



CITY of NOVI CITY COUNCIL

Agenda Item H
June 8, 2015

SUBJECT: Approval of a request from Diversified Members Credit Union for a variance from Section 11-94(b)(3)(1) of the Design and Construction Standards, which requires storm sewers receiving surface runoff to be a minimum diameter of 12 inches, to allow the applicant to install a 6-inch diameter storm sewer in order to make a connection for the outlet and to avoid conflicts with AT&T conduits, for the Diversified Members Credit Union project (parcel 50-22-23-176-033).

SUBMITTING DEPARTMENT: Department of Public Services, Engineering Division *BTC*

CITY MANAGER APPROVAL: *[Signature]*

BACKGROUND INFORMATION:

The Diversified Members Credit Union (DMCU, formerly known as Detroit Metropolitan Credit Union) site is currently under construction on the northeast corner of Novi Road and Main Street. DMCU received City Council approval of the site plan on March 25, 2013 and began construction of the site in early 2015.

During construction, the contractor discovered a conflict between an existing AT&T conduit bank and the proposed storm sewer between the underground detention basin and the outlet to the storm sewer in Novi Road. The developer's engineer worked with Engineering staff to evaluate alternative discharge points, but the planned location is the only feasible outlet. The solution proposed by the applicant is to reduce the diameter of the proposed storm sewer at the conflict point to 6 inches, rather than the 12-inch minimum in the ordinance. The complete request from the applicant is attached.

DPS Field Operations and Engineering staff evaluated the applicant's request according to the conditions set forth in Section 11-10 and recommend approval for the following reasons:

1. The enforcement of the ordinance requirement for a 12-inch storm sewer in this case would result in exceptional, practical difficulty to the applicant since there is no other gravity outlet for the site and moving the AT&T conduit bank would be costly and would delay the project.
2. The proposed 6-inch storm sewer, while not ideal, proves to be adequate based on the hydraulic calculations provided by the developer's engineer, and when combined with a regular maintenance schedule to be set forth in the Storm Drainage Facility Maintenance Easement and Agreement for this project, will not substantially deviate from the performance that would be obtained by strict enforcement of the standards.
3. The applicant's request will not be detrimental to public health, safety or welfare, nor injurious to adjoining property.

RECOMMENDED ACTION: Approval of a request from Diversified Members Credit Union for a variance from Section 11-94(b)(3)(1) of the Design and Construction Standards, which requires storm sewers receiving surface runoff to be a minimum diameter of 12 inches, to allow the applicant to install a 6-inch diameter storm sewer in order to make a connection for the outlet and to avoid conflicts with AT&T conduits for the Diversified Members Credit Union project (parcel 50-22-23-176-033).

	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Casey				
Council Member Markham				

	1	2	Y	N
Council Member Mutch				
Council Member Poupard				
Council Member Wrobel				

Detroit Metropolitan Credit Union JSP12-69

Location



Map Author: Kristen Kapelanski
Date: 03/06/13
Project: Detroit Metro Credit Union JSP12-69
Version #: 1.0

MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent accurate sources available to the people of the City of Novi. Boundaries and measurements are approximate and are not intended to be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 122 of 1970 as amended. Please contact the City GIS Manager to obtain source and accuracy information related to this map.

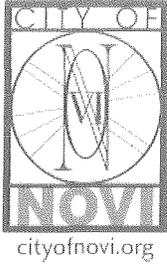


City of Novi

Planning Division
Community Development
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

0 20 40 80 120 160
Feet

1 inch = 109 feet



Request for Variance Design and Construction Standards

Applicant Information

Name: Detroit Metropolitan Credit Union

Address: 1480 East Jefferson
Detroit, MI 48207

Phone No: (313) 568-5000 ext. 220

Engineer Information

Name: Stonefield Engineering & Design

Address: 2350 Franklin Road, Suite 210
Bloomfield Hills, MI 48302

Phone No: 248-247-1115

Applicant Status (please check one):

- Property Owner Developer Developer / Owner Representative
 Other _____

Project Name Detroit Metropolitan Credit Union

Project Address/Location 25880 Novi Road & Main Street (Parcel ID 22-23-176-033)

Variance Request Install a 6-inch HDPE pipe from the on-site manhole to the catch basin in Novi Road.

