



**West Creek Watershed Sanitary
Sewer Phases II and III
Facilities Plan**

**City of Seven Hills
Cuyahoga County, Ohio**

October 7, 2010

West Creek Watershed Sanitary Sewer Phases II and III

*City of Seven Hills
Cuyahoga County, Ohio*

FACILITIES PLANNING

1) Project Summary

The project is located within portions of the West Creek Watershed in the City of Seven Hills, Cuyahoga County and State of Ohio. The project area is broken into the following two areas to connect the proposed gravity sanitary sewers into the existing sanitary sewer system:

- Location One: Begins at 6981 Broadview Road and extends north to connect to the existing sewer at Panorama Drive
- Location Two: Begins at the Broadview Road/Skyview Dr. intersection and extends east through the Skyview Drive cul-de-sac and down the hillside to connect to the existing sewer at 800 Firethorn Dr.

Tab 1 in the Appendix illustrates the West Creek Watershed Area and Project Vicinity Map.

The City of Seven Hills is under the Ohio EPA Director's Final Findings & Orders (DFF&O) (see Tab 2) to eliminate the existing septic tank outfalls within the West Creek Watershed. This project includes providing a new gravity sanitary sewer main for sixty-one (61) homes along Broadview Road and Skyview Drive. The project involves obtaining permanent and temporary easements to permit construction and maintenance of the proposed sanitary sewer project. The project includes the construction of approximately 6,857 feet of 8" diameter sanitary sewer line (including HDD and bore-in casing), fifty-one (51) - 6" diameter short connections, ten (10) - 6" diameter long connections, 27 manholes, asphalt overlay for Skyview, and other appurtenances (such as asphalt/concrete drive removal/replacement, topsoil and seeding, etc.). The project plans are completed and the City obtained a Permit to Install (PTI) from the Ohio EPA in 2007 and a renewal in September 2010. The City is in the process of obtaining the last required permanent easement from a parcel off of East Ridgewood Drive. See Tab 3 in the Appendix for the project plans, PTI, Cuyahoga Soil and Water Conservation District approval and Ohio EPA approval for coverage under the General Permit OHC000002 (NOI Approval).

2) Existing Conditions/Future Needs

a) Delineation of planning and service areas (maps)

Being under the DFF&O, the service area was determined by the Ohio EPA and watershed (see Tab 1) for designated areas.

b) Existing pollution/water quality problems

Attached is a letter from the Cuyahoga County Board of Health related to outfalls within the West Creek Watershed (see Tab 4). The results indicate that the watershed is experiencing high counts of fecal coliform which is related to failing septic systems within the watershed. The DFF&O (see Tab 2) also quantifies the health issues and water quality problems at hand.

c) Type/condition/limitations of existing wastewater systems, as applicable, including:

i) Unsewered areas

This project is the last phase of unsewered area listed in the City of Seven Hills DFF&O.

ii) Package WWTPs – Not Applicable

iii) I/I analysis for separate sanitary sewers

See Tab 5 “West Creek Watershed Sanitary Sewers Flow Monitoring and I/I Analysis” report for the existing sanitary sewer system that this project is to be connected. Through smoke and dye testing program and violation enforcement the City reduced wet weather flows by 83% in I/I volume.

iv) CSO study for combined sewers – Not Applicable

d) Present/revised permit limits, if any – Not Applicable

e) Present and future population (20 year projection) –

Present Population 12,080 (2000) & Future Population 13,000

f) Present and future land use (20 year projection)

Table 3.1 shows the present Land Use for the entire city taken from the City of Seven Hills Master Plan authored by the Cuyahoga County Planning Commission. For the immediate project area, it is zoned Single-Family Residential with the exception of two (2) parcels that are zoned Institutional. No changes are anticipated with regards to land use in the immediate project area.

Table 3.1. Land Use Inventory		
Acreage Estimates by Land Use for the City of Seven Hills		
Land Use Category	Acreage	Percentage of Total
Single Family Residential	2,039.0	66.5%
Vacant	434.0	13.9%
Street Rights of Way	372.0	11.9%
Recreational	65.0	2.1%
Institutional	56.0	1.8%
Utility	50.0	1.6%
Retail Commercial	33.0	1.1%
Office	30.0	1.0%
Two Family Residential	11.0	0.4%
Multi-Family Residential	1.0	0.0%
Total	3,141.0	100.0%

g) Present and future design flows by category

See Tab 6 "West Creek Watershed Phase II and III Sanitary Sewer Improvements Basis of Design Report" Page 5
 See Tab 7 Northeast Ohio Regional Sewer District approval letter dated August 9, 2010 to accept new flows at the Southerly Wastewater Treatment plant.

h) Sensitive environmental features or resources

None - The site is located in a residential area.

3) Feasible Alternatives (Solutions)

a) No-action

Not Applicable the City of Seven Hills is under DFF&O (see Tab 2).

b) Optimum utilization of existing systems

Under the DFF&O, Section IV, Findings, Item No. 17 states "Small lot sizes and poor soil conditions prohibit the abatement of these discharges through the installation of replacement home sewage treatment systems". Therefore, use of the existing systems is prohibited (see Tab 2).

d) Flow reduction/water conservation – Not Applicable

- e) *Unsewered areas - appropriate on-site vs centralized treatment alternatives*
Under the DFF&O, Section IV. Findings, Item No. 17 states “Small lot sizes and poor soil conditions prohibit the abatement of these discharges through the installation of replacement home sewage treatment systems” (see Tab 2).
- f) *I/I problems - removal vs transport and treat, including sewer rehabilitation, sewer replacement, flow equalization, etc.*
Not Applicable
- g) *CSO problems - determine cost beneficial level of treatment; then compare sewer separation, in-line storage, off-line storage, treatment at each overflow, etc. as appropriate*
Not Applicable
- h) *WWTP - appropriate wet stream and solids handling processes –*
Not Applicable

4) Alternative Selection

- a) *Determine and compare present worth costs for each alternative (include capital, O,M&R, and salvage value costs)*
See Tab 8 Revised General Plan for West Creek Watershed reduction of Septic Tank Outfalls.
- b) *Identify and compare adverse environmental impacts for each alternative*
The approved design does not have an adverse environmental impact. The project is utilizing gravity flow without the need for pump stations. See Tab 11 for the environmental summary.
- c) *Incorporate input from other review agencies/departments, as appropriate: OHPO, ODNR (floodplains, natural areas, parks, wildlife) Ohio EPA-DDAGW, local/regional planning agency, ACOE, USFWS, etc.)*
See Tab 9 for a letter of support from the Cuyahoga County Board of Health.
- d) *Select the cost-effective alternative(s) based on monetary and non-monetary factors*
See Tab 6 “West Creek Watershed Phase II and III Sanitary Sewer Improvements Basis of Design Report”. Also see Tab 8 the Revised General Plan for West Creek Watershed reduction of Septic Tank Outfalls. Gravity flow is preferred over pump stations.
- e) *Describe selected alternative(s) in detail, including preliminary basis of design, line item costs, etc.*
See Tab 6 “West Creek Watershed Phase II and III Sanitary Sewer Improvements Basis of Design Report”.

- f) Provide an implementation schedule*
See Tab 10 for the Project's Tentative Schedule

5) Environmental Impacts/Mitigation (in facilities planning document/files)

- a) Describe the nature, magnitude, and duration of all potential primary and secondary adverse environmental impacts associated with the selected alternative(s)*
See Tab 11 for the project Environmental Summary.

- b) Detail the structural and non-structural measures that will be used to avoid or otherwise mitigate each of these potential adverse impacts. Examples include specific storm water best management practices like sedimentation basins and specific ordinances to protect riparian corridors and wetlands from development impacts*
Not Applicable

6) Project Financing/User Costs/Implementation

- a) Provide a breakdown of total project costs*
See Tab 12 with the PRELIMINARY tentative assessments and also the Engineer's Opinion of Probable Costs.

- b) Identify other approved or potential supplementary sources of project funding*
The project is to be funded by Ohio Public Works Commission, Water Pollution Control Loan Fund, Congress Appropriation, and/or property owner special assessments. The City applied for a grant in the OPWC 2011 round requesting a 60% grant which will be scored by the end of the year 2010.

- c) Determine the anticipated user costs based on existing debt, project-related debt, and annual O,M&R costs*

Existing debt (engineering, legal, appraisals and easement acquisition) is to be included in the assessment. Currently, with the OPWC \$603,100 grant and the City's share of \$263,859 (2% plus intersections plus the amount that does not meet the one-third) the user cost will be \$285 per foot of frontage and OM&R costs are based on the existing Seven Hills Codified Ordinance 729.03 which is \$0.65 per foot or frontage per year per connection. See Tab 13 that illustrates the non-accessible parcels within the project. These parcels are already connected to a different sanitary sewer system however: the new system must cross their land or be adjusted for connection to the new system.

- d) Identify any other homeowner costs (assessments, tap fees, lateral costs, etc.) that could be associated with the project*

Besides special assessments, the property owner will be responsible to abandon the septic tank and to connect the house to the lateral. Costs generally range between

\$3,000 and \$7,000 depending on length of connection, number of connections and orientation of the plumbing within the structure.

- e) *O, M&R costs must be distributed proportionately among user classes to achieve a proportional user charge system, while debt service does not have to be. Please provide copies of your sewer use ordinance, and wastewater and water rate ordinances*

See Tab 14 for Ordinance 729.03. The water system is owned, operated, maintained, and charged by the City of Cleveland through a Joint Economic Development agreement.

7) Public Participation - Depends on project type, if existing rates cover project costs, and prior public notification and participation activities, etc. Choose one or more:

- a) **Public meeting - introduction to WPCLF, facilities planning, and problem(s) to be addressed by proposed WPCLF projects; provide adequate advance public notice, register attendance, and compile general meeting notes; where public is already somewhat familiar with potential project, this meeting may be more oriented toward alternative evaluation and selection (in some cases, this meeting may be discretionary)**

Not Applicable

- b) *Public hearing - summary of facilities planning, including existing problem(s), alternatives evaluated, proposed project, environmental impacts, costs, and implementation schedule; provide adequate advance public notice, make draft facilities plan available for public review prior to public hearing, register attendance, and compile a hearing transcript (a public hearing may be required)*

To be determined

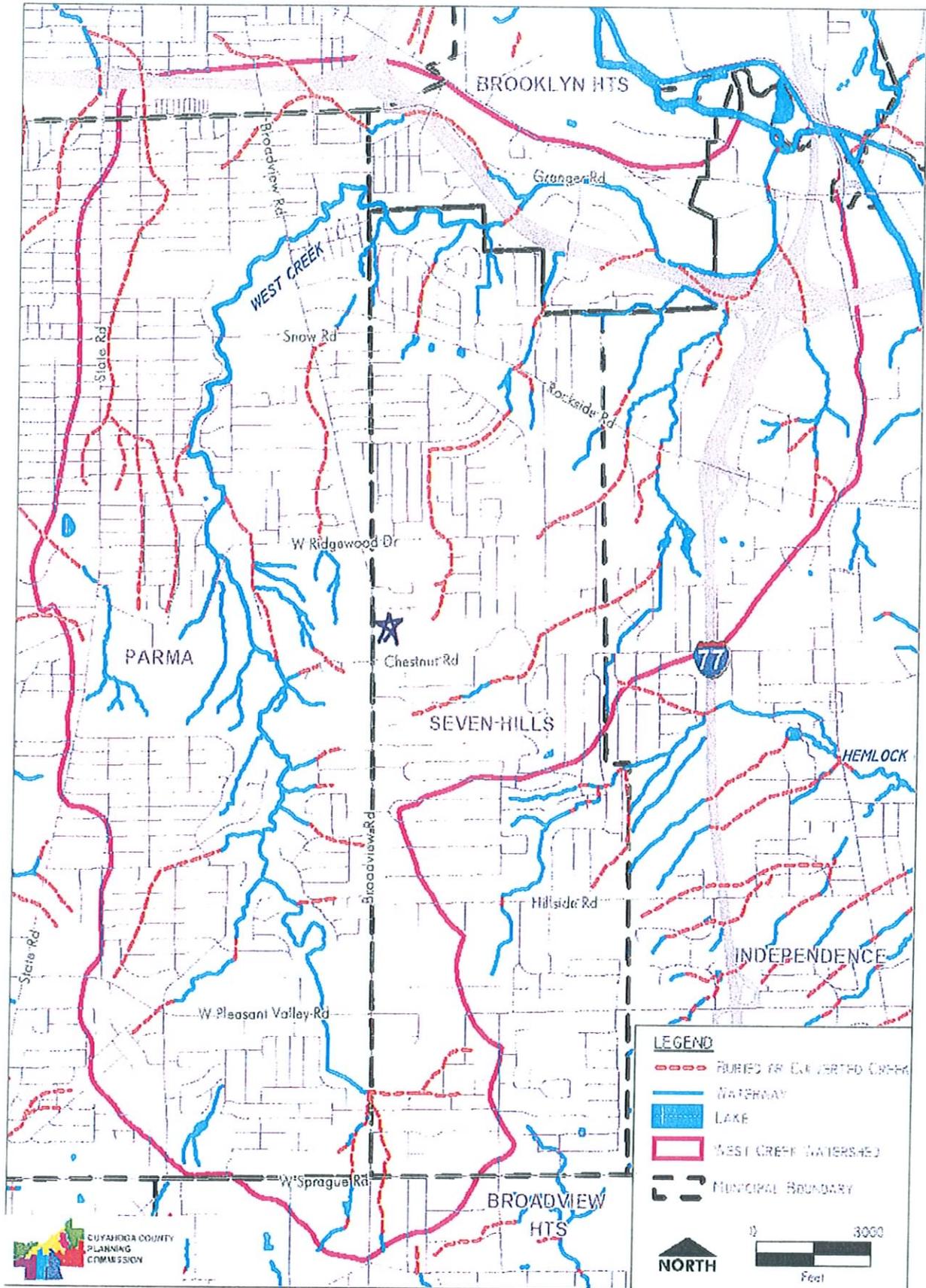
- c) *Additional meetings, fact sheet distribution, etc. are encouraged throughout the planning process, and may be required should the project change significantly subsequent to the initial public meeting/hearing*

On July 7, 2007, the City of Seven Hills along with representatives from the Ohio EPA and the Cuyahoga County Board of Health held a public meeting to discuss the project. See Tab 15 for the agenda and sign-in attendance sheet.

