

DATE RECEIVED		FACILITY NAME		COUNTY NO.	PROGRAM AREA CODE	FACILITY TYPE CODE	SUBJECT AREA CODE
3 7/10/87		4 City of Albia		5 68	6 CP	7 C01	8 305
RULE REFERENCE		DESIGN STANDARD REFERENCE		DECISION		APPEAL ACTION	
9 64.2(9)		10 12.5.1		11 Approved 8-3/87		12	
ENGINEER				VARIANCE RULE			
13 Garden & Associates				14 64.2(9)C			
				RECORD COPY			
				File Name			
				Senders Initials			

15. DESCRIPTION OF VARIANCE REQUESTED: Project is for construction of a 6" diameter sewer to replace an existing 6" diameter sewer which serves 10 residences. The replacement is in accordance with the recommendations of a previous study on sewer rehabilitation of the municipal sanitary sewer system. Inasmuch as DNR design standards require a minimum pipe diameter of 8" for public gravity sanitary sewers, the engineer is requesting a variance to use 6" diameter pipe for replacement.

K. ENGINEERS JUSTIFICATION:

1. The project consists of replacing existing 6 inch diameter pipe.
2. The replacement sewers are at the upper reaches of the sanitary sewer serving the area and will not be extended in the future (see enclosed Figure 1) because other sanitary sewers serve the surrounding area.
3. There are currently ten residential service connections North of Manhole NE-19B6. The 6 inch diameter sewer has adequate capacity to handle the waste load from these users.
4. Emergency repairs were made recently to the existing sewer North of Manhole NE-19B7 under Washington Avenue and a section of 6 inch diameter pipe was installed.
5. The 6 inch pipe will function as well as an 8 inch pipe.
6. There is adequate slope available to maintain cleansing velocity in the 6 inch pipe.

17. DEPARTMENTS JUSTIFICATION:

We concur with the engineers proposal to replace the existing 6" pipe with 6" sewer based upon the above justification. The sewer line should have adequate capacity to handle the number of homes which can be served and the replacement of the existing sewer will eliminate a source of extraneous water which now gains access to the sanitary sewer system.

18. PRECEDENTS USED:

City of Mystic - Approved 7/16/86
City of Delta - Approved 11/10/86
City of Shambhagh - Approved 2/10/87
City of Keokuk - Approved 6/3/87

19. STAFF REVIEWER:

20. SUPERVISOR:

21. AUTHORIZED BY:

Eud. M. Evans, 7/28/87

Larry H. Evans, approved 7/31/87

Danell M. Allister, 8/3/87 approved

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES
HENRY A. WALLACE BUILDING
DES MOINES, IOWA 50319

(6" approved to replace
existing 6" sewer
serving 10 homes)

RECORD COPY

CONSTRUCTION PERMIT Name Albia - Sewage

Senders Initials JMS

PERMIT NO.: 87-209-S

City of Albia
120 South A Street
Albia, Iowa 52531

FILE: Albia - Sewage

RE: Sanitary Sewer Replacement

PROJECT NO: S87-181

In accordance with the provisions of Section 455B.173.9 and 455B.174.4, Code of Iowa, and Rule 567--64.2(455B) or Rule 567--65.5(455B), or Rule 567--41.12(455B) of the Iowa Administrative Code, the Director of the Department of Natural Resources does hereby issue a permit for the construction of:

1,063 feet of 12-inch and 380 feet of 6-inch sanitary sewer and appurtenances and manhole replacement, 1987 sanitary sewer replacement, project 1, 2 and 3, City of Albia, Iowa.

The requested variance from our design standards to permit the use of 6-inch diameter sewer pipe for replacement of the existing 6-inch Washington Avenue sewer has been approved by this department.

The construction of the project shall be initiated within one year of issuance of this permit or this permit is no longer valid. Within thirty days after completion of construction, the permit holder shall submit a certification by a registered professional engineer that the project was completed in accordance with the approved project documents.

Pursuant to Section 455B.174.4, Code of Iowa, you have the right to appeal any condition of this permit by filing with the Director of the Department of Natural Resources a notice of appeal and request for administrative hearing within thirty days of receipt of this permit.

Contact Fred M. Evans at 515/281-5917 with any questions or comments.

For the Department of Natural Resources

Larry J. Wilson, Director

By: Larry Hoge
ENVIRONMENTAL PROTECTION DIVISION

Date: August 6, 1987

cc: Garden & Associates, LTD., Oskaloosa, IA
Field Office 5

FME:pla/ALBIA

Plan Distribution

2 Engineer; 1 DNR File



GARDEN & ASSOC.