Justification (attach additional pages if necessary)

During initial site preparation, the contractor performed several exploratory test pits to confirm the feasibility of the proposed utility crossings. At one crossing (from structure D-401 to the existing catch basin in Novi Road) it was discovered that an AT&T conduit bank (eight conduit lines) exists along the length of Novi Road that conflict with the location of the stormwater pipe. After holding discussions with AT&T it was determined that if the pipes were reduced in size but doubled up (i.e. two 6-inch pipes) the conduits can be deflected above and below the pipes with minimal issues.

Discussions were held with the project team and it was determined that this was the best course of action as the nearest alternative connection points into the public stormwater system were at the SE corner of Novi & Main, yard inlet to the north along Novi Road (both have the same issue with the AT&T conduit bank and area also much further away), and the catch basin along Main Street to the east (the connection point is several hundred feet away with very little vertical drop between the basin at the catch basin).

INTERNAL USE

Date Submitted: _____

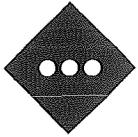
Code Section from which variance is sought: _____

Submittal Checklist: One (1) copy of plan on 8.5 x 11 size paper
 \$100 Filing Fee (No fee for driveway width variance requests)

Request Status: APPROVED DENIED

Authorized By: _____

Authorization Date: _____



STONEFIELD
engineering & design

May 19, 2015

Jeremy Miller, E.I.T
Staff Engineer, City of Novi
City of Novi Engineering Department
45175 Ten Mile Road
Novi, Michigan 48375

**RE: Minimum Pipe Size Design Variance – Updated Plans
Detroit Metropolitan Credit Union
Proposed Bank with Drive-Thru Facilities
Parcel ID# 22-23-176-033
City of Novi, Oakland County, Michigan
JSP 12-0069**

RECEIVED
MAY 20 2015
CITY OF NOVI
COMMUNITY DEVELOPMENT

Mr. Miller,

Stonefield Engineering and Design, LLC is pleased to resubmit documents for the above referenced design variance. Please find the following items enclosed:

1. Two (2) signed and sealed (s/s) sets of Construction Drawings.
2. One (1) Application for Variance Design and Construction Standards.

The drawings have been updated per the Department's comments to reduce the amount of 6-inch piping proposed to only what is required for the conduit crossing. Please contact our office if you have any questions or comments regarding this submission.

Best regards,

Tim Ponton
Stonefield Engineering and Design, LLC

Jonathan Istranyi
Stonefield Engineering and Design, LLC

T:\2014\T-14391 Kem-Tec Novi Road & Main Street, Novi, MI\Correspondence\Outgoing\Letters\2015-05-19_ Letter to Jeremy Miller.docx

Pavement and buildings C=0.80

- d. The major stormwater disposal system shall include an overland flood routing for a 100-year storm. The rational formula shall be utilized to determine flows to be accommodated using a 100-year curve ($I=275/T + 25$). Initial time of concentration shall be twenty (20) minutes maximum. Typical cross sections of the overland flood route shall be shown on the storm sewer plans. Calculations shall be submitted verifying the ability of the cross section to accommodate the 100-year storm. A minimum freeboard of one (1) foot shall be provided from any building structure finish grade to the 100-year flood elevation. Manning's formula shall be used in hydraulic calculations for the overland flood routing and open channel design.

(3) Hydraulics.

a. Pipe sizes.

1. Minimum pipe sizes for storm sewers receiving surface runoff shall be 12-inch nominal internal diameter.
2. Pipe sizes shall not decrease going downstream unless specifically approved by the engineer. Trunk sewers shall be sized as design dictates with allowance for extensions.

b. Allowable pipe slopes ($n=0.013$).

Pipe diameter (inches)	Minimum slope (feet per 100 feet)
10	0.42
12	0.32
15	0.24
<u>18</u>	0.18
<u>21</u>	0.14
<u>24</u>	0.12
<u>27</u>	0.10
<u>30</u>	0.09
<u>36</u>	0.067
42	0.054
48	0.045
54	0.038
60	0.034

Sec. 11-10. Variances.