APPENDIX

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WEST CREEK Figure 26 WATERSHED AREA

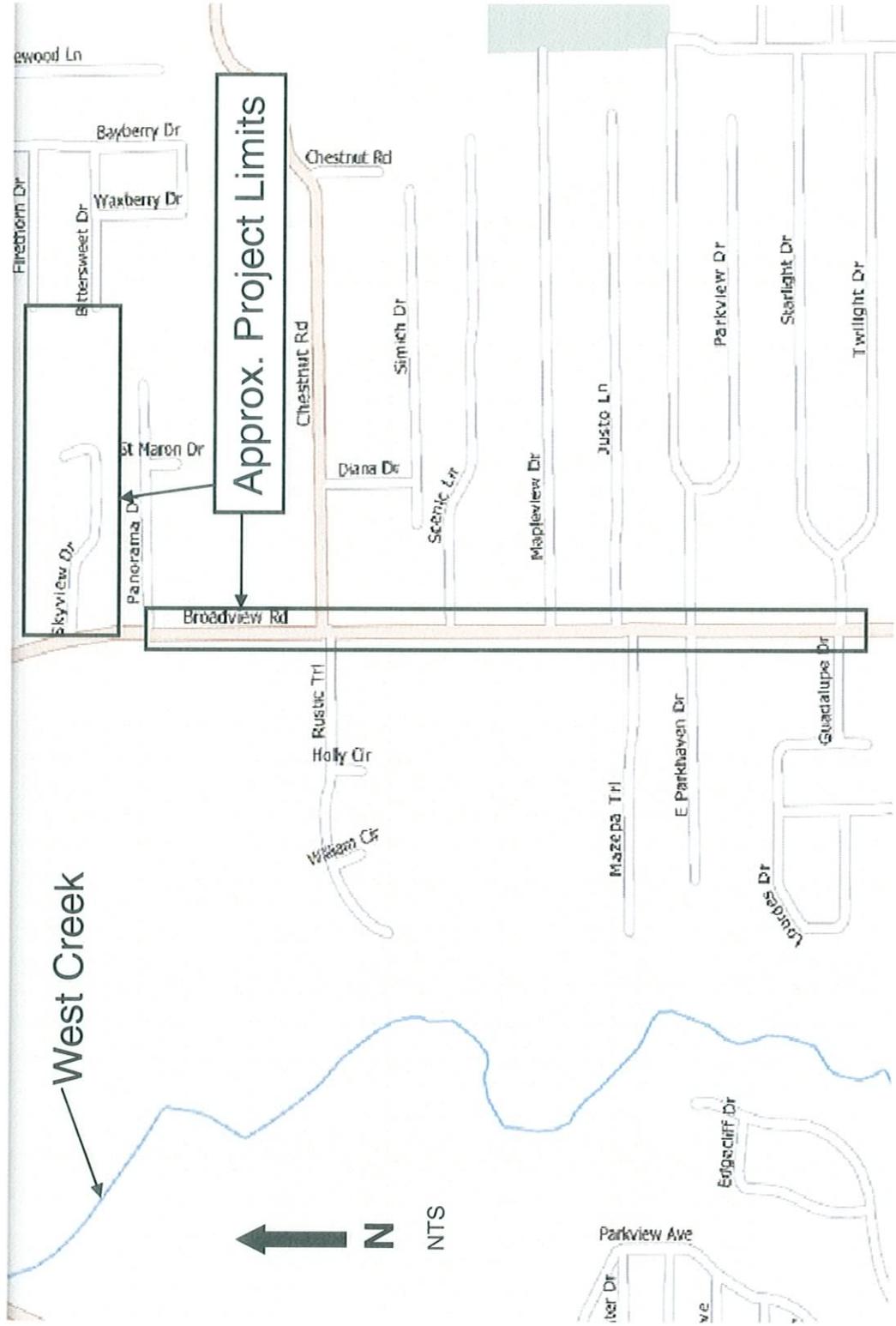


★ SEE VICINITY MAP FOR PROJECT LOCATION (NEXT PAGE)



WEST CREEK WATERSHED SANITARY SEWER IMPROVEMENTS PHASES II & III IN SEVEN HILLS, OHIO

VICINITY MAP





State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

October 9, 2003

RE: CITY OF SEVEN HILLS
CUYAHOGA COUNTY
DIRECTOR'S FINAL FINDINGS & ORDERS

Mayor and Council
City of Seven Hills
7325 Summitview Drive
Seven Hills, OH 44131

RECEIVED

OCT 10 2003

Dear Mayor and Council:

MAYOR'S OFFICE

This office is in receipt of a sanitary sewer master plan (map) intended to serve as the general plan required by the Director's Final Findings and Orders (DFF&O) effective December 31, 2002. The map is not a general plan for evaluating new sewer systems and the extension of existing sewer system or other alternatives to abate pollution resulting from discharging septic systems.

Clarified language must be provided in a detailed written report. The report, which will serve as the general plan, must address the geographic features used to identify the boundary lines of the West Creek watershed within the City of Seven Hills. Such features include topography, streams and streets. For sanitary sewer recommendations, the plan shall describe the location, size and direction of flow of existing and proposed sanitary sewers. The report may include maps, sketches, etc. as necessary.

5

The plan shall identify the total number of discharging system(s) to be eliminated and the resources used in making that determination. Homes with existing sanitary sewer access must be clearly identified.

Based upon the proposed recommendations to abate discharging septic tanks in the West Creek watershed the report shall include a cost estimate for these improvements and a schedule for completion of each project in accordance with the time allowed by the DFF&O. Since the report is a recommendation of engineering work it must be submitted under a seal of a professional engineer which has been signed and dated..

Within thirty days of the above date of this letter the City must submit an acceptable general plan which addresses the intent of the DFF&O. Please be advised failure to comply with the conditions of the Director's Final Findings and Orders may be cause for further enforcement action subject to civil and stipulated penalties.

If you should have any questions, please contact this office at (330) 963-1124.

Sincerely,

Sandra M. Cappotto
Environmental Scientist
Division of Surface Water

SMC:tlc

pc: Kimberly Rhoads, Ohio EPA - Legal, Columbus
Richard Pignattello, Law Director, City of Seven Hills
Lawrence W. Fulton, City Engineer
Fultech Consulting Engineers, Inc.



State of Ohio Environmental Protection Agency

Northeast District Office

RECEIVED

JUL 09 2003

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Chris Jones, Director
MAYOR'S OFFICE

July 8, 2003

RE: CITY OF SEVEN HILLS
CUYAHOGA COUNTY
DIRECTOR'S FINAL FINDINGS & ORDERS

Mayor and Council
City of Seven Hill
7325 Summitview Drive
Seven Hills, OH 44131

Dear Mayor and Council:

This letter serves as notification of noncompliance with the Director's Final Findings and Orders issued to the City of Seven Hills on December 31, 2002. The City has failed to comply with Order 1, requiring the submittal of a general plan describing the alternatives for abatement of pollution resulting from discharging septic system in the West Creek watershed not later than July 1, 2003.

Within thirty days of the above date of this letter the City must submit an acceptable general plan which addresses the intent of the DFF&O. Please be advised failure to comply with the conditions of the Director's Final Findings and Orders may be cause for further enforcement action subject to civil and stipulated penalties.

If you should have any questions please contact this office at (330) 963-1124.

Sincerely,

Sandra M. Cappotto
Environmental Scientist
Division of Surface Water

SMC:ew

pc: Kimberly Rhoads, Ohio EPA - Legal, Columbus
Richard Pignattello, Law Director, City of Seven Hills



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
122 S. Front Street
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

December 31, 2002

RECEIVED

JAN 06 2003

MAYOR'S OFFICE

Re: Director's Final Findings and Orders
Verified Complain No. VC0008W01

Mayor and Council
City of Seven Hills
7325 Summitview Drive
Seven Hills, Ohio 44131

Ladies and Gentlemen:

Transmitted herewith is one copy of the Director's Final Findings and Orders in the referenced matter.

Sincerely,

Patti L. Smith, Supervisor
Permit Processing Unit
Division of Surface Water

PLS/dks

Enclosure

CERTIFIED MAIL

cc: B. Landshof, DSW
S. Kemper, Enforcement
R. Bell, NEDO/DSW
D. Lee, NEDO/DSW
K. Riley, NEDO/DSW
S. Willeke, PIC
H. Griesmer, PIC
G. Smith, Legal
P. Fallah, DEFA
Journal Room
File

Bob Taft, Governor
Maureen O'Connor, Lieutenant Governor
Christopher Jones, Director

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

In the matter of:

Mayor and Council
City of Seven Hills
7325 Summitview Drive
Seven Hills, Ohio 44131

Respondent

Director's Final Findings
and Orders

ENTERED DIRECTOR'S JOURNAL

DEC 31 2002

OHIO E.P.A.

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to the City of Seven Hills ("Respondent") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under Ohio Revised Code ("ORC") §§ 6111.03 and 3745.01.

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondent and successors in interest liable under Ohio law.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders [and in the appendices] shall have the same meaning as defined in ORC Chapter 6111. and the rules promulgated thereunder.

IV. FINDINGS

The Director of Ohio EPA has determined the following findings:

1. Respondent is the City of Seven Hills located in Cuyahoga County, Ohio.
2. Respondent's citizens are served by both separate sanitary sewers and discharging household septic tank systems.

Director
12/31/02

3. Parma Land Development Company LLC, hereinafter, "Complainant," is the owner of property on Broadview Road in the City of Parma, Cuyahoga County, Ohio. This property is located on Broadview Road, which defines the corporation limit between the City of Parma and the Respondent.
4. The Complainant filed a verified complaint with the Ohio EPA on August 2, 2000, VC0008W01, alleging that the forty-one residences in adjacent subdivisions have been unlawfully discharging the flow from their septic tank systems into streams which flow through the Complainant's property in violation of the Clean Water Act, and that these discharges have caused said streams to become contaminated with refuse, waste and other hazardous substances rendering the streams unfit for human use and/or consumption, thus degrading the property.
5. The report, "*Analysis of West Creek Watershed Water Quality Report*", Revised March 1999, prepared by the Cuyahoga County Board of Health, documents widespread contamination and impairment of streams in the West Creek watershed from sewage from household sewage disposal systems. The report identifies 502 homes in the city of Parma and 362 homes in the City of Seven Hills which are served by home sewage disposal systems, and identified most of these systems as discharging to the West Creek Watershed.
6. The Complainant's property is located within the West Creek watershed area which includes the communities of Parma, Respondent, Brooklyn Heights and Independence. West Creek is part of the Cuyahoga River basin. An unnamed tributary of West Creek transverses the northern portion of Complainant's property adjacent to the subdivision with discharging septic tank systems. This unnamed tributary originates in the City of Seven Hills and receives discharges from household sewage disposal systems as indicated above. The Cuyahoga River, West Creek, and its tributaries are defined as waters of the state in accordance with the ORC Chapter 6111.01.
7. The forty-one residences cited in the verified complaint are located on four streets in the City of Parma: Thorncliffe Boulevard, Sagamore Road, Maple Drive and Broadview Road.
8. On August 29, 2000, the Ohio EPA Northeast District Office (NEDO) and the Cuyahoga County Board of Health (CCBH) conducted a site inspection of the area cited by the verified complaint.
9. The discharge from septic tank systems enters the Complainant's property from three storm sewer culverts at two locations on said property. Two of the storm sewers, north and east culvert pipes, discharge into the unnamed tributary directly behind the homes on Sagamore Road. The third storm sewer culvert discharges into a wetlands area on the Complainant's property at Broadview Road.

10. Of the forty-one residences cited in the verified complaint with discharging septic tank systems affecting the Complainant's property the four homes on Thorncliffe Blvd. (7328, 7334, 7338, 7344) and the nine homes on Sagamore Rd. (1324, 1300, 1274, 1250, 1225, 1301, 1275, 1251, 1224) do not discharge into the unnamed tributary on the Complainant's property. However, these homes do discharge to West Creek downstream of the Complainant's property.
11. In addition to the homes cited in the verified complaint which were found to be discharging to the streams crossing the Complainant's property, several other homes not cited by the verified complaint were found to have discharges to the unnamed tributary on the Complainant's property: two homes on Maple Dr. and homes on Broadview Rd., north of Maple Dr., discharge to the east storm sewer culvert were not cited by the verified complaint. Three homes on Broadview Rd. have discharging septic tanks systems tributary to the Broadview Rd. storm sewer culvert which discharges on the Complainant's property. An unidentified number of homes located in the City of Seven Hills discharge to the unnamed tributary of West Creek, upstream of the subdivision identified in Finding No. 10, above.
12. The CCBH and Ohio EPA completed water quality monitoring on the West Creek watershed. Analytical data from the CCBH West Creek Watershed Water Quality Report, representing samples collected at the north and east storm sewer culvert pipes between July 7, 1998 and August 13, 1998, indicates fecal coliform levels exceeding water quality criteria of 5000 counts per 100 milliliters (5000/100 ml) for secondary contact and applicable to all waters of the state in accordance with Rule 3745-1-04 of the Ohio Administrative Code ("OAC").
13. A sample was collected by the Ohio EPA on July 26, 2000 and two samples were collected on October 2, 2000 from three locations identified as PLD (Parma Land Development) #1 @ Broadview Rd., downstream from storm sewer culvert; PLD Ust @ SS, 2 meters downstream from the north and east storm sewer culvert pipes; and PLD Dst @ Mouth, from the unnamed tributary downstream of the Complainant's property just upstream of the confluence with West Creek. All samples exceeded the water quality criteria for secondary contact, 5000/100 ml, except for the samples collected at PLD Dst @ Mouth.
14. Visual observations at the culvert outlets include sewage odors, grayish to blackish color discharge from the pipes, sludge deposits, sewage fungus and algae growth.
15. The sampling data collected by the Ohio EPA and CCBH demonstrates a public health nuisance in accordance with the OAC Rule 3745-1-04.
16. The discharge of pollutants to waters of the state without a National Pollutant Discharge Elimination Permit is a violation of the ORC §§ 6111.04 and 6111.07.

17. Small lot sizes and poor soil conditions prohibit the abatement of these discharges through the installation of replacement home sewage treatment systems.
18. It is necessary for the protection of the health and welfare of the public that Respondent abate the sewage disposal problems and unsanitary conditions resulting from discharges of raw or partially treated sewage in the aforementioned area.
19. On March 26, 2002, the Director issued Final Findings and Orders to the City of Parma which require the elimination of unauthorized discharges to the West Creek Watershed from home sewage disposal systems of that City's residents.
20. Compliance with the ORC Chapter 6111. is not contingent upon the availability or receipt of financial assistance.
21. The Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economic reasonableness of complying with these Orders and to evidence relating to conditions calculated to result from compliance with these Orders, and its relation to the benefits to the people of the State to be derived from such compliance in accomplishing the purposes of ORC Chapter 6111.

V. ORDERS

1. Not later than six (6) months from the effective date of these Orders, Respondent shall submit a General Plan to Ohio EPA for review and acceptance, describing the alternatives for the abatement of pollution resulting from the discharging septic systems in the West Creek watershed (as identified in Attachment A).
2. Within thirty (30) days of receipt of any written comments from Ohio EPA regarding the General Plan, Respondent shall make any requested changes or modifications and/or submit any additional information to Ohio EPA.
3. Respondent shall implement its General Plan, as accepted by Ohio EPA, and eliminate unpermitted discharges as expeditiously as practicable, but not later than the schedule contained in these Orders:
 - a. Within eighteen (18) months from the effective date of these Orders, Respondent shall submit a complete Permit to Install (PTI) application, approvable detail plans, and an antidegradation addendum to Ohio EPA for eliminating the aforementioned unpermitted discharges.