P.O. BOX 451
OSKALOOSA, IOWA 52577
(AREA 515) 672-2526

July 6, 1987

Department of Natural Resources
Construction Grant Section
5th Floor - Henry A. Wallace Building
900 E. Grand Avenue
Des Moines, IA 50319

Attention: Lavoy Haage

Re: Sanitary Sewerage Improvements - 1987
Albia, Iowa

Dear Lavoy:

This is to apply for a Construction Permit for the referenced project. Enclosed are three copies each of the following:

1. Plans for the referenced project.
2. Construction Permit Application; Schedules A, C and D.
3. Section 307 - DETAILED SPECIFICATION REQUIREMENTS.

Section 307 - DETAILED SPECIFICATION REQUIREMENTS modify our standard specifications which the Department has on file. Also, please note that the title sheet of the plans contains a statement to the effect that our approved standard specifications govern the project.

Please note that we request a variance from Chapter 12, paragraph 12.6 of the Iowa Design Standards. The variance request is to allow use of 6 inch diameter gravity sewer pipe in lieu of 8 inch diameter pipe for Project I - Washington Avenue Sewer. The basis for this request is as follows:

1. The project consists of replacing existing 6 inch diameter pipe.
2. The replacement sewers are at the upper reaches of the sanitary sewer serving the area and will not be extended in the future (see enclosed Figure 1) because other sanitary sewers serve the surrounding area.

CONSULTING ENGINEERS

Page 2
Department of Natural Resources
July 6, 1987

3. There are currently ten residential service connections North of Manhole NE-19B6. The 6 inch diameter sewer has adequate capacity to handle the waste load from these users.
4. Emergency repairs were made recently to the existing sewer North of Manhole NE-19B7 under Washington Avenue and a section of 6 inch diameter pipe was installed.
5. The 6 inch pipe will function as well as an 8 inch pipe.
6. There is adequate slope available to maintain cleansing velocity in the 6 inch pipe.

Should you have any questions or comments, please contact me.

Yours very truly,

GARDEN & ASSOCIATES, LTD.

A handwritten signature in cursive script, reading "David C. Nelson".

David C. Nelson, P.E.

ds
Enc:
CC: City of Albia

WATER QUALITY

CONSTRUCTION PERMIT APPLICATION

PROGRAM

SCHEDULE C, LATERAL SEWER EXTENSION

WAWM USE

DATE PREPARED

June 22, 1987

PROJECT IDENTITY

SANITARY SEWER REPLACEMENT - 1987

PROJECT NO.

DATE REVISED

Albia, Iowa

PERMIT NO.

1. Design Basis

Residential service area

Initial

1.0

Acres

Design Year (2007)

1.0

Acres

Population

20

Persons

20

Persons

Flow (100 GPCD)

2,000

GPD

2,000

GPD

BOD₅ (0.17 #/d/cap)

3.4

#/day

3.4

#/day

Industrial service area

NONE

Acres

NONE

Acres

Rated Flow

GPD

GPD

BOD₅

#/day

#/day

Other

NONE

Acres

NONE

Acres

Rated Flow

GPD

GPD

BOD₅

#/day

#/day

Total BOD₅

3.4

#/day

3.4

#/day

Total Flow

2,000

GPD

2,000

GPD

Peak Hourly Flow

GPD

GPD

NOTE: This project involves replacement of an existing sewer.

2. Pipe

Diameter

6 ~~8~~ Inch~~XXXXXX~~~~XXXXX~~

Material

VCP, Truss Pipe or PVC

Joint

ASTM C12, ASTM 2321 and D2680 or ASTM 2321

Minimum Slope

1.00

\$

\$

\$

Maximum Manhole Space

240

Ft.

Ft.

Ft.

Total Sewer Length

~~380~~ 260

Ft.

Ft.

Ft.

Maximum Cover

8

Ft.

Ft.

Ft.

Minimum Cover

7

Ft.

Ft.

Ft.

3. Construction specifications (Indicate ASTM No. or other standard included in the specifications). A brief description is required in each part.

A. Bedding class ASTM C12, ASTM 2321 and D2680 or ASTM 2321.B. Pipe laying ASTM C12, ASTM 2321 and D2680 or ASTM 2321.C. Compaction Mechanical compaction - see Spec Part 302.D. Manhole ASTM C478 with compacted backfill per Spec Part 302.E. Specified maximum infiltration/exfiltration rate 200 GPD/MP1F. Infiltration/exfiltration test procedures Air - ASTM C828 and DNR Chapter 12.