- (a) Upon application, a specific variance to a substantive requirement of these standards may be granted, subject to the following criteria. Where the proposed activity requires site plan or plat approval, or otherwise involves the design or construction of a facility intended to be public, the variance application shall be to the city council. Where the proposed activity does not otherwise require site plan or plat approval, the variance application shall be to the construction board of appeals.
- (b) A variance may be granted when all of the following conditions are satisfied:
 - (1) A literal application of the substantive requirement would result in exceptional, practical difficulty to the applicant;
 - (2) The alternative proposed by the applicant shall be adequate for the intended use and shall not substantially deviate from the performance that would be obtained by strict enforcement of the standards; and
 - (3) The granting of the variance will not be detrimental to the public health, safety or welfare, nor injurious to adjoining or neighboring property.
- (c) The city council may, by resolution, establish an application fee for requests for variances from these standards.

(Ord. No. 86-124, § 16.01, 4-21-86; Ord. No. 87-124.01, Pt. I (16.01), 4-13-87; Ord. No. 91-124.05, Pt. I, 6-3-91; Ord. No. 93-124.06, Pt. V, 2-1-93; Ord. No. 99-124.11, Pt. III, 7-26-99)



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ROYAL OAK, MI 48067-0925
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Islanda, NY - Bloomfield Hills, MI
www.stonefielddeng.com
Headquarters:
2350 Franklin Road, Suite 210, Bloomfield Hills, MI 48302
Phone 248.247.1115

Surveyor:



Project:

DETROIT METROPOLITAN
CREDIT UNION -
NEW FACILITY
NOVI RD + MAIN STREET
NOVI, MI 48375

Issued for:

PERMITS	07.18.14
PERMITS	09.11.14
PERMITS	10.28.14
STAMPING	11.26.14
SANI. PERMIT	01.09.15
STORM X-ING	04.28.15
STORM X-ING	05.18.15

UTILITY WARNING
UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLAN, WERE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED.



THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND/OR RELOCATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

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Drawn by: JRI / MP

Checked by: TP

Sheet Title:

UTILITIES PLAN

Project No.:

Sheet No.:

C-6

WAYNE COUNTY NOTES

1. NO CONNECTION RECEIVING STORMWATER, SURFACE WATER OR GROUNDWATER SHALL BE MADE TO THE SANITARY SEWER.
2. INFILTRATION FOR ANY SECTION OF SEWER BETWEEN MANHOLES SHALL NOT EXCEED 100 GALLONS/INCH DIAMETER/MILE/DAY.
3. NO FOOTING DRAINS SHALL BE CONNECTED TO THE BUILDING SEWER.
4. THE DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED SIX FEET.
5. THE CONTRACTOR SHALL NOTIFY WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, ENGINEERING DIVISION, PERMIT OFFICE, 48 HOURS PRIOR TO THE START OF CONSTRUCTION (732-595-6504 EXT. 2009), IF THE CONSTRUCTION IS WITHIN THE WAYNE COUNTY RIGHT-OF-WAY.
6. TESTING OF SEWERS AND LATERALS BY AIR AND INFILTRATION OR EXFILTRATION TESTS ARE REQUIRED. A COPY OF THE TEST REPORT SHALL BE MADE AVAILABLE TO WAYNE COUNTY WITHIN 60 DAYS OF COMPLETION.
7. ALL SEWERS SHALL BE VIDEO-INSPECTED, WITH TEST RESULTS APPROVED BY THE CITY AND WAYNE COUNTY PRIOR TO PLACING THE SEWER IN SERVICE.
8. NO BASEMENTS EXIST ON SITE AND NONE ARE PROPOSED.
9. ALL EXISTING SANITARY INVERTS ARE FIELD MEASURED.

MDEQ NOTES

1. 200' MINIMUM ISOLATION BETWEEN PUBLIC WATER SUPPLY AND SEWERS
2. 50' MINIMUM ISOLATION BETWEEN PRIVATE (SINGLE FAMILY RESIDENTIAL) WATER SUPPLY WELLS AND SEWERS