- d. Within forty-eight (48) months from the effective date of these Orders, Respondent shall complete construction in accordance with its approved PTI and eliminate all unpermitted discharges.
4. Within seven (7) days of completing the requirements in Order 3.b., 3.c., and 3.d., Respondent shall submit to Ohio EPA written notification of the completion of each obligation.
5. Respondent has expressed concern that compliance with the schedule contained within Order No. 3 may be delayed as a result of problems stemming from easement acquisition, contract bidding, or the tying-in by landowners to the wastewater collection system. Upon request by Respondent, the Director may, at his sole discretion, extend in writing the time periods contained in Order No. 3.

VI. TERMINATION

Respondent's obligations under these Orders shall terminate when Respondent certifies in writing and demonstrates to the satisfaction of Ohio EPA that Respondent has performed all obligations under these Orders and the Chief of Ohio EPA's Division of Surface Water acknowledges, in writing, the termination of these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondent of the obligations that have not been performed, in which case Respondent shall have an opportunity to address any such deficiencies and seek termination as described above.

The certification shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate and complete."

This certification shall be submitted by Respondent to Ohio EPA and shall be signed by a responsible official of Respondent. For purposes of these Orders, a responsible official is as defined in OAC Rule 3745-33-03(D)(4) for a municipal, state, or other public facility.

VII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondent.

VIII. NOTICE

All documents required to be submitted by Respondent pursuant to these Orders shall be addressed to:

Ohio Environmental Protection Agency
Northeast District Office
Division of Surface Water
2110 East Aurora Road
Twinsburg, Ohio 44087
Attn: Enforcement Supervisor, Division of Surface Water

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

IX. RESERVATION OF RIGHTS

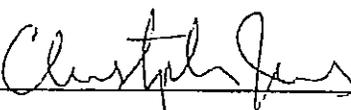
Nothing contained herein shall be construed to prevent Ohio EPA from seeking legal or equitable relief to enforce the terms of these Orders or from taking other administrative, legal or equitable action as deemed appropriate and necessary, including seeking penalties against Respondent for noncompliance with these Orders and/or for the violations described herein. Nothing contained herein shall be construed to prevent Ohio EPA from exercising its lawful authority to require Respondent to perform additional activities pursuant to ORC Chapter 6111, or any other applicable law in the future. Nothing herein shall restrict the right of Respondent to raise any administrative, legal or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of Respondent. Nothing in these Orders shall be construed to limit the authority of Ohio EPA to seek relief for violations not addressed in these Orders.

X. EFFECTIVE DATE

The effective date of these Orders is the date these Orders are entered into the Ohio EPA Director's journal.

IT IS SO ORDERED:

Ohio Environmental Protection Agency



Date: 12-30-02

Christopher Jones
Director

ATTACHMENT A

Broadview Road - 26 addresses

Gottysburg 26
6625, 6545, 6561, 6563, 6565, 6577, 6581, 6591, 7001, 7009, 7019, 7029, 7049, 7057,
7071, 7081, 7095, 7105, 7099, 7109, 7137, 7143, 7151, 7161, 7175, 7185

Cherry Lane - 12 addresses

Gottysburg
12 114, 138, 164, 188, 213, 214, 237, 238, 263, 264, 288, 291

Hillside Road - 25 addresses

Condo
25 85, 98, 119, 151, 162, 185, 217, 285, 296, 311, 317, 330, 336, 345, 351, 370, 375, 385,
419, 432, 453, 468, 485, 500, 590

Nemet Drive - 2 addresses

Gottysburg
2 138, 152

Panorama Drive - 3 addresses

3 80, 85, 87

Skyview Drive - 26 addresses

26 26, 30, 65, 66, 97, 98, 131, 132, 165, 166, 197, 198, 231, 232, 265, 266, 297, 298, 328,
352, 361, 374, 399, 400, 411, 412

Sprague Road - 23 addresses

Under construction
23 267, 295, 339, 355, 381, 407, 409, 417, 455, 499, 601, 713, 771, 873, 941, 1059, 1097,
1181, 1267, 1363, 1447, 1519, 1573

Summitview - 1 address

Condo
1 7279

Twilight Drive - 4 addresses

Gottysburg
4 144, 197, 182, 221

	PPN	Owners/	House No.	Street	Frontage	Permanent	Temporary	Cost	Landscape	Total Cost
					Estimate Area	Area	Estimate Area	Area	Area	Area
1	551-29-042	Joseph V. Quarrick III	6971	Broadview Road	80	1600	800	\$150.00	\$0.00	\$1,350.00
2	551-31-023	Ronald E. & Marilyn L. Sherban	6972	Broadview Road	75	1500	750	\$1,125.00	\$750.00	\$1,350.00
3	551-31-003	Gina M. Ianni	6879	Broadview Road	75	1423	750	\$1,100.00	\$1,200.00	\$2,475.00
4	551-01-014	Ray Anthony Sirkowski	6949	Broadview Road	69.05	1381	690	\$1,050.00	\$0.00	\$3,450.00
5	551-29-011	Raymond G. Smith	6807	Broadview Road	105	2011	1050	\$1,500.00	\$1,850.00	\$1,150.00
6	552-01-015	Arthur W. Good	6935	Broadview Road	69.03	1387	690	\$1,050.00	\$750.00	\$4,600.00
7	552-01-016	Irene M. Sattler	6943	Broadview Road	69.1	1382	690	\$1,050.00	\$0.00	\$2,600.00
8	551-29-046	Jeta Bellin	6799	Broadview Road	80	1600	800	\$1,200.00	\$0.00	\$1,150.00
9	551-31-071	James W. Schilling, Sr.	6911	Broadview Road	50	1000	500	\$750.00	\$0.00	\$1,350.00
10	551-21-002	James Koran	6625	Broadview Road	80.27	1089	803	\$850.00	\$0.00	\$850.00
11	551-31-001	Edward J. Dragny	6625	Broadview Road	135	2617	1350	\$2,000.00	\$0.00	\$1,000.00
12	551-29-006	William & Kathleen Moenrich	6711	Broadview Road	98.85	1971	922	\$1,500.00	\$0.00	\$3,200.00
13	551-29-004	Angela Alshabani	6689	Broadview Road	100	2000	1000	\$1,500.00	\$0.00	\$2,650.00
14	551-29-005	Larry & Donna Nousek	6699	Broadview Road	100.18	2004	1002	\$1,500.00	\$2,000.00	\$300.00
15	551-21-001	Ronald & Kathy Smolenski	6633	Broadview Road	110	2201	1170	\$2,750.00	\$850.00	\$1,950.00
16	551-31-004	Nick & Olga Shtadolsky	6891	Broadview Road	100	2000	1000	\$1,500.00	\$0.00	\$3,650.00
17	551-31-005	The Angelone Trust Agreement	6895	Broadview Road	54	1080	540	\$850.00	\$0.00	\$4,000.00
18	551-31-006	Stephen T. Smith	6899	Broadview Road	50	1000	500	\$750.00	\$0.00	\$950.00
19	551-29-001	Stuart Light	6905	Broadview Road	50	1000	500	\$750.00	\$0.00	\$850.00
20	551-31-007	James & Daad Fadel	6645	Broadview Road	100	1000	500	\$750.00	\$600.00	\$1,200.00
21	551-21-004	David A. Novak	6591	Broadview Road	116.32	1963	1160	\$2,475.00	\$0.00	\$2,650.00
22	551-29-002 & 003	James G. Parras	6655	Broadview Road	199.92	2326	1163	\$1,700.00	\$1,375.00	\$3,775.00
23	551-21-003	Gary & Sherie Stephan	6581	Broadview Road	155	3999	2000	\$3,000.00	\$300.00	\$3,600.00
24	551-01-002	Thomas F. Kline	6869	Broadview Road	69.05	1494	1552	\$1,150.00	\$2,400.00	\$4,200.00
25	552-01-013	Kalemba Family Ltd.	6981	Broadview Road	69.08	1381	690	\$1,050.00	\$0.00	\$4,200.00
26	552-01-004	Henry & Vincenza	6955	Broadview Road	69.05	1381	691	\$1,050.00	\$0.00	\$1,150.00
27	552-01-003	John & Ingrid Klump	6961	Broadview Road	69.05	1381	690	\$1,050.00	\$0.00	\$1,300.00
28	551-31-026 & 027	Daisy Investment Co.	Justo &	Broadview Road	126.69	1267	691	\$1,050.00	\$0.00	\$1,150.00
29	551-31-002	Belinda & Dean Lobbs	6843	Broadview Road	134.85	2696	1349	\$2,050.00	\$0.00	\$2,250.00
30	551-22-023	Eleanor Lisicki, Tr.	547	Ridgewood Drive	157.5	6348	6348	\$2,400.00	\$200.00	\$3,100.00
31	551-22-022	Robert C. Stanley	456	Ridgewood Drive	93.4	1906	2802	\$750.00	\$200.00	\$250.00
32	551-29-007	Elena & Remus	6725	Broadview Road	201.44	4029	2015	\$3,000.00	\$2,000.00	\$1,200.00
33	551-29-009	Deborah B. & John J. Riccio, Jr.	6751	Broadview Road	125.04	2501	1250	\$1,850.00	\$0.00	\$5,700.00
34	551-21-005	North Coast Community Homes Inc	6577	Broadview Road	116.32	2326	1163	\$1,700.00	\$0.00	\$2,050.00
35	551-21-006	Alphonse Yunis	6565	Broadview Road	116.32	2326	1163	\$1,700.00	\$0.00	\$1,800.00
36	551-21-007	Everett & Catherine Adkins	6563	Broadview Road	116.32	2326	1163	\$1,700.00	\$450.00	\$3,050.00
37	551-21-008	Thomas E. & Cynthia M. Mechir	6561	Broadview Road	116.14	2322	1163	\$1,700.00	\$0.00	\$1,900.00
38	551-29-044	Annamaril I. Ewald Perko	6767	Broadview Road	112.5	2250	1125	\$1,650.00	\$0.00	\$4,700.00
39	551-29-010	Rispo Building Company	6779	Broadview Road	112.5	2250	1125	\$1,650.00	\$0.00	\$1,850.00
40	551-22-040	Eugene Dorsey	412	Skyview	56.81	6828	1125	\$1,090.00	\$350.00	\$2,150.00
41	551-24-061	Uhta A. Dubrovicz	80	Pancratia	192.14	2944	1650	\$3,700.00	\$1,000.00	\$5,150.00
42	551-22-001 & 002	Leo & Jane Schillerio	6475	Broadview Road	120	582	2700	\$450.00	\$0.00	\$450.00
43	551-22-039	Ryan Pavlic	400	Skyview	159.62	2138	1500	\$1,600.00	\$200.00	\$1,100.00
44	551-22-031	John D. & Viorica	166	Skyview	140.71	1790	1500	\$1,800.00	\$1,400.00	\$3,050.00
45	551-22-030	Thomas & Elizabeth Fisher	132	Skyview	107.15	1550	1607	\$1,550.00	\$250.00	\$3,750.00
46									\$0.00	\$2,400.00
47									\$0.00	\$0.00
48									\$0.00	\$0.00
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57									\$0.00	\$0.00

\$112,825.00

Charmagne Cimaglia

From: Denise Murtz [dmurtz@sevenhillsohio.org]
Sent: Thursday, March 06, 2008 2:36 PM
To: 'Charmagne Cimaglia'
Cc: 'Robert Schwarz'; 'Mark Papke'
Subject: Information Request from Engineering

In order to finalize out tally for the Glenella Sanitary Sewer Assessment our office will require copies of the following documents:

- o Advertisement Bill for Legal Notice in Plain Dealer
- o Permit to Install Fee (In the amount of \$1,871.90) Application and canceled check
- 3rd EBlueprint invoice for Spec Books (7/23/07 for \$525.60) and also the invoice for Contract books (9/4/07 for \$123.23)

Treasurer or DEPA

Please let me know if you have questions or need any assistance with making these copies, I can come over to help.

Thank you,

*Denise D. Murtz
Engineering Secretary
City of Seven Hills
dmurtz@sevenhillsohio.org
216-525-6226*



State of Ohio Environmental Protection Agency

STREET ADDRESS:

zarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

September 16, 2010

Re: Seven Hills
Cuyahoga County
Application No. 769097
Application for Sanitary Sewer Extension for
West Creek Watershed Sanitary Sewer
Improvements, Phases II & III
Plans Received on July 22, 2010
Revised Plans Received August 14, 2010
From: CT Consultants, Inc. Independence
CERTIFIED MAIL

Mayor and Council
City of Seven Hills
7325 Summit View Drive
Seven Hills, OH 44131

Attn: Mark K. Papke, P.E., City Engineer

Ladies and Gentlemen:

Enclosed is the Ohio EPA Permit to Install which will allow you to install the described source in the manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Kevin Boyce," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 309 South Fourth Street, Room 222, Columbus, Ohio 43215

You should note that a general condition of your permit states that issuance of the permit does not relieve you of the duty of complying with all applicable federal, state, and local laws, ordinances, and regulations.

If you have any questions, please contact the Ohio EPA district office to which you submitted your application.

Sincerely,

Patti L. Smith, Supervisor
Permit Processing Unit
Division of Surface Water

PLS/sg
Enclosure

cc: Northeast District Office
CT Consultants, Inc.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

Ohio EPA is an Equal Opportunity Employer

Ohio Environmental Protection Agency

Permit to Install

Application No: 769097

Applicant Name: Mayor and Council, City of Seven Hills
Address: 7325 Summit View Drive
City: Seven Hills
State Zip: OH 44131

Person to Contact: Mark K. Papke, P.E., City Engineer
Telephone: 216-525-6226

Description of Proposed Source: Sanitary Sewer Extension for West Creek Watershed Sanitary
Sewer Improvements, Phases II & III, Seven Hills, Cuyahoga County

Issuance Date: September 16, 2010
Effective Date: September 16, 2010

The above named entity is hereby granted a permit to install for the above described source pursuant to Chapter 3745-42 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source of environmental pollutants will operate in compliance with applicable state and federal laws and regulations. Issuance of this permit does not constitute expressed or implied assurance that, if constructed or modified in accordance with those plans and specifications, the above described source of pollutants will be granted the necessary operating permits. This permit is granted subject to the following conditions attached hereto.

Ohio Environmental Protection Agency



Chris Korleski
Director
P.O. Box 1049
50 West Town Street, Suite 700
Columbus, OH 43216-1049

This permit shall expire if construction has not been initiated by the applicant within eighteen months of the effective date of this permit. By accepting this permit, the applicant acknowledges that this eighteen month period shall not be considered or construed as extending or having any effect whatsoever on any compliance schedule or deadline set forth in any administrative or court order issued to or binding upon the permit applicant, and the applicant shall abide by such compliance schedules or deadlines to avoid the initiation of additional legal action by the Ohio EPA.

The director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, examining records, or reports pertaining to the construction, modification, or installation of the above described source of environmental pollutants.

Issuance of this permit does not relieve you of the duty of complying with all applicable federal, state, and local laws, ordinances, and regulations.