G. Alignment & grade test procedures

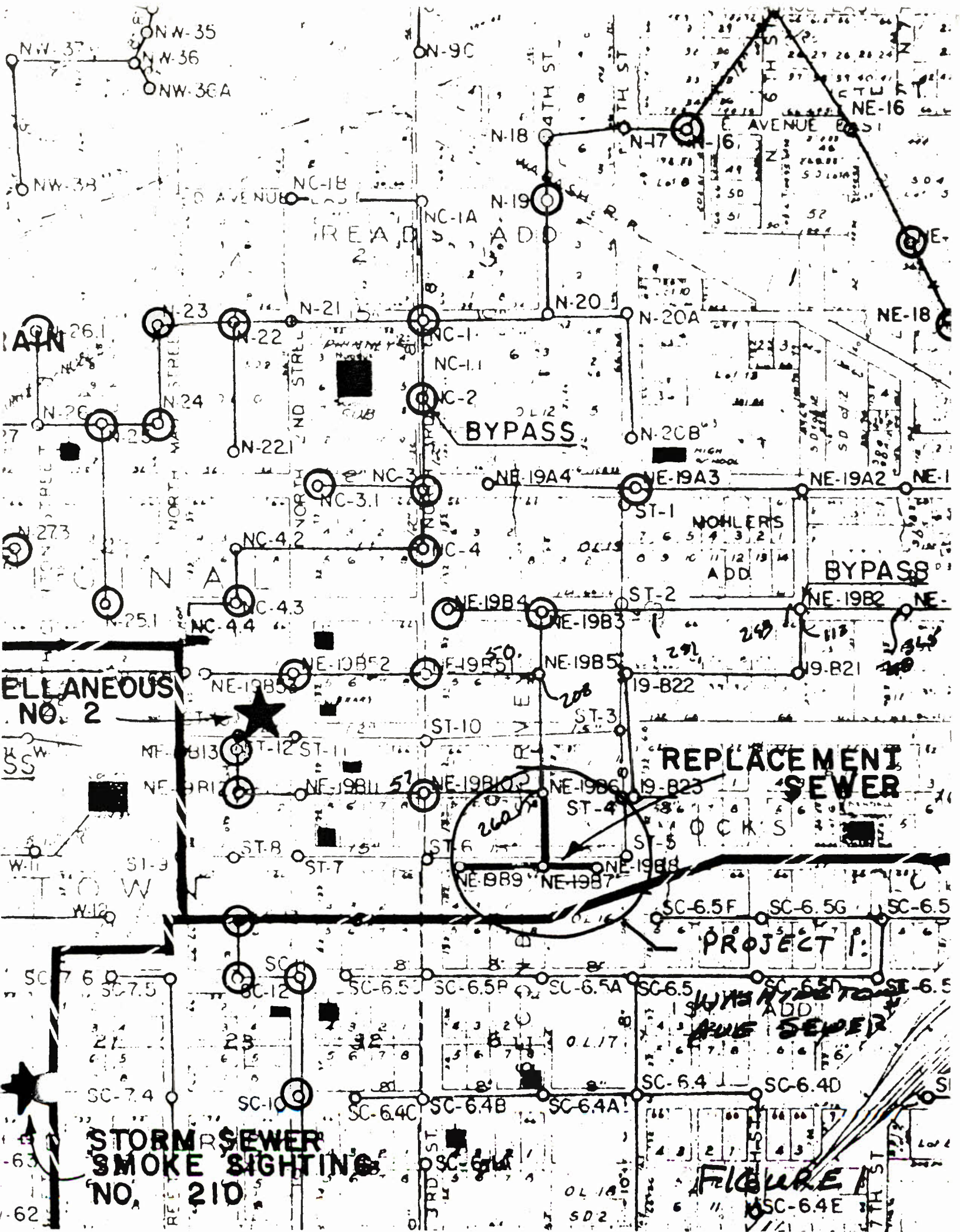
(1) During construction: Stake & batter board Allowed Laser Allowed.(2) After construction: Lamping Yes Other H. Deflection test procedures Rigid ball and mandrel

4. Are detailed manhole drawings included? Yes X No . Typical frame and cover assembly Neeah 1726A. Are manhole covers nonvented? Yes No X. Manhole diameter 48 in. Manhole opening diameter 22 3/4 in. Material Cast Iron.

5. Minimum sewer & water main separation: Horizontal 10 ft. Vertical 18 in. Are specifications included? Spec page 303-9

6. Stream, road, or railroad crossing protection Barricades and lights.

Are specifications included? Page 301-3 and 302-2 of Spec.