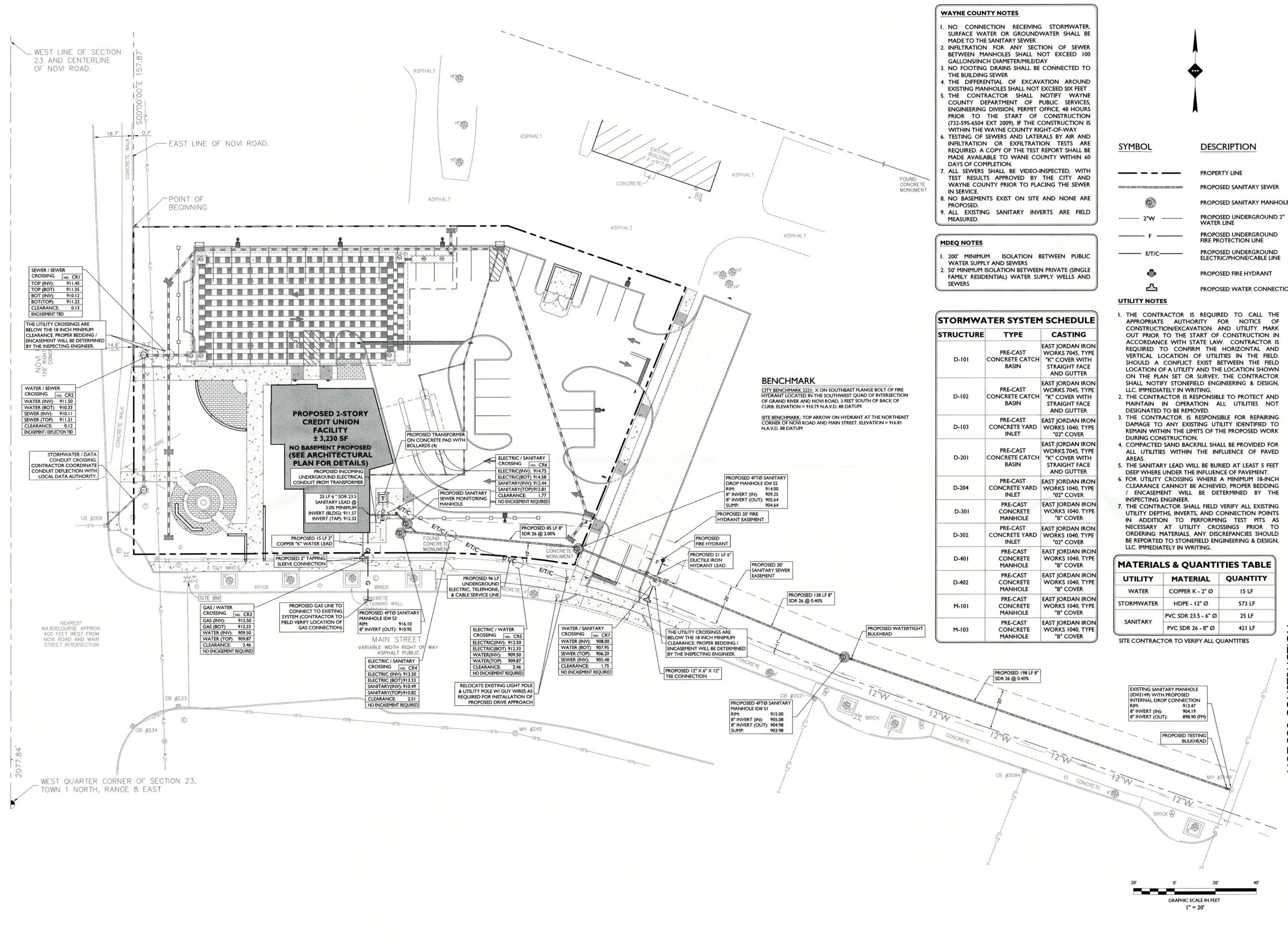
STORMWATER SYSTEM SCHEDULE

STRUCTURE	TYPE	CASTING
D-101	PRE-CAST CONCRETE CATCH BASIN	EAST JORDAN IRON WORKS 7045, TYPE "K" COVER WITH STRAIGHT FACE AND GUTTER
D-102	PRE-CAST CONCRETE CATCH BASIN	EAST JORDAN IRON WORKS 7045, TYPE "K" COVER WITH STRAIGHT FACE AND GUTTER
D-103	PRE-CAST CONCRETE YARD INLET	EAST JORDAN IRON WORKS 1040, TYPE "02" COVER
D-201	PRE-CAST CONCRETE CATCH BASIN	EAST JORDAN IRON WORKS 7045, TYPE "K" COVER WITH STRAIGHT FACE AND GUTTER
D-204	PRE-CAST CONCRETE YARD INLET	EAST JORDAN IRON WORKS 1040, TYPE "02" COVER
D-301	PRE-CAST CONCRETE MANHOLE	EAST JORDAN IRON WORKS 1040, TYPE "B" COVER
D-302	PRE-CAST CONCRETE YARD INLET	EAST JORDAN IRON WORKS 1040, TYPE "02" COVER
D-401	PRE-CAST CONCRETE MANHOLE	EAST JORDAN IRON WORKS 1040, TYPE "B" COVER
D-402	PRE-CAST CONCRETE MANHOLE	EAST JORDAN IRON WORKS 1040, TYPE "B" COVER
M-101	PRE-CAST CONCRETE MANHOLE	EAST JORDAN IRON WORKS 1040, TYPE "B" COVER
M-103	PRE-CAST CONCRETE MANHOLE	EAST JORDAN IRON WORKS 1040, TYPE "B" COVER

MATERIALS & QUANTITIES TABLE

UTILITY	MATERIAL	QUANTITY
WATER	COPPER K - 2" Ø	15 LF
STORMWATER	HDPE - 12" Ø	573 LF
SANITARY	PVC SDR 23.5 - 6" Ø	25 LF
	PVC SDR 26 - 8" Ø	421 LF

SITE CONTRACTOR TO VERIFY ALL QUANTITIES



DO NOT SCALE DRAWINGS

WEST LINE OF SECTION 23 AND CENTERLINE OF NOVI ROAD.

EAST LINE OF NOVI ROAD.

POINT OF BEGINNING

BENCHMARK