Any well, well point, pit, or other device installed for the purpose of lowering the ground water level to facilitate construction of this project shall be properly abandoned in accordance with the provisions of this plan or as directed by the director or his representative.

Any person installing any well, well point, pit or other device used for the purpose of removing ground water from an aquifer shall complete and file a Well Log and Drilling Report form with the Ohio Department of Natural Resources, Division of Water, within 30 days of the well completion in accordance with the Ohio Revised code Section 1521.01 and 1521.05. In addition, any such facility that has a capacity to withdraw waters of the state in an amount greater than 100,000 gallons per day from all sources shall be registered by the owner with the chief of the Division of Water, Ohio Department of Natural Resources, within three months after the facility is completed in accordance with Section 1521.16 of the Ohio Revised Code. For copies of the necessary well log, drilling report, or registration forms, please contact:

Ohio Department of Natural Resources
2045 Morse Road Bldg. E
Columbus, OH 43229-6693
(614) 265-6717

The proposed wastewater disposal system shall be constructed in strict accordance with the plans and application approved by the director of the Ohio Environmental Protection Agency. There shall be no deviation from these plans without the prior express, written approval of the agency. Any deviations from these plans or the above conditions may lead to such sanctions and penalties as provided for under Ohio law. Approval of these plans and issuance of this permit does not constitute an assurance by the Ohio Environmental Protection Agency that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources are inadequate or cannot meet applicable standards.

If the construction area for this project is one acre or more, or is part of a larger development that is one acre or more, the applicant must submit a Notice of Intent (NOI) for coverage under the general construction stormwater permit to Ohio EPA at least 21 days prior to the start of construction of this project.

For projects involving construction or placement of fill in a stream or wetland, the applicant shall contact the appropriate district of the U.S. Army Corps of Engineers for a determination regarding potential impacts to water of the state as well as the requirements for obtaining, if necessary, certification. The applicant shall acquire a Section 404 permit and 401 water quality certification, if needed, before impacting any waters of the state as part of this project.

The City of Seven Hills shall be responsible for proper operation and maintenance of the sewerage system.

For parallel installation, a minimum horizontal separation of 10 feet between gravity sanitary sewers and any existing or proposed potable water mains shall be maintained. The distance shall be measured edge to edge.

Where gravity sewer lines cross existing or proposed water mains, the gravity sewer lines shall be laid below the water mains to provide a separation of at least 18 inches between the invert of the water main and the crown of the gravity sewer. The lines shall be laid so that the gravity sewer line joints are as far as possible from the water main joints.

For parallel installation where a minimum horizontal separation of 10 feet between gravity sanitary sewers and any existing or proposed potable water mains cannot be maintained, the water main and gravity sewer line should be laid in separate trenches and the bottom of the water main should be at least 18 inches above the crown of the gravity sewer. If the vertical separation distance cannot be maintained, both the water main and gravity sewer line must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency and be pressure tested to 150 psi (1034 kPa) to assure water-tightness. The pipe material shall remain the same from manhole to manhole where the separation distance cannot be maintained. If the gravity sewers and water main must be placed in the same trench, the water main shall be placed on a shelf of undisturbed earth with the invert of the water main at least 18 inches above the crown of the gravity sewer. Additionally, there shall be a minimum of 5 feet of horizontal separation measured edge to edge between the water main and the gravity sewer. The gravity sewer shall be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency from sewerage manhole to sewerage manhole at the locations where the separation distance cannot be maintained and be pressure tested to 150 psi (1034 kPa) to assure water-tightness.

Gravity sewer lines crossing existing or proposed water mains shall be laid below the water mains to provide a separation of at least 18 inches between the invert of the water main and the crown of the gravity sewer. If the vertical separation cannot be maintained the gravity sewers shall be constructed by one of the following methods: these gravity sewers shall be standard gravity-sewer material encased in a one quarter-inch thick continuous steel, ductile iron, or pressure rated PVC pipe with a dimension ratio (DR) (the ratio of the outside diameter to the pipe wall thickness) of 18 or less for a distance of 10 feet on both sides of the crossing with all voids pressure-grouted with sand-cement grout or bentonite; or the gravity sewer line shall be constructed of slip-on or mechanical joint pipe from sewerage manhole to sewerage manhole complying with public water supply design standards of the agency and be pressure tested to 150 psi (1034 kPa) to assure water-tightness. The length of gravity sewer pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water main. The gravity sewer pipe shall be the longest standard length available from the manufacturer.

If water mains must be installed beneath gravity sewers, the water mains shall be protected by providing a vertical separation of at least 18 inches between the invert of the gravity sewer and the crown of the water main. Construction of the gravity sewer lines shall follow one of the two following methods: gravity sewers shall be encased in a one quarter-inch thick continuous steel, ductile iron, or pressure rated PVC pipe with a dimension ratio (DR) (the ratio of the outside diameter to the pipe wall thickness) of 18 or less for a distance of 10 feet on both sides of the crossing with all voids pressure-

grouted with sand-cement grout or bentonite; or the gravity sewer line shall be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency from sewerage manhole to sewerage manhole and be pressure tested to 150 psi (1034 kPa) to assure water-tightness. Adequate structural support such as compacted soil, manholes on both sides of the crossing, or another Ohio EPA approved method shall be provided for the gravity sewers to prevent excessive deflection of joints and settling on and breaking of the water lines. The length of gravity sewer pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water line. The gravity sewer pipe shall be the longest standard length available from the manufacturer.

For parallel installation, a minimum horizontal separation of 10 feet between pressure sewers and any existing or proposed potable water mains shall be maintained. The distance shall be measured edge to edge. Where pressure sewer lines cross existing or proposed water mains, the pressure sewer lines shall be laid below the water mains to provide a separation of at least 18 inches between the invert of the water main and the crown of the pressure sewer.

The operation of the sewerage system shall be under the responsible charge of a certified operator having the proper certificate issued under Chapter 3745-7-05 of the Ohio Administrative Code.

This permit to install applies only to the wastewater disposal system listed above. The installation of drinking water supplies, air contaminant sources, or solid waste disposal facilities will require the submittal of a separate application to the director.

Provisions shall be made for proper operation of the wastewater pumping facilities.

Roof drains, foundation drains, and other clean water connections to the sanitary sewer shall be prohibited by enforcement of legally adopted rules by the authority regulating the use of sanitary sewers.

Sewer and manhole construction joints shall conform to standards of the Ohio Environmental Protection Agency.

When flexible pipe (PVC, ABS, HDPE, etc.) is used it must be tested for maximum deflection of 5 percent after the final backfill has been in place no less than 30 days to permit stabilization of the soil-pipe system. Pipe with a stiffness of 200 p.s.i. or greater need not be tested for deflection if all pipe between manholes is less than 12 feet below final grade.

The rigid ball or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM specification, including the appendix, to which the pipe is manufactured. The test shall be performed without mechanical pulling devices.

All pipe, flexible and rigid, shall be subject to a leakage test. The leakage exfiltration/infiltration test shall be a hydrostatic or air test. The hydrostatic leakage test shall not exceed 100 gallons per inch of pipe diameter per mile per day for any section of the system. If an air test is used, the test shall conform to the test procedure outlined in the ASTM standards for the material of pipe used.

The leakage and deflection test shall be conducted under the supervision of a professional engineer. A representative of the professional engineer may supervise the deflection and leakage tests, but the professional engineer must sign off on the results of the deflection and leakage tests. Results of the deflection and leakage tests shall be kept on file at least 180 days by the entity responsible for the sewerage system, and shall be available upon request by the Ohio Environmental Protection Agency. Any lines which fail the deflection or leakage test must be repaired and retested until they meet the requirements which have been set forth within this condition.

All gravity sanitary sewers which are located in well field areas shall comply with and be tested as specified in Ohio Environmental Protection Agency Guideline, Gravity Sewers in Well Field Areas, February 1983.

Any well, well point, pit or other device installed for the purpose of lowering the ground water level to facilitate construction of this project shall be properly abandoned in accordance with the provisions of Section 3745-9-10 of the Ohio Administrative Code or in accordance with the provisions of this plan or as directed by the Director or his representative. Division of Drinking and Ground Water - Lazarus Government Center, 50 West Town Street, Suite 700, Columbus, Ohio 43215 (614) 644-2752.

The permit to install is not an authorization to discharge pollutants to waters of the state. Pursuant to Chapter 6111 of the Ohio Revised Code, the applicant shall apply for a permit to discharge (NPDES) 180 days prior to any discharge of pollutants to waters of the state.

Fugitive dust generated by this sewer construction project will be controlled as specified in OAC 3745-17-08 (B).

CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

WEST CREEK WATERSHED

SANITARY SEWER IMPROVEMENTS

PHASES II AND III

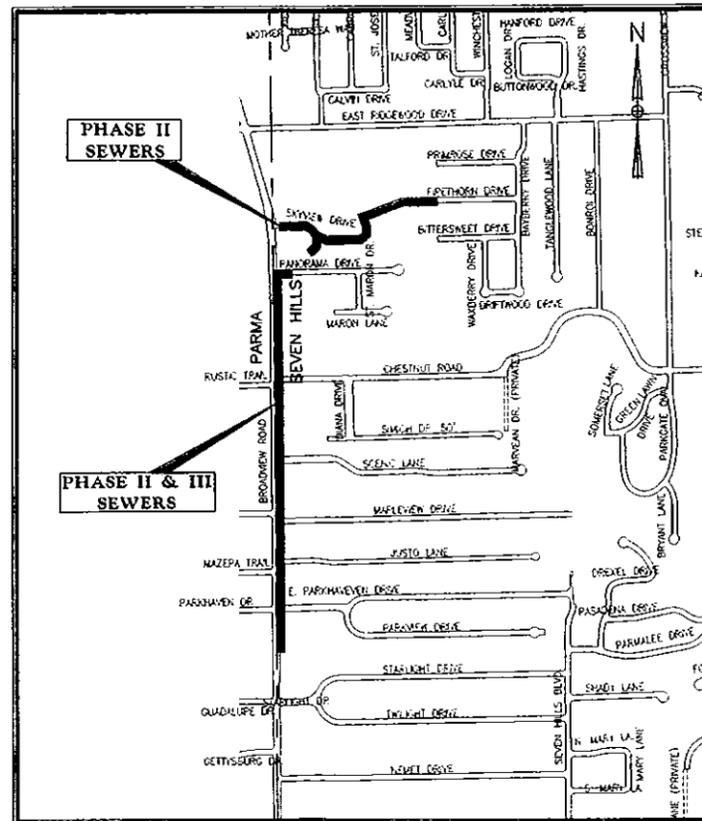
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INDEX OF DRAWINGS

OCTOBER, 2007

APPROVALS

TITLE SHEET	1
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GENERAL NOTES AND LEGEND	3
PANORAMA DRIVE - PLAN & PROFILE	4
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SKYVIEW DRIVE SERVICE BRANCH- PLAN & PROFILE	20
EROSION CONTROL PLAN	SW1-SW2
STANDARD DETAILS	SD1-SD4
SURVEY CONTROL & BENCHMARKS	SC1-SC3



LOCATION MAP
APPROX. SCALE: 1" = 1000'

CITY OF SEVEN HILLS

CITY ENGINEER

[Signature]
Mark Papke, P.E.

11/16/07
DATE

UNDERGROUND UTILITIES
 TWO WORKING DAYS
 BEFORE YOU DIG
 CALL 800-362-2764 (TOLL FREE)
 OHIO UTILITIES PROTECTION
 SERVICE
 NON-MEMBERS
 MUST BE CALLED DIRECT

NOTE:
THE SURVEY SHOWN ON THESE PLANS WAS OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR ANY OTHER PURPOSE.

CT Consultants
 engineers | architects | planners
6480 Rockside Woods Blvd., South Independence, Ohio 44131
 216.524.5333 www.ctconsultants.com

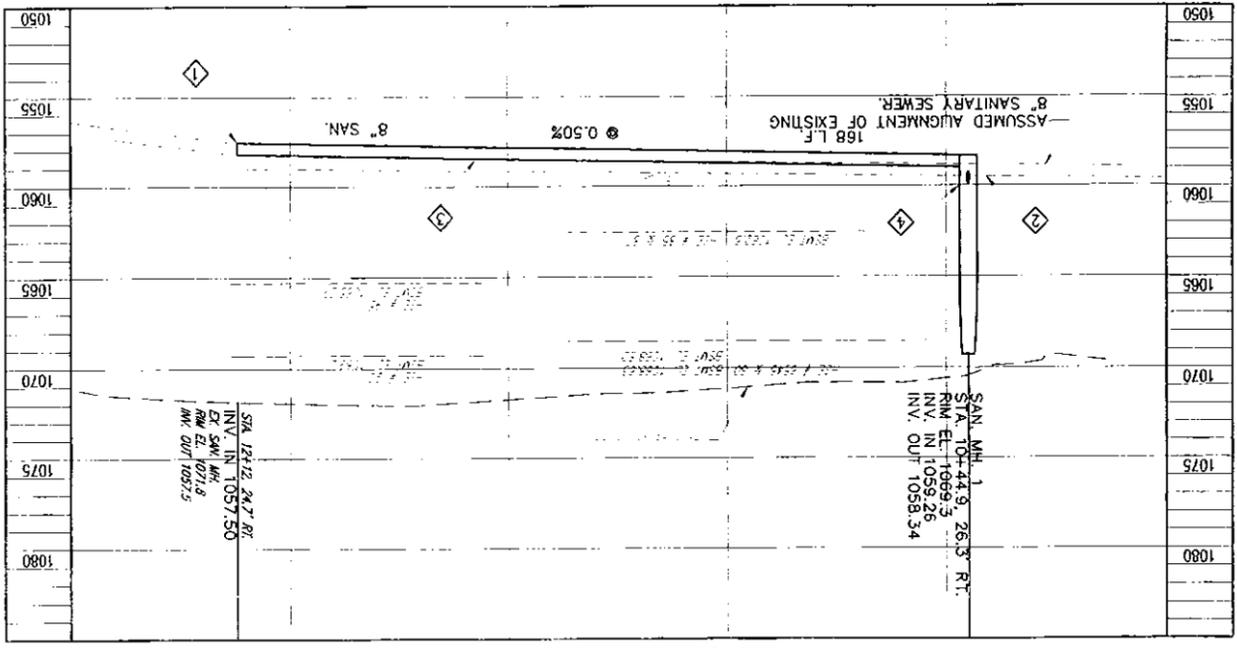
[Signature]
 ROBERT H. GREYTAK P.E. No. 46478



