
WEST DES MOINES, IOWA
DIXIE ACRES CONNECTION FEE DISTRICT
FIGURE 1

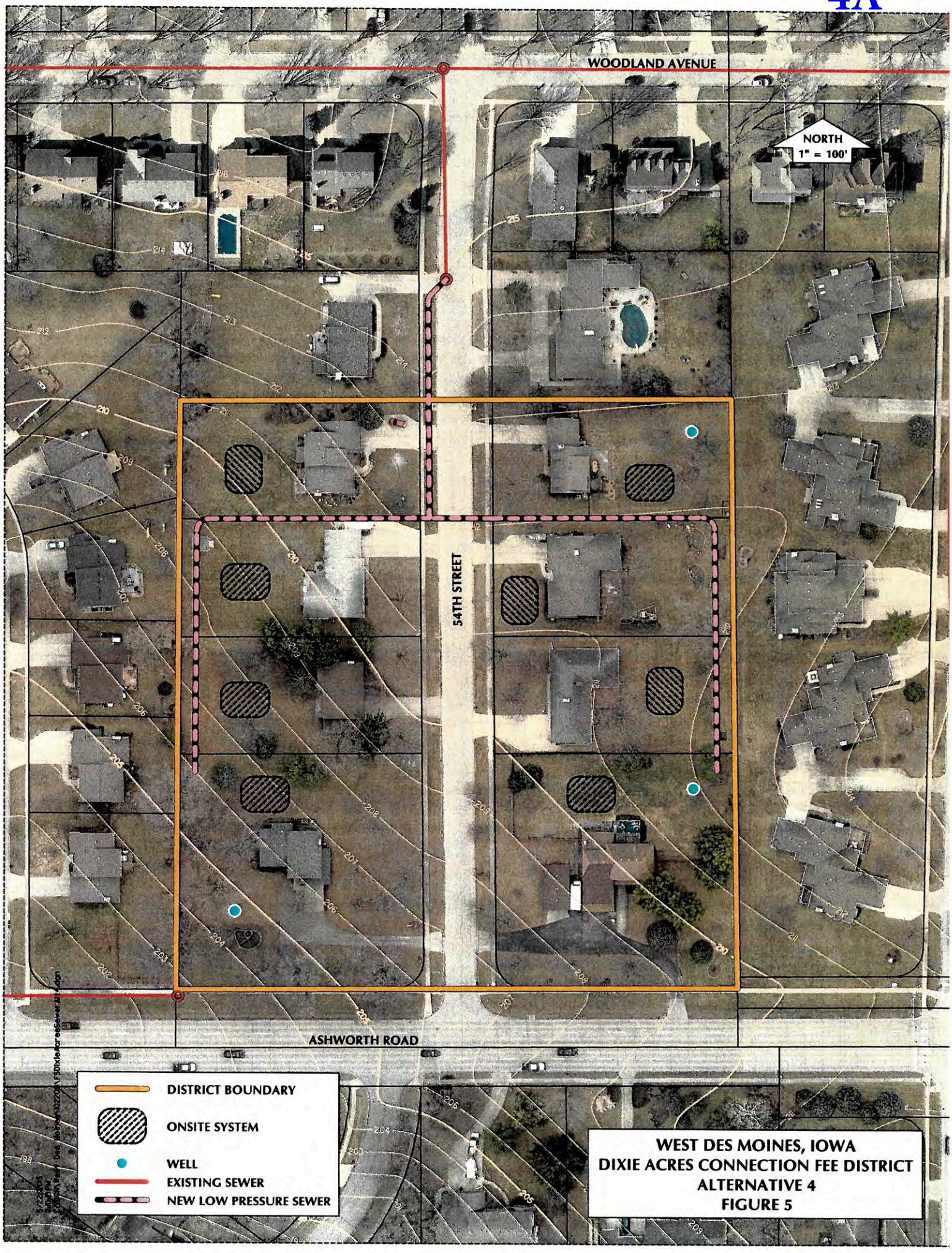
4A

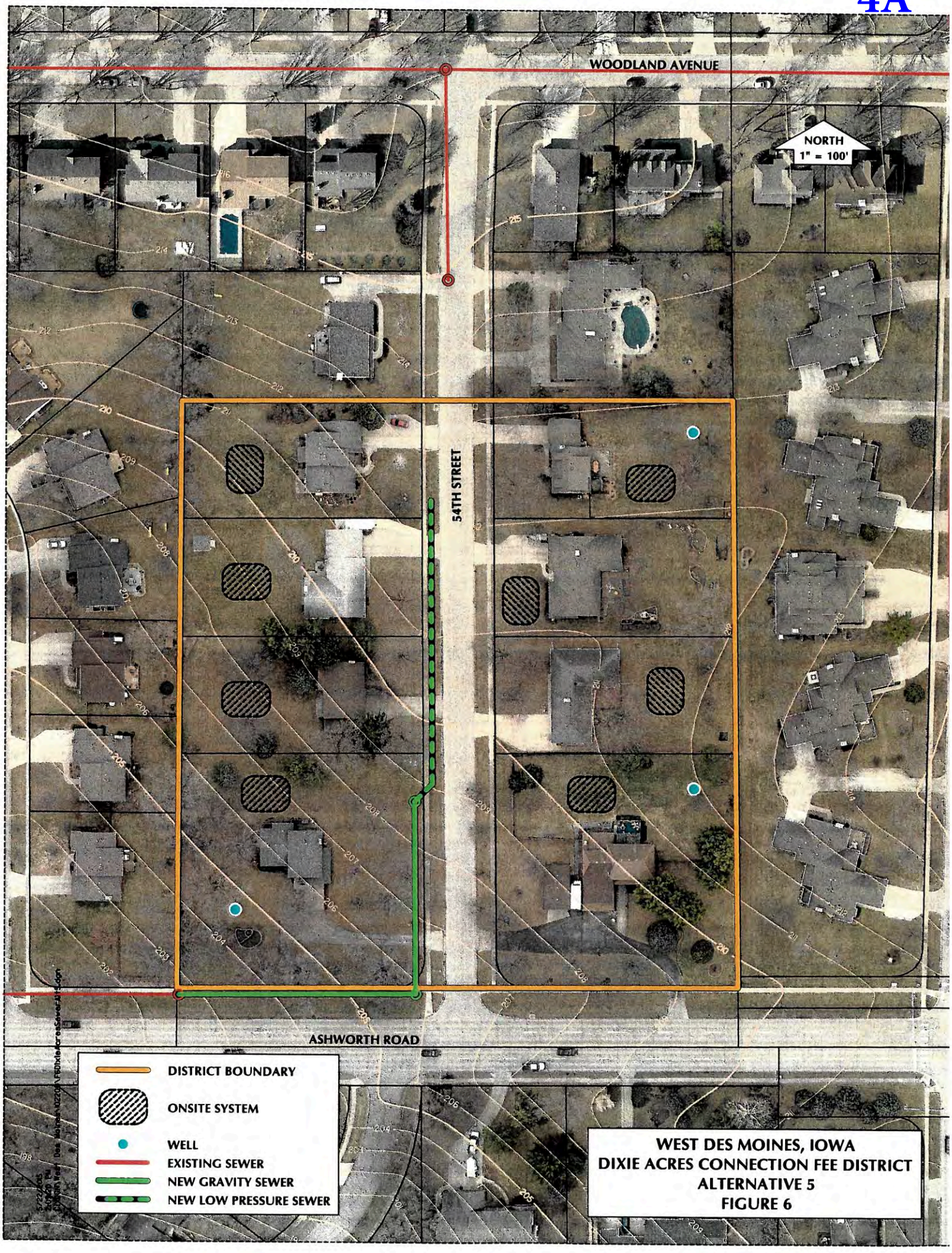

WOODLAND AVENUE
NORTH
1" = 100'
54TH STREET
ASHWORTH ROAD
DISTRICT BOUNDARY
ONSITE SYSTEM
WELL
EXISTING SEWER
NEW GRAVITY SEWER
WEST DES MOINES, IOWA
DIXIE ACRES CONNECTION FEE DISTRICT
ALTERNATIVE 1
FIGURE 2


WOODLAND AVENUE
NORTH
1" = 100'
54TH STREET
ASHWORTH ROAD
DISTRICT BOUNDARY
ONSITE SYSTEM
WELL
EXISTING SEWER
NEW GRAVITY SEWER
WEST DES MOINES, IOWA
DIXIE ACRES CONNECTION FEE DISTRICT
ALTERNATIVE 2
FIGURE 3

4A


WOODLAND AVENUE
NORTH
1" = 100'
54TH STREET
ASHWORTH ROAD
DISTRICT BOUNDARY
ONSITE SYSTEM
WELL
EXISTING SEWER
NEW LOW PRESSURE SEWER
WEST DES MOINES, IOWA
DIXIE ACRES CONNECTION FEE DISTRICT
ALTERNATIVE 3
FIGURE 4


WOODLAND AVENUE
NORTH
1" = 100'
54TH STREET
ASHWORTH ROAD
DISTRICT BOUNDARY
ONSITE SYSTEM
WELL
EXISTING SEWER
NEW LOW PRESSURE SEWER
WEST DES MOINES, IOWA
DIXIE ACRES CONNECTION FEE DISTRICT
ALTERNATIVE 4
FIGURE 5



WEST DES MOINES, IOWA
DIXIE ACRES CONNECTION FEE DISTRICT
ALTERNATIVE 5
FIGURE 6

Pinegar, Kimberly

From: webinfo@wdm-ia.com
Sent: Friday, May 22, 2015 9:55 AM
To: Pinegar, Kimberly
Subject: West Des Moines: Public Works Council Committee Meeting

Public Works Council Committee Meeting
Date: 5/26/2015 11:30 AM - 1:30 PM
Location: West Des Moines City Hall - Training Room
4200 Mills Civic Parkway
West Des Moines, Iowa 50265
Agenda: 05 26 15 PWCC Agenda