CITY BENCHMARK 2221: X ON SOUTHEAST FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION OF GRAND RIVER AND NOVI ROAD, 3 FEET SOUTH OF BACK OF CURB. ELEVATION = 910.79 N.A.V.D. 88 DATUM
SITE BENCHMARK: TOP ARROW ON HYDRANT AT THE NORTHEAST CORNER OF NOVI ROAD AND MAIN STREET. ELEVATION = 916.81 N.A.V.D. 88 DATUM

PROPOSED 2-STORY CREDIT UNION FACILITY ± 3,230 SF
NO BASEMENT PROPOSED (SEE ARCHITECTURAL PLAN FOR DETAILS)
PROPOSED INCOMING UNDERGROUND ELECTRICAL CONDUIT FROM TRANSFORMER

25 LF 6" SDR 23.5 SANITARY LEAD @ 3.0% MINIMUM INVERT (BLDG): 911.57 INVERT (TAP): 912.32

SEWER / SEWER CROSSING (NO. CR1)
TOP (INV.): 911.45
TOP (BOT): 911.35
BOT (INV.): 910.12
BOT (TOP): 911.22
CLEARANCE: 0.13
ENCASMENT TBD

WATER / SEWER CROSSING (NO. CR2)
WATER (INV.): 911.50
WATER (BOT): 910.33
SEWER (INV.): 910.11
SEWER (TOP): 911.21
CLEARANCE: 0.12
ENCASMENT / DEFLECTION TBD

STORMWATER / DATA CONDUIT CROSSING. CONTRACTOR COORDINATE CONDUIT DEFLECTION WITH LOCAL DATA AUTHORITY.

GAS / WATER CROSSING (NO. CR3)
GAS (INV.): 912.33
GAS (BOT): 912.33
WATER (INV.): 909.50
WATER (TOP): 909.87
CLEARANCE: 2.46
NO ENCASMENT REQUIRED

ELECTRIC / SANITARY CROSSING (NO. CR4)
ELECTRIC (INV.): 913.50
ELECTRIC (BOT): 913.33
SANITARY (INV.): 910.49
SANITARY (TOP): 910.82
CLEARANCE: 2.51
NO ENCASMENT REQUIRED

ELECTRIC / WATER CROSSING (NO. CR5)
ELECTRIC (INV.): 912.50
ELECTRIC (BOT): 912.33
WATER (INV.): 909.50
WATER (TOP): 909.87
CLEARANCE: 2.46
NO ENCASMENT REQUIRED