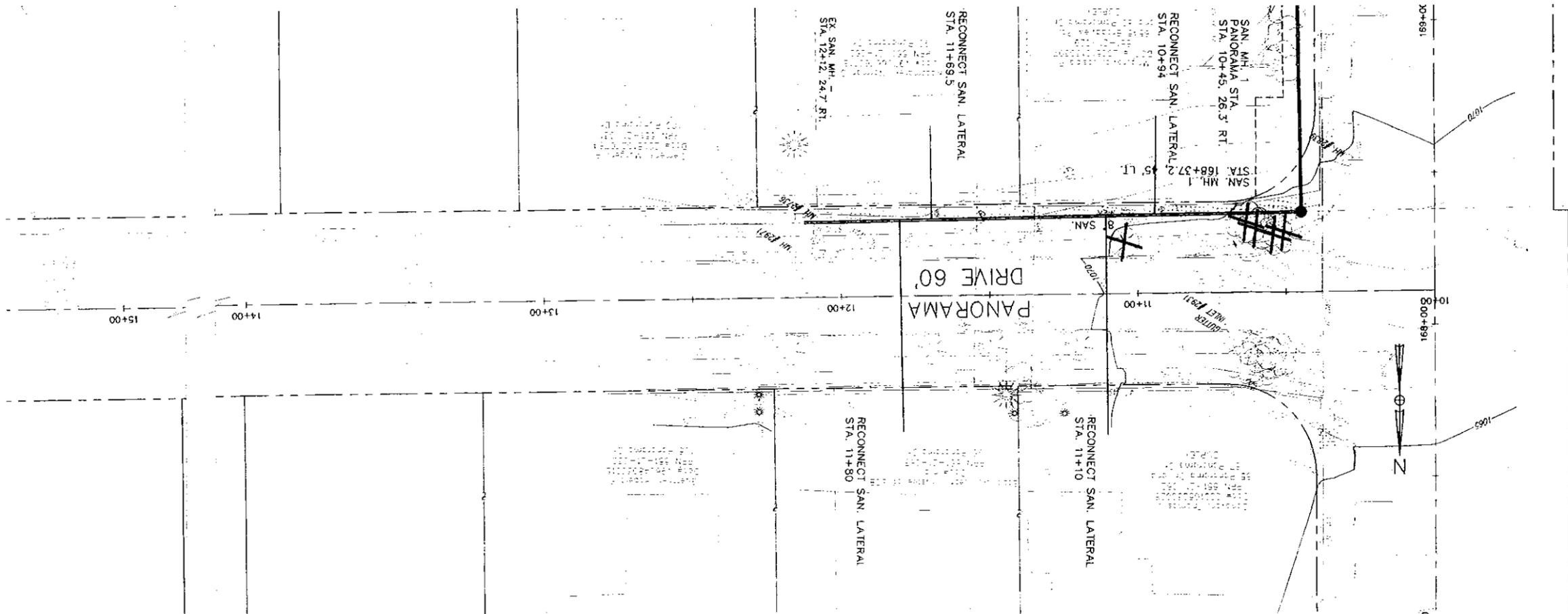
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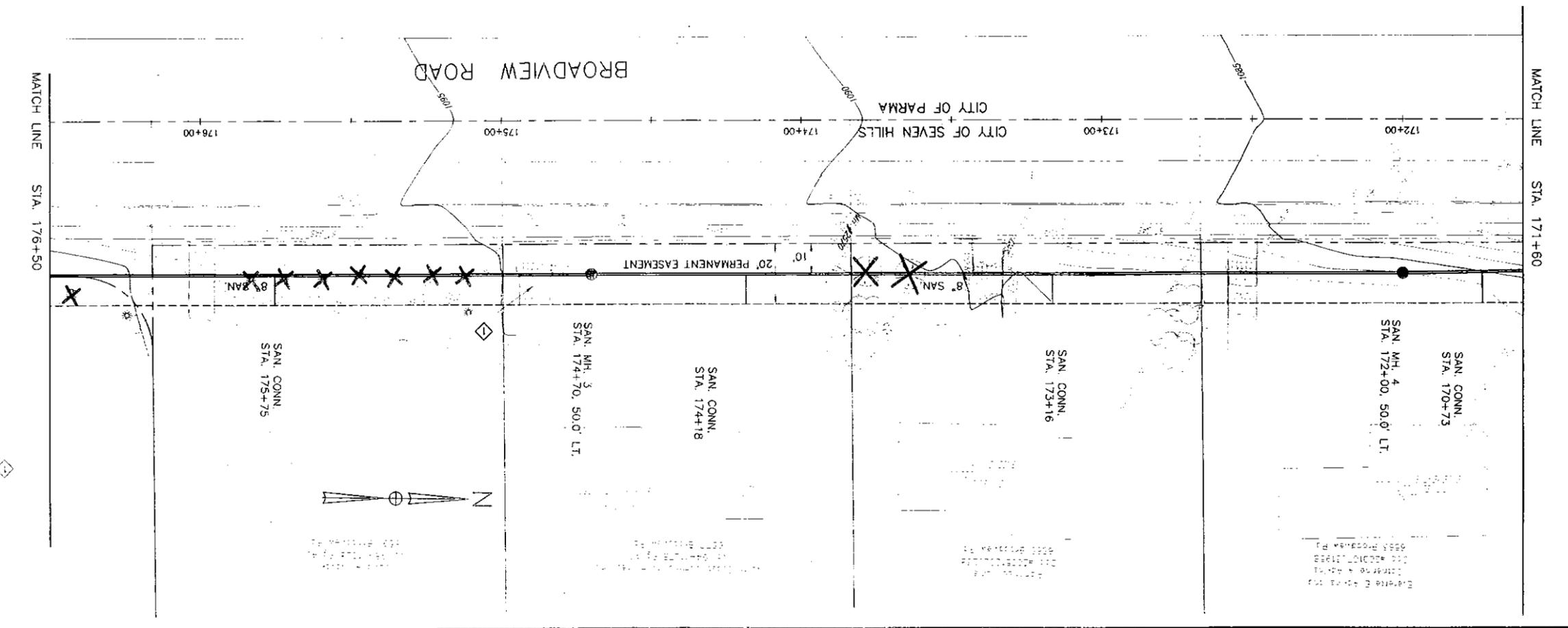
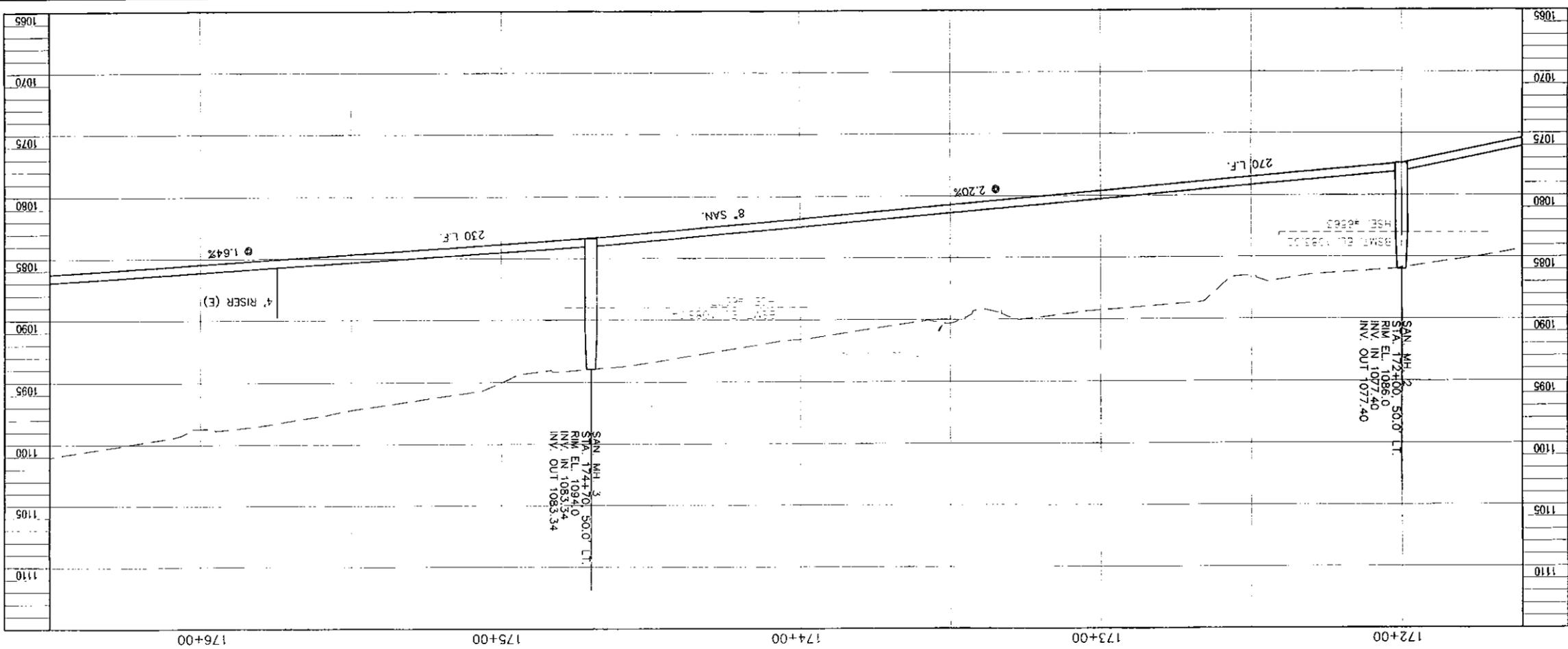
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JUL 09 2010
OHIO EPA REGION 4



- ① REMOVE THE MANHOLE CHANNEL, INVERT CONCRETE AND POUR A NEW CONCRETE CHANNEL TO MATCH THE INVERTS OF THE NEW AND EXISTING SANITARY SEWERS. INSTALL NEW PIPE IN ACCORDANCE WITH STANDARD DETAIL SD-7-10A AND NEW MANHOLE INVERT CHANNEL PER STANDARD DETAIL SD-3-5.
- ② THE CONTRACTOR SHALL VERIFY THE INVERT ELEVATION OF THE EXISTING SANITARY SEWER PRIOR TO ORDERING SANITARY MH 1. SHOP DRAWING SUBMITTAL FOR THIS MANHOLE SHALL INCLUDE THE FIELD MEASURED INVERT ELEVATION.
- ③ NEW SANITARY SEWER TO BE PLACED IN EXISTING SEWER TRENCH. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SANITARY FLOWS DURING ALL PHASES OF SEWER REPLACEMENT AND MANHOLE REHABILITATION PROCEDURES.
- ④ A WATER-TIGHT TEMPORARY PLUG SHALL BE INSTALLED IN THE NEW 8" SANITARY SEWER THAT EXTENDS TO THE SOUTH. THE PLUG SHALL NOT BE REMOVED UNTIL THE SEWERS HAVE BEEN APPROVED AND ACCEPTED FOR USE BY THE OWNER.



SHEET NO. 4	OF 20	07211	
CONTRACT NO. _____ DRAWING NO. _____ DATE _____ SCALE _____ APPR. BY _____ DES. BY _____ CHECKED BY _____			
WEST CREEK WATERSHED - PHASE II & III SANITARY SEWER IMPROVEMENTS CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO PANORAMA DRIVE PLAN & PROFILE			
CT Consultants engineers architects planners <small>4400 Rockside Woods Blvd., South, Independence, Ohio 44131 216.294.5100 www.ctconsultants.com</small>			



SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF TRENCH IN BOTH DIRECTIONS IF A CONCRETE PAVEMENT CURB EXISTS BETWEEN 2' AND 5' BEYOND THE EDGE OF TRENCH. PAVEMENT REPLACEMENT SHALL EXTEND TO THE CURB AT NO ADDITIONAL COST TO THE OWNER.

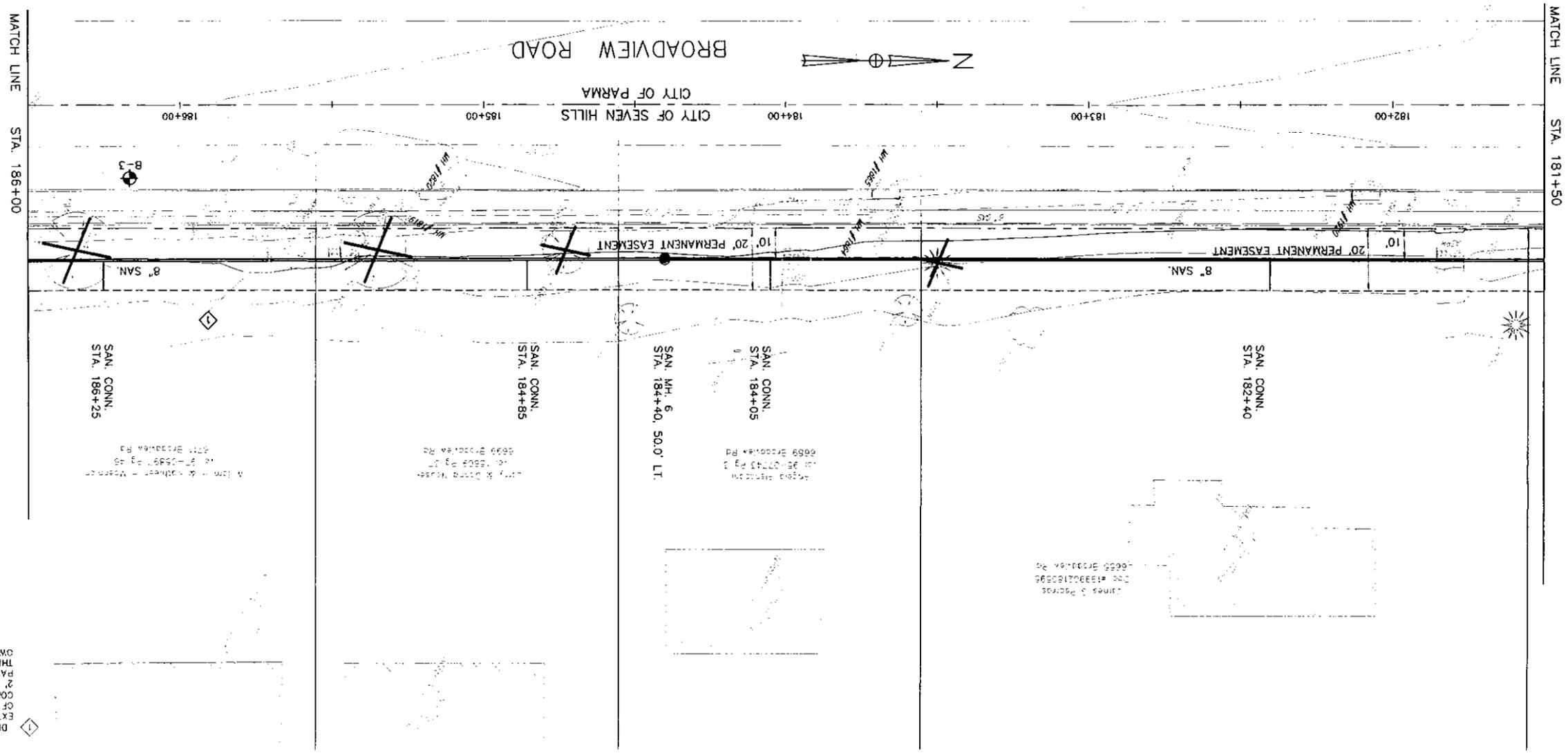
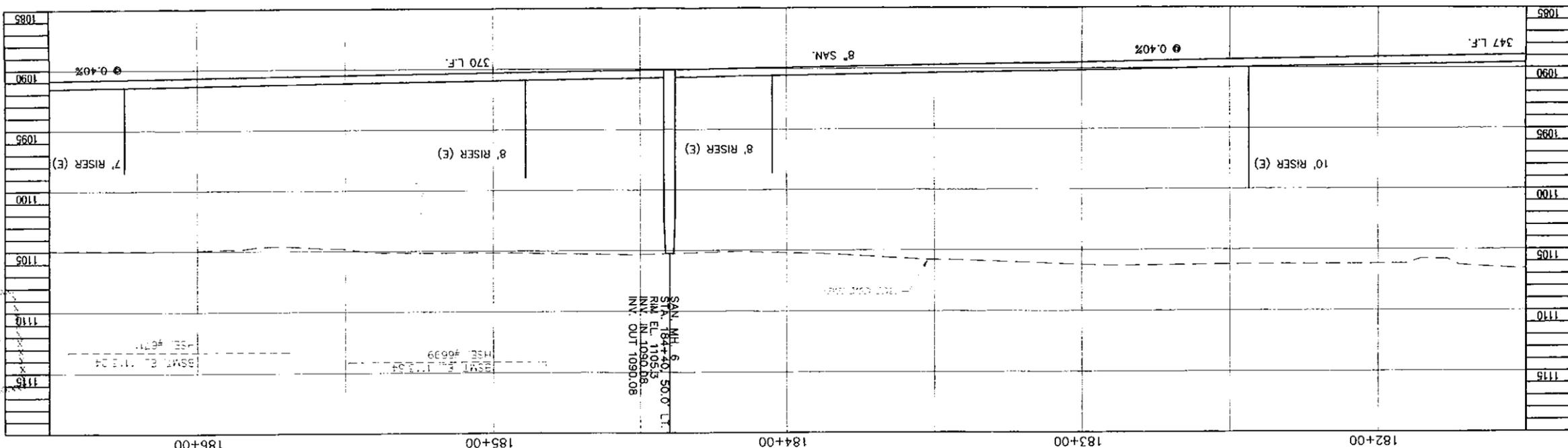
6 20
07211
DATE: 10/20/22
DRAWN BY: JES/LSA
CHECKED BY: JES/LSA
APPROVED BY: JES
SCALE: 1"=50'
PROJECT: WEST CREEK WATERSHED - PHASE II & III
SHEET NO. 21