672-2526

T.C 8/4/87

Dave Nelson, Garden & Assoc., Oklabosa

Albia - Sanitary Sewer Replacement - 1987

Questioned Dave regarding total length of 6" pipe to be provided for the Washington Ave. sanitary sewer replacement — Application Schedule "C" indicates a total length of 260 feet and plans show at least 371 feet

Dave advised that the pipe total should be 380 feet — will use this value in construction permit and make corrections in pipe total on Appl. Sched "C"

1- 672-2526

T.C. 8/3/87

Karen

Dave Nelson, Garden & Assoc., Oskaloosa

Albia - Sanitary Sewer Replacement

Called for Dave - but he was out of office

left message that variance request for use of 6" diameter sewer for the replacement project at Albia has been approved; therefore, the City can proceed with letting tonight as planned based upon P & S submitted

Further advised that I would get the construction permit out in the near future

Albia - S.S. Replacement T.C. 7/28/87

Dave Nelson, Garden & Assoc., Oskaloosa
Discussed Albia project (S87-181)
Figure 1 - came from sewer
system rehabilitation study - 1980

Maximum of 8 houses on
sewer

Nothing on N. side of street
is connected - sewer will
not be extended - other
houses in area are now served

The existing 6" sewer line is
being replaced because of problem
with excessive flow to the
west portion of sewer

Providing 1% grade for replacement
sewer in Washington Avenue

1- 672-2526

T.C. 7/28/87

Dave Nelson, Garden & Assoc., Oskaloosa

Albia - sewer replacement project

* Why is existing 6" sewer being replaced?

(Having problem with excessive flow to west - not clear as to source)

* Plans indicate only using approximately 85 ft. of existing 6" sanitary sewer (Dave indicates this section goes thru storm sewer m.t. which is at approx. same grade as sanitary sewer)

* Proposed use of 6" sewer in the alley north of Washington Ave. will require a change in alignment of sewer

* Grade of sewer line in alley will be field set - elevations of existing sewer not definitely known

* Put in as private sewer

Existing 6" sewer apparently constructed without a permit

Albia

-1-

7/28/87

Washington Ave. Sewer Replacement
Approx. 75' of existing 6" SSE

Installing - new 6"

$$100 + 15 + 19.6 + 240.4 =$$

North side sewer - 12" pipe

$$\begin{array}{r} 164.15 \\ 277.95 \\ 316.33 \\ \underline{304.87} \\ 1063.3 \end{array}$$

Approximate grade of sewer in alley

$$\begin{array}{r} \text{New M.H. El. } 950.50 \\ \underline{949.50} \\ 1.00' \end{array}$$

$$\text{slope} = \frac{1.00}{1.90} = \underline{\underline{0.52\%}}$$

Albia

- 2 -

7/28/87

Check Capacity & Velocity in 6" pipe
@ slope of 0.52%

Flowing Full Capacity - from nomograph

$$@0.52\% Q_{full} = \underline{0.235} \text{ MGD} = \underline{0.3635} \text{ cfs.}$$

$$@1.00\% Q_{full} = \underline{0.33} \text{ MGD} = \underline{0.5105} \text{ cfs.}$$

Velocity - Flowing Full in 6" pipe

$$@0.52\% V_{full} = 0.3635 \div 0.1963 = \underline{1.85} \text{ fps.}$$

$$@1.00\% V_{full} = 0.5105 \div 0.1963 = \underline{2.6} \text{ fps.}$$

* Engineer has requested variance
for use of 6" diameter sewer
for this project

5 min

7/23/87

Dave Nelson, Garden & Assoc., Oskaloosa

Albia sewer replacement project
— checking on

Bid letting scheduled for Aug 3rd

Only specs sent in were changes
from standards to include only
the pipe materials to be bid for project

Only question is in regard
to sewers — had 6" pipe
in before — want to replace
with 6" pipe — requesting
variance — sent in justification



REMOVE & REPLACE CONCRETE CURB IN KIND AS REQUIRED FOR CONSTRUCTION (APPROX. QUANTITY = 40 LF) _____

ABANDON EXIST 6" VCP

PLUG EXISTING PIPE W/ CONCRETE
 & DEMOLISH MANHOLE TO 3'-0"
 BELOW EXISTING GROUND LEVEL.
 FILL W/ EXCESS EXCAVATED
 MATERIAL & SEED.

2.05 - ASPHALT OVER CONCRETE

ORATION

1450 - SEED (URBAN MIX)