WATER / SANITARY CROSSING (NO. CR7)
WATER (INV.): 908.00
WATER (BOT): 907.95
SEWER (TOP): 906.20
SEWER (INV.): 905.48
CLEARANCE: 1.75
NO ENCASMENT REQUIRED

PROPOSED 4FT Ø SANITARY MANHOLE ID# S1
RIM: 915.00
8" INVERT (IN): 905.08
8" INVERT (OUT): 904.98
SUMP: 903.98

PROPOSED 4FT Ø SANITARY DROP MANHOLE ID# S2
RIM: 914.00
8" INVERT (IN): 909.25
8" INVERT (OUT): 905.64
SUMP: 904.64

PROPOSED 85 LF 8" SDR 26 @ 2.00%

PROPOSED 21 LF 6" DUCTILE IRON HYDRANT LEAD

PROPOSED 20' FIRE HYDRANT EASEMENT

PROPOSED 20' SANITARY SEWER EASEMENT

PROPOSED 138 LF 8" SDR 26 @ 0.40%

PROPOSED 12' X 6' X 12' TEE CONNECTION

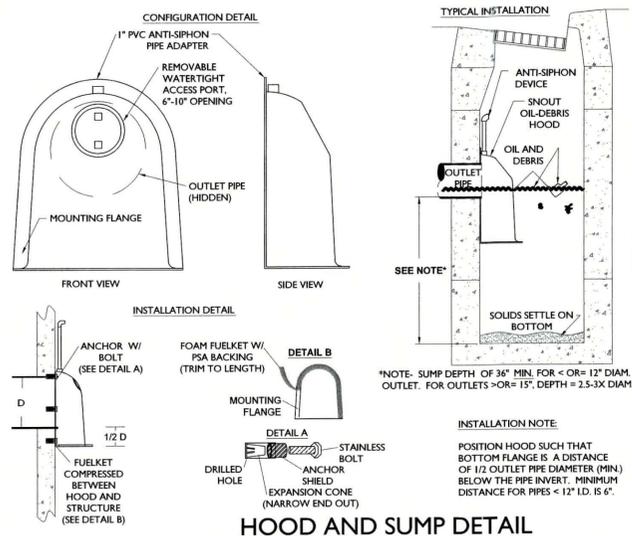
PROPOSED 198 LF 8" SDR 26 @ 0.40%

EXISTING SANITARY MANHOLE (ID#2149) WITH PROPOSED INTERNAL DROP CONNECTION
RIM: 913.47
8" INVERT (IN): 904.19
8" INVERT (OUT): 898.90 (FH)

PROPOSED TESTING BULKHEAD

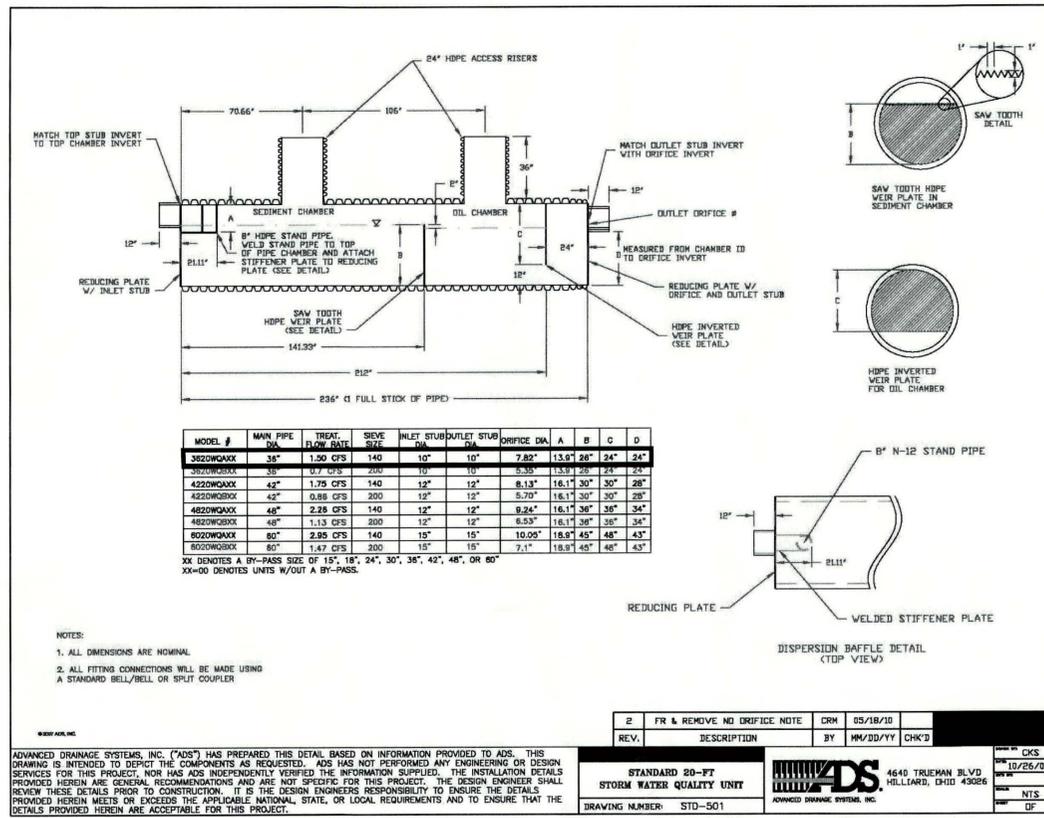
NEAREST WATERCOURSE APPROX. 400 FEET WEST FROM NOVI ROAD AND MAIN STREET INTERSECTION