CT Consultants
engineers | architects | planners
6450 Kirtland Woodland Blvd., South Independence, Ohio 44111
216.242.5335 www.ctconsultants.com

**WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
BROADVIEW ROAD -
PLAN & PROFILE STA. 171+00 TO 176+00**

REVISIONS	DATE	BY

No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100



DRIVEWAY PAVEMENT REPLACEMENT SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF TRENCH IN BOTH DIRECTIONS. IF A CONCRETE PAVEMENT JOINT EXISTS BETWEEN 2' AND 5' BEYOND THE EDGE OF TRENCH, PAVEMENT REPLACEMENT SHALL EXTEND TO THE JOINT AT NO ADDITIONAL COST TO THE OWNER.

SHEET NO. 8 OF 20
 PROJECT NO. 07211
 DATE: 11/11/14
 DRAWN BY: J.S.
 CHECKED BY: J.S.
 SCALE: AS SHOWN
 TITLE: WEST CREEK WATERSHED - PHASE II & III
 SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
CT Consultants
 engineers | architects | planners
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 216.328.3333 www.ctconsultants.com

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 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
BROADVIEW ROAD -
PLAN & PROFILE

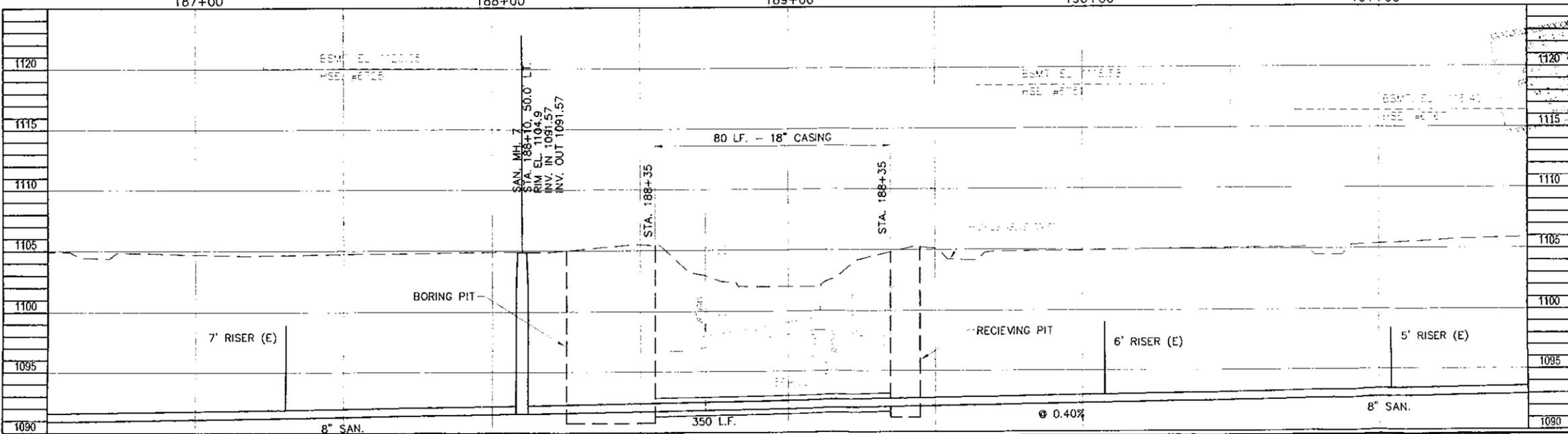
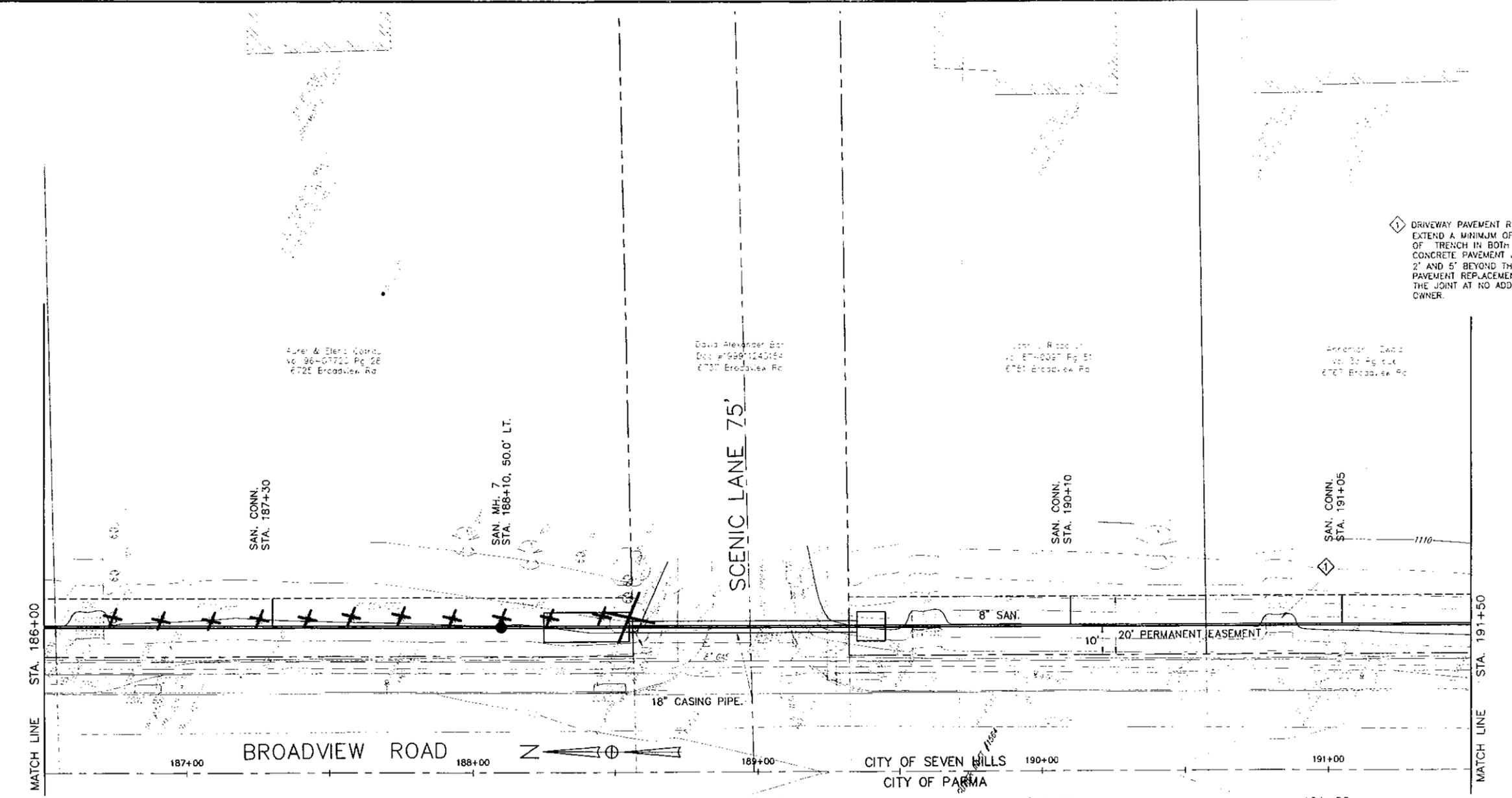
**WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS**
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
**BROADVIEW ROAD -
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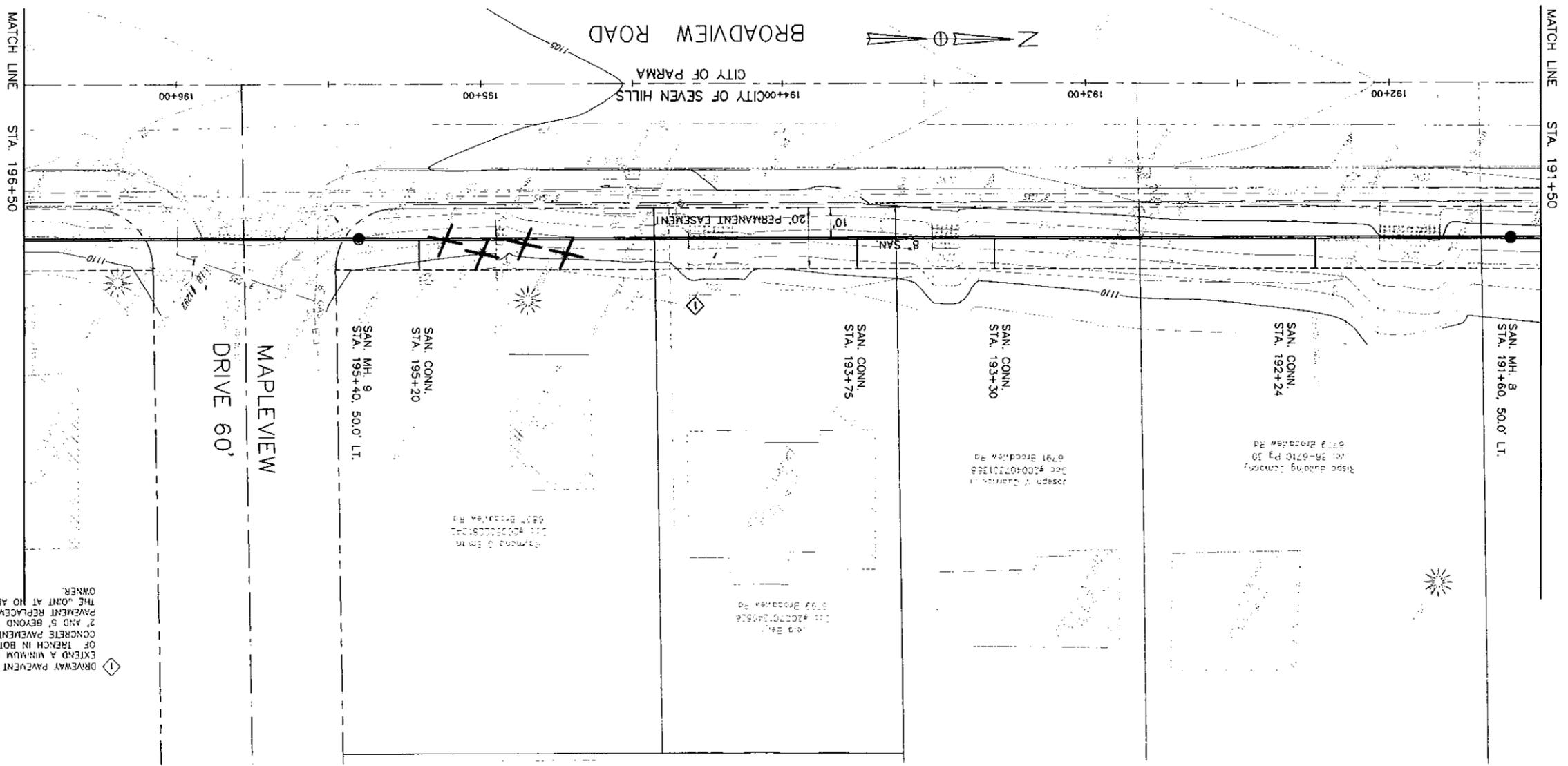
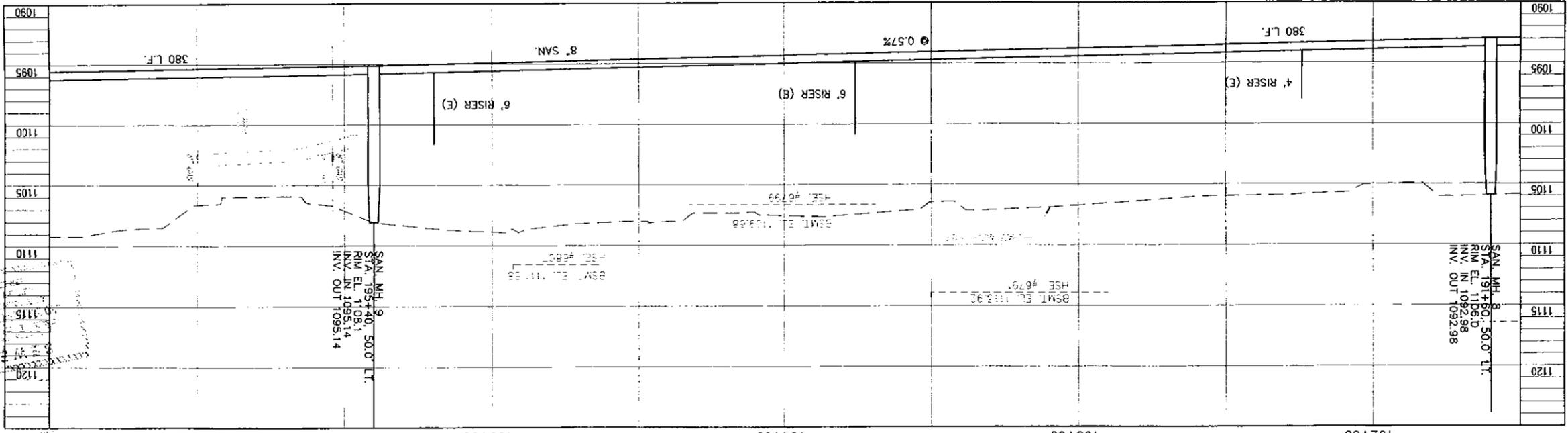
DATE	APR 2007
DESIGN BY	PER/ELB
CHECKED BY	GES
APPROVED BY	PHS
FILE NUMBER	
WORK SHEET	
CONTRACT NO.	
07211	
SHEET NO.	9
TOTAL SHEETS	20

DRIVEWAY PAVEMENT REPLACEMENT SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF TRENCH IN BOTH DIRECTIONS. IF A CONCRETE PAVEMENT JOINT EXISTS BETWEEN 2' AND 5' BEYOND THE EDGE OF TRENCH, PAVEMENT REPLACEMENT SHALL EXTEND TO THE JOINT AT NO ADDITIONAL COST TO THE OWNER.



07211-09-PLAN & PROFILE
 DATE: 04/11/07
 TIME: 10:00 AM
 DRAWN BY: PER/ELB
 CHECKED BY: GES
 APPROVED BY: PHS
 FILE NO.:
 WORK SHEET:
 CONTRACT NO.:
07211
 SHEET NO.: 9
 TOTAL SHEETS: 20

10/20
 07211
 DATE: 11/23/2011
 TIME: 10:58:11 AM
 USER: j...



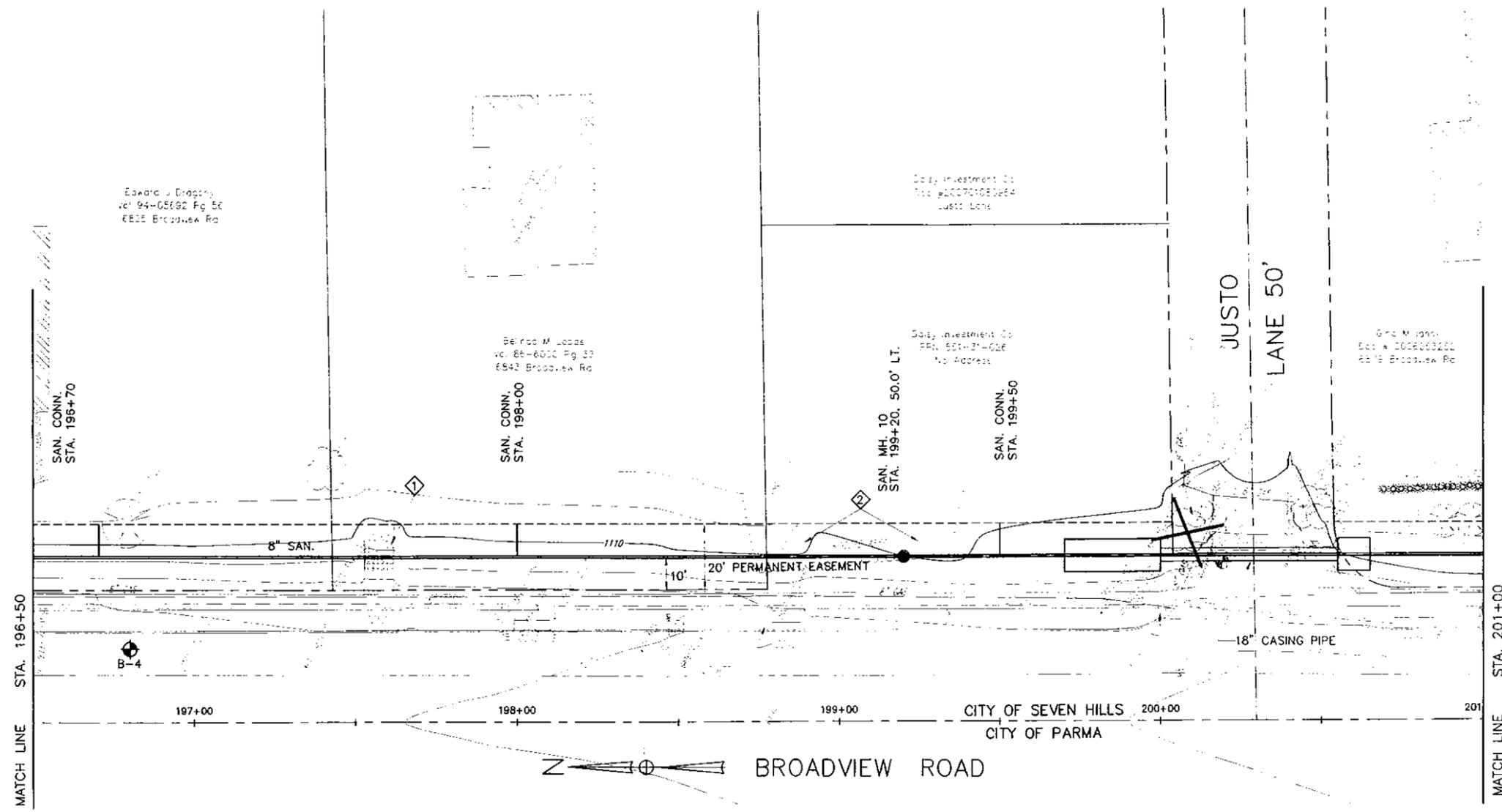
1. DRIVEWAY PAVEMENT REPLACEMENT SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF TRENCH IN BOTH DIRECTIONS. IF A CONCRETE PAVEMENT JOINT EXISTS BETWEEN 2' AND 5' BEYOND THE EDGE OF TRENCH, PAVEMENT REPLACEMENT SHALL EXTEND TO THE JOINT AT NO ADDITIONAL COST TO THE OWNER.

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 DATE: 11/23/2011
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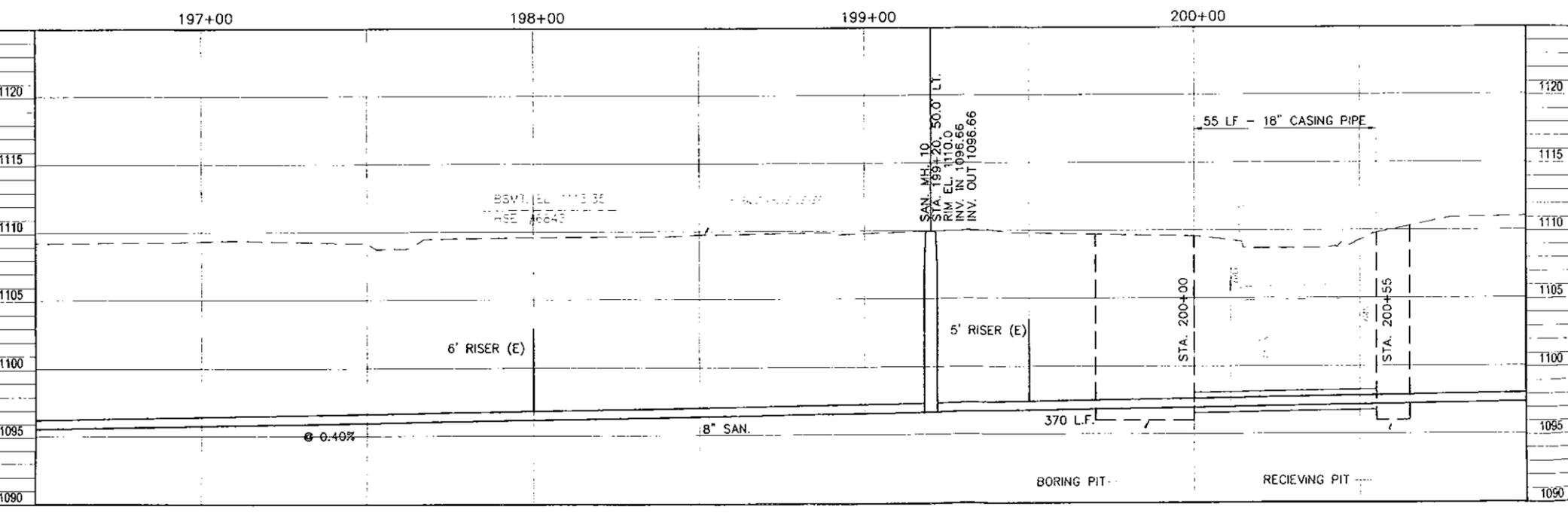
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WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS
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REVISIONS	REV'S	DATE



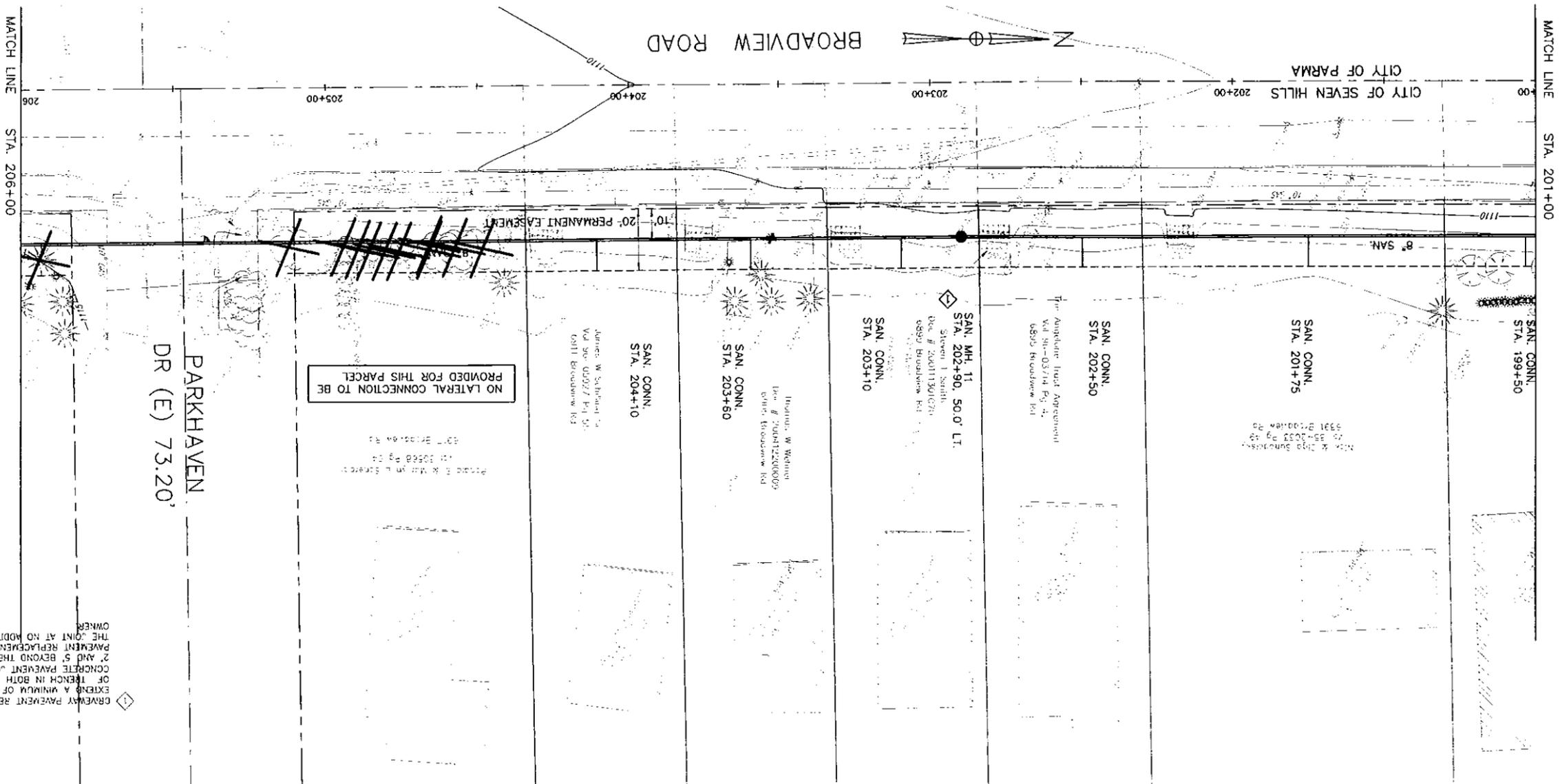
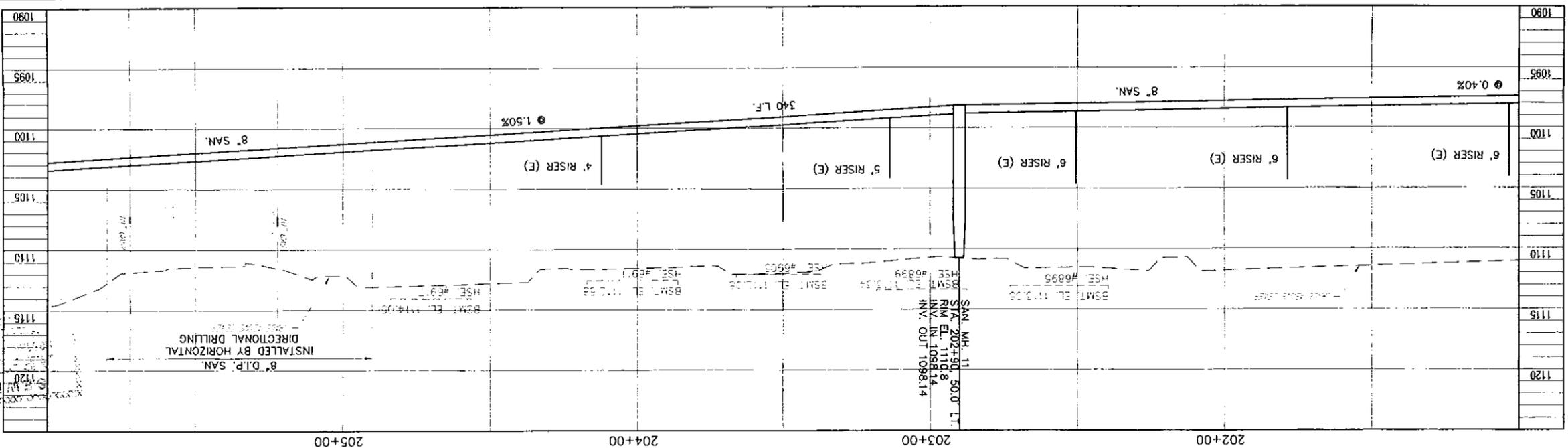
- ① DRIVEWAY PAVEMENT REPLACEMENT SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF TRENCH IN BOTH DIRECTIONS. IF AN CONCRETE PAVEMENT JOINT EXISTS BETWEEN 2' AND 5' BEYOND THE EDGE OF TRENCH, PAVEMENT REPLACEMENT SHALL EXTEND TO THE JOINT AT NO ADDITIONAL COST TO THE OWNER.
- ② TREES LOCATED WITHIN THE PERMANENT EASEMENT LIMITS ARE TO BE REMOVED.