WEST QUARTER CORNER OF SECTION 23, TOWN 1 NORTH, RANGE 8 EAST



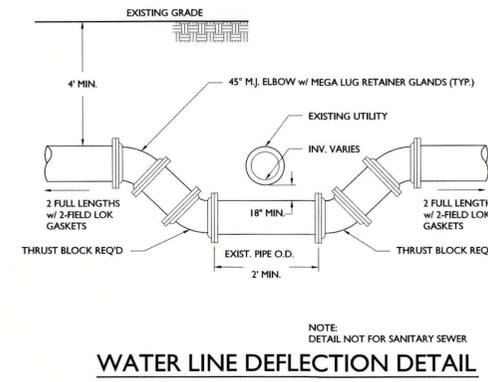
NOTES:

- ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
- ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT PIPE AND ELBOW AS DRAWN. (SEE CONFIGURATION DETAIL)
- THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION (SNOUT SIZE ALWAYS LARGER THAN PIPE SIZE).
- THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A MINIMUM DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES < 12" I.D.
- THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 12" ACCORDING TO STRUCTURE CONFIGURATION.
- THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL AND PIPE SHALL BE FINISHED FLUSH TO WALL.
- THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT FUELKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
- INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT.
- INSTALLATION KIT SHALL INCLUDE:
 - INSTALLATION INSTRUCTIONS
 - PVC ANTI-SIPHON VENT PIPE AND ADAPTER
 - OIL-RESISTANT CRUSHED CELL FOAM FUELKET WITH PSA BACKING
 - 3/8" STAINLESS STEEL BOLTS
 - ANCHOR SHIELDS
- HOOD AND SUMP DETAIL