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DATE	APR 2020
EXAM. BY	REB/ELG
CHECKED BY	REB
APPROVED BY	REB
FS No.	1038 Pg. 11
NSR	EDGE
VERT	11.25
CONTRACT NO.	07211
SHEET NO.	11 OF 20



1. DRAINAGE PAVEMENT REPLACEMENT SHALL EXTEND A MINIMUM OF 2 FEET BEYOND THE EDGE OF FRENCH IN BOTH DIRECTIONS. IF A CONCRETE PAVEMENT JOINT EXISTS BETWEEN 2 AND 5 FEET BEYOND THE EDGE OF FRENCH, PAVEMENT REPLACEMENT SHALL EXTEND TO THE JOINT AT NO ADDITIONAL COST TO THE OWNER.

12 20
 07211
 CONTRACT NO.
 SCALE
 DATE
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WEST CREEK WATERSHED - PHASE II & III
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DATE	REVISIONS

WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
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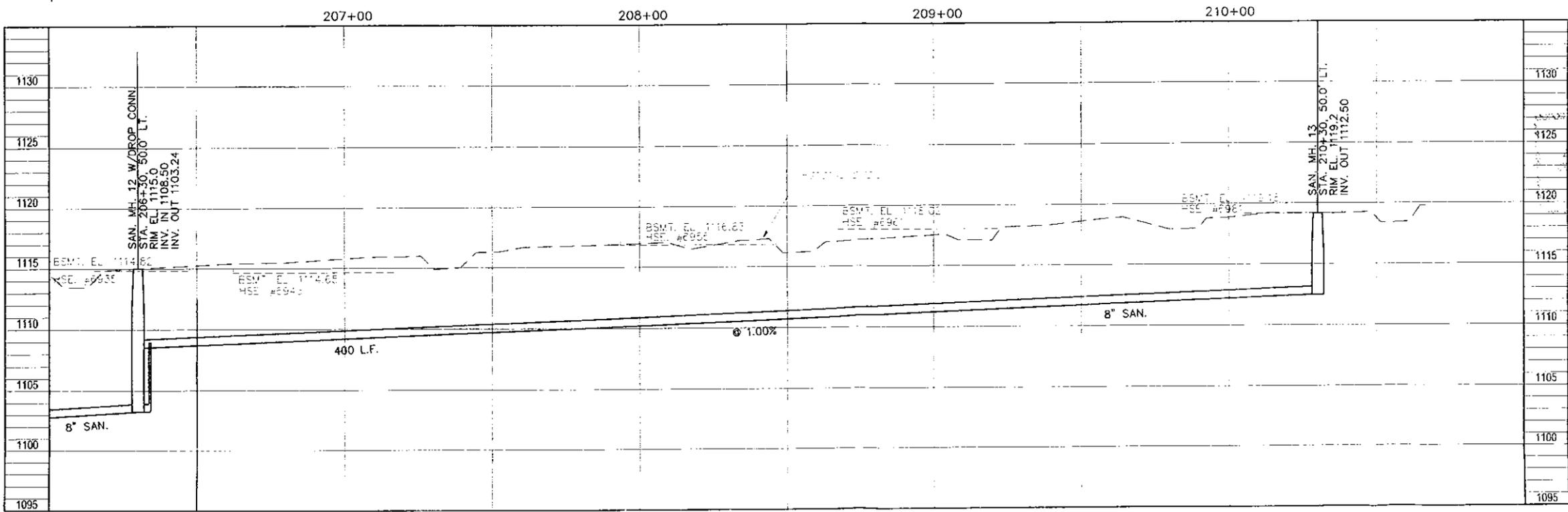
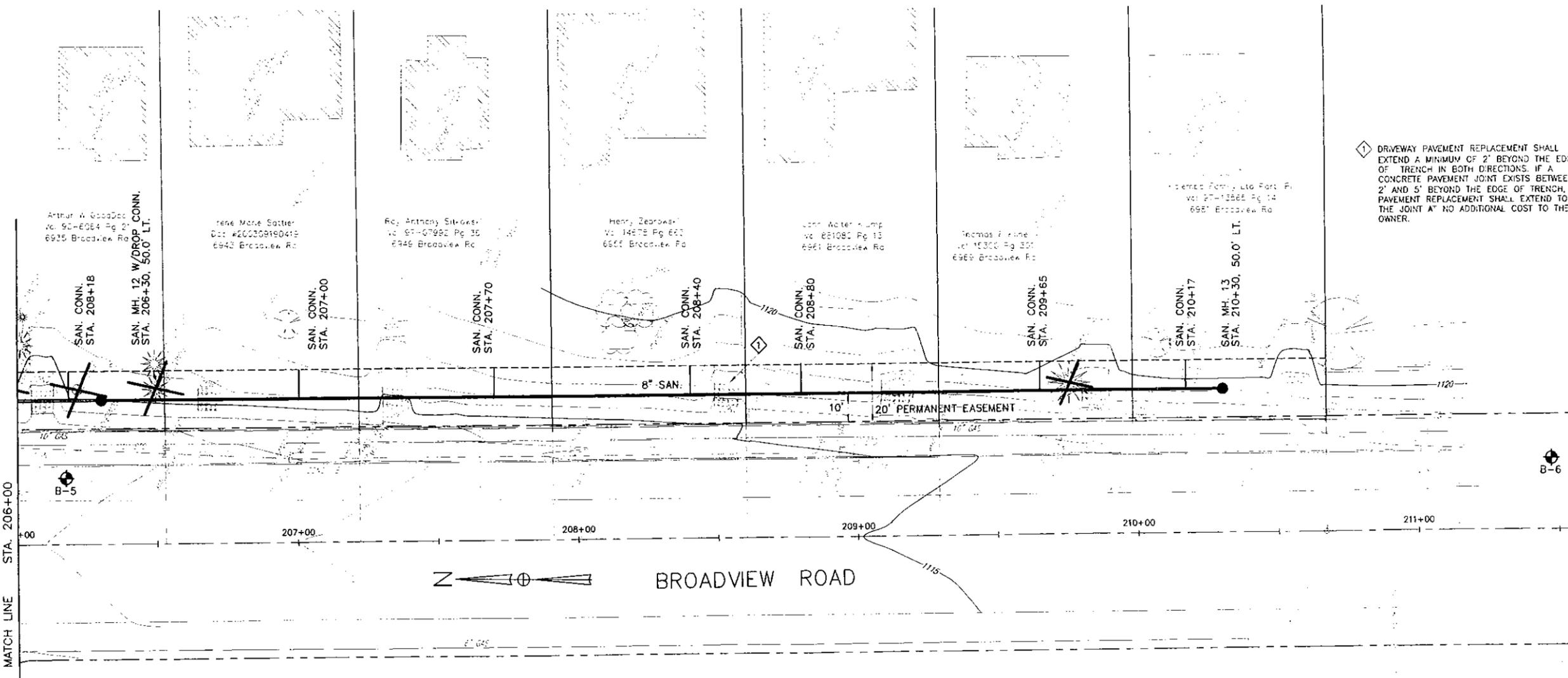
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 216.521.5000 www.ctconsultants.com



DATE: AUG 2007
 DRAWN BY: KFR/SLD
 CHECKED BY: SSS
 APPROVED BY: RWS
 P&E No: 1352 Pg. 1
 SCALE: 1" = 40'
 CONTRACT NO.:

07211

1 DRIVEWAY PAVEMENT REPLACEMENT SHALL EXTEND A MINIMUM OF 2' BEYOND THE EDGE OF TRENCH IN BOTH DIRECTIONS. IF A CONCRETE PAVEMENT JOINT EXISTS BETWEEN 2' AND 5' BEYOND THE EDGE OF TRENCH, PAVEMENT REPLACEMENT SHALL EXTEND TO THE JOINT AT NO ADDITIONAL COST TO THE OWNER.

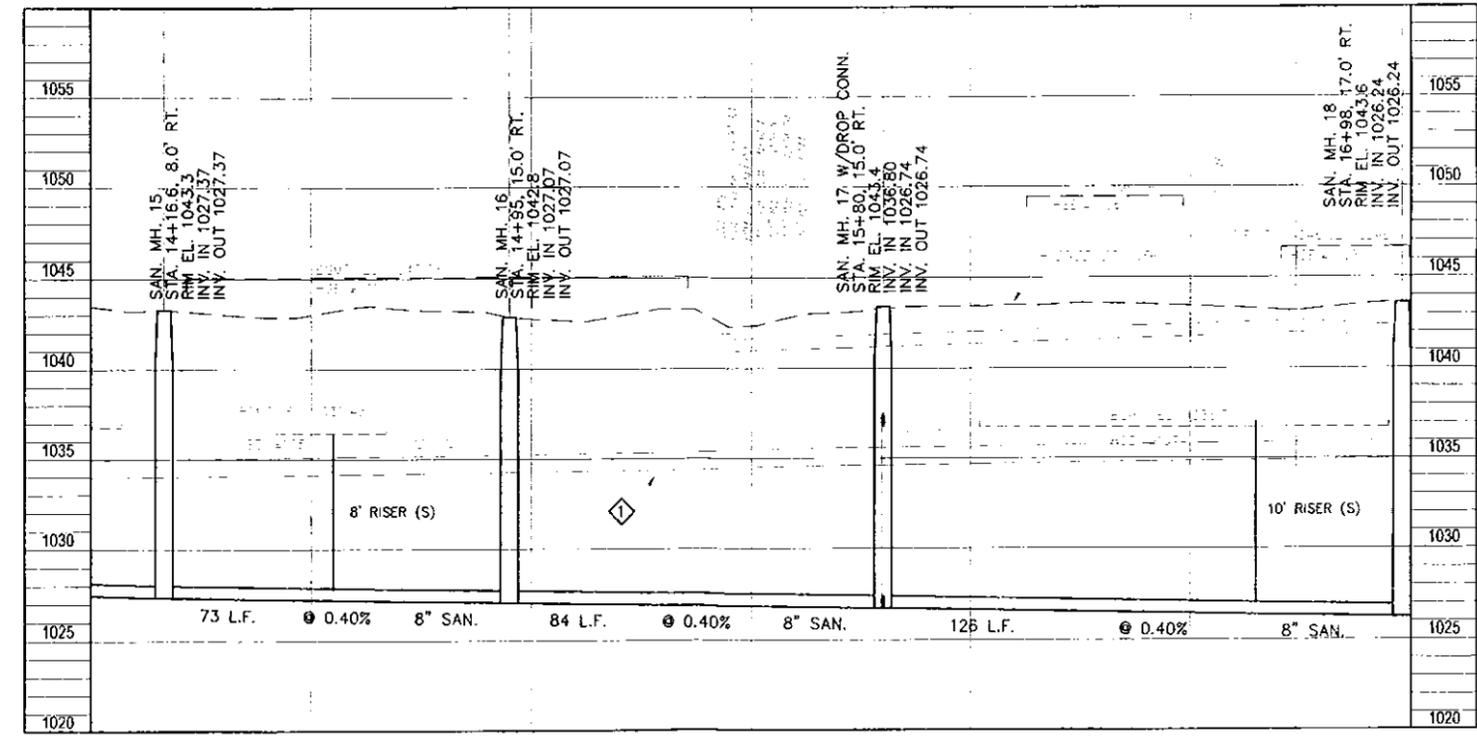
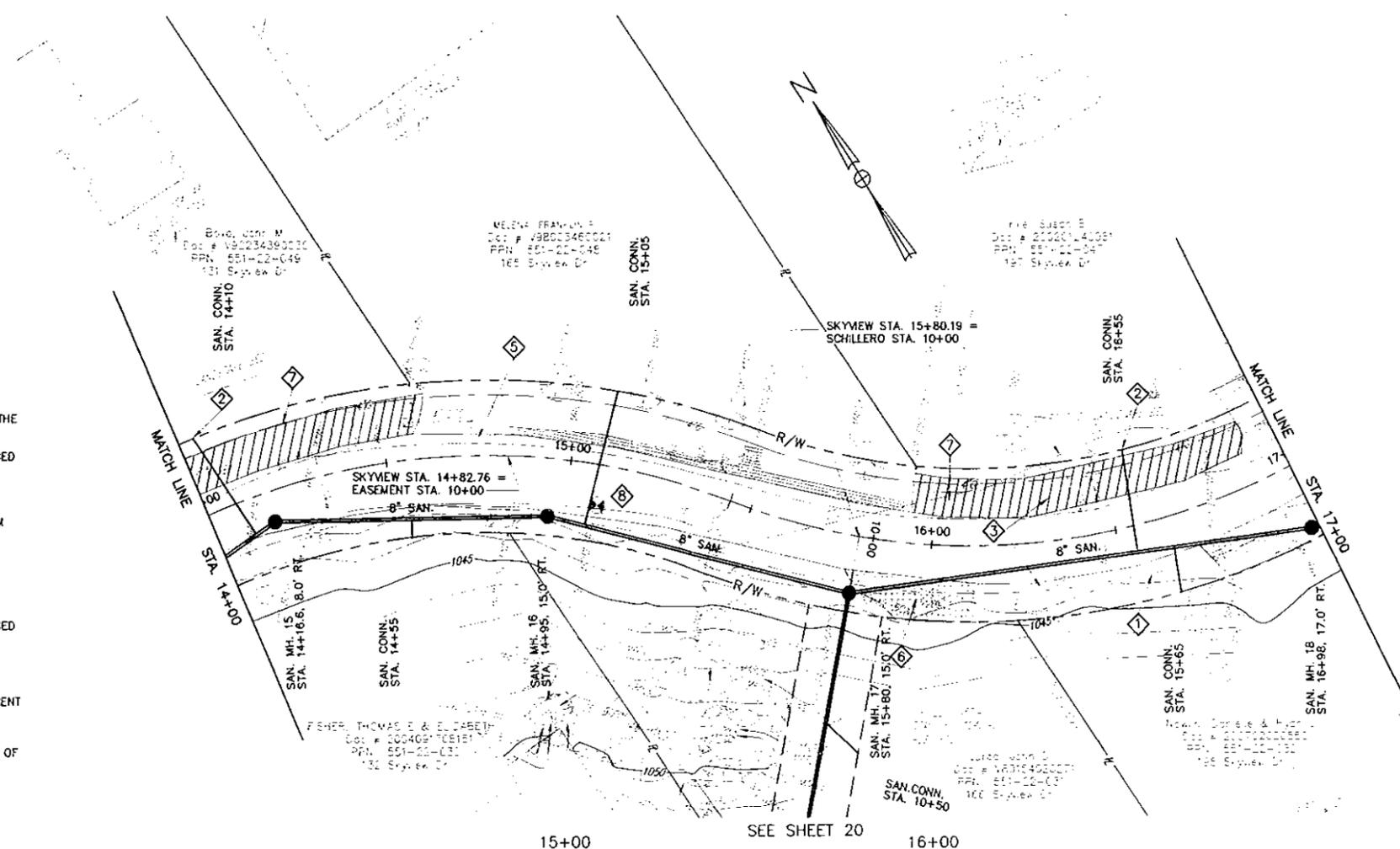