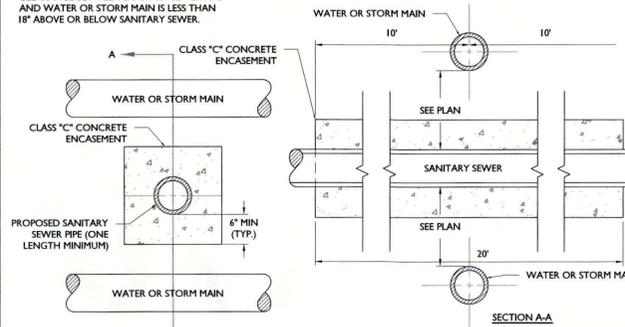
WATER QUALITY UNIT DETAIL

NOT TO SCALE



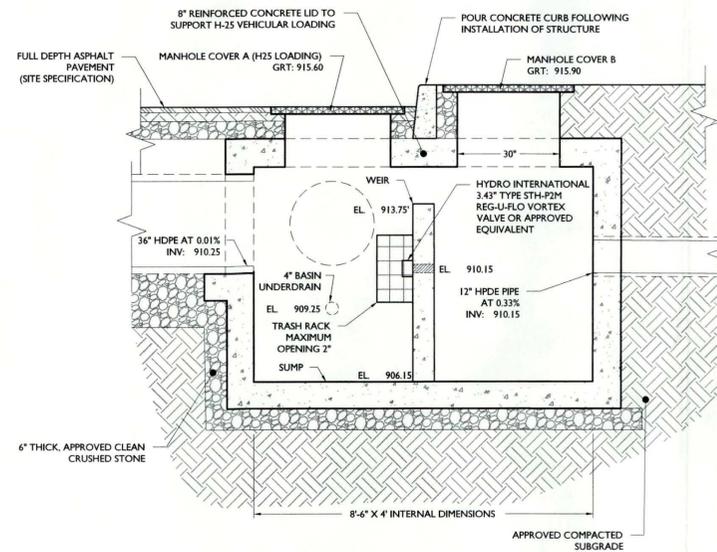
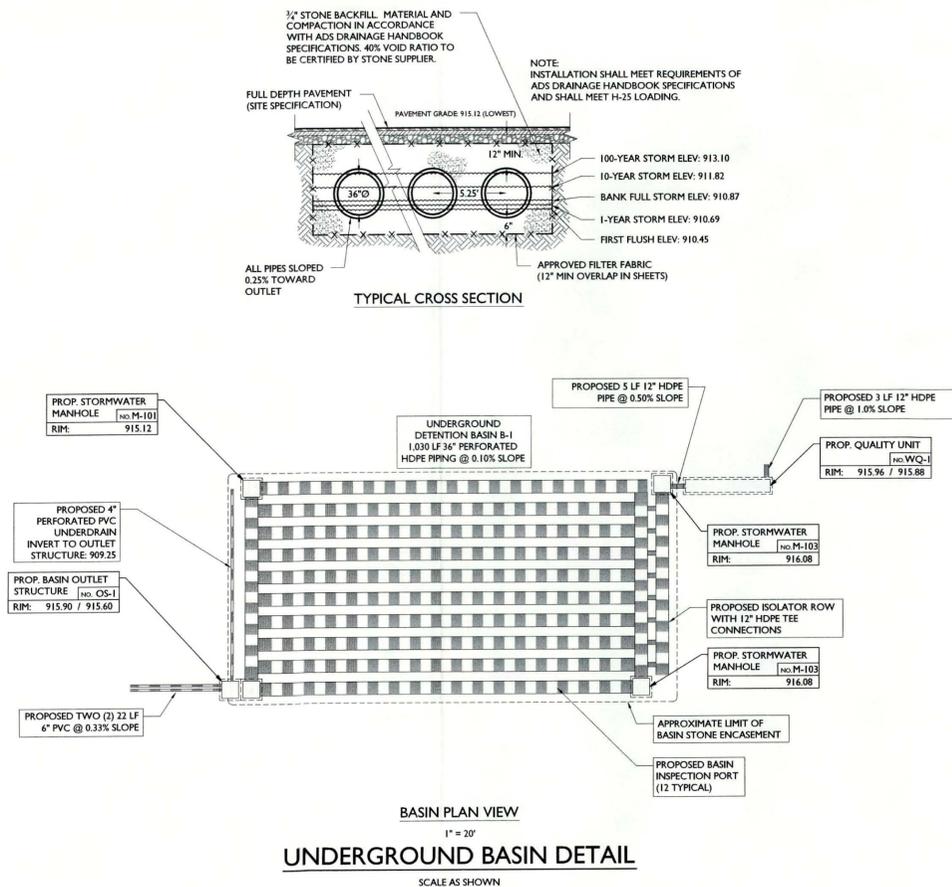
NOTE:

CONCRETE ENCASEMENT REQUIRED WHERE CLEARANCE BETWEEN SANITARY SEWER PIPE AND WATER OR STORM MAIN IS LESS THAN 18" ABOVE OR BELOW SANITARY SEWER.



CONCRETE ENCASEMENT

NOT TO SCALE



UNDERGROUND OUTLET STRUCTURE (OS#) DETAIL

NOT TO SCALE



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Project:
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UTILITY WARNING
UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLAN WERE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED.



Know what's below. Call before you dig.

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Drawn by: JRI / MP

Checked by: TP

Sheet Title:

DRAINAGE AND UTILITY DETAILS

Project No.:

Sheet No.:

C-11

NOT FOR CONSTRUCTION
DO NOT SCALE DRAWINGS
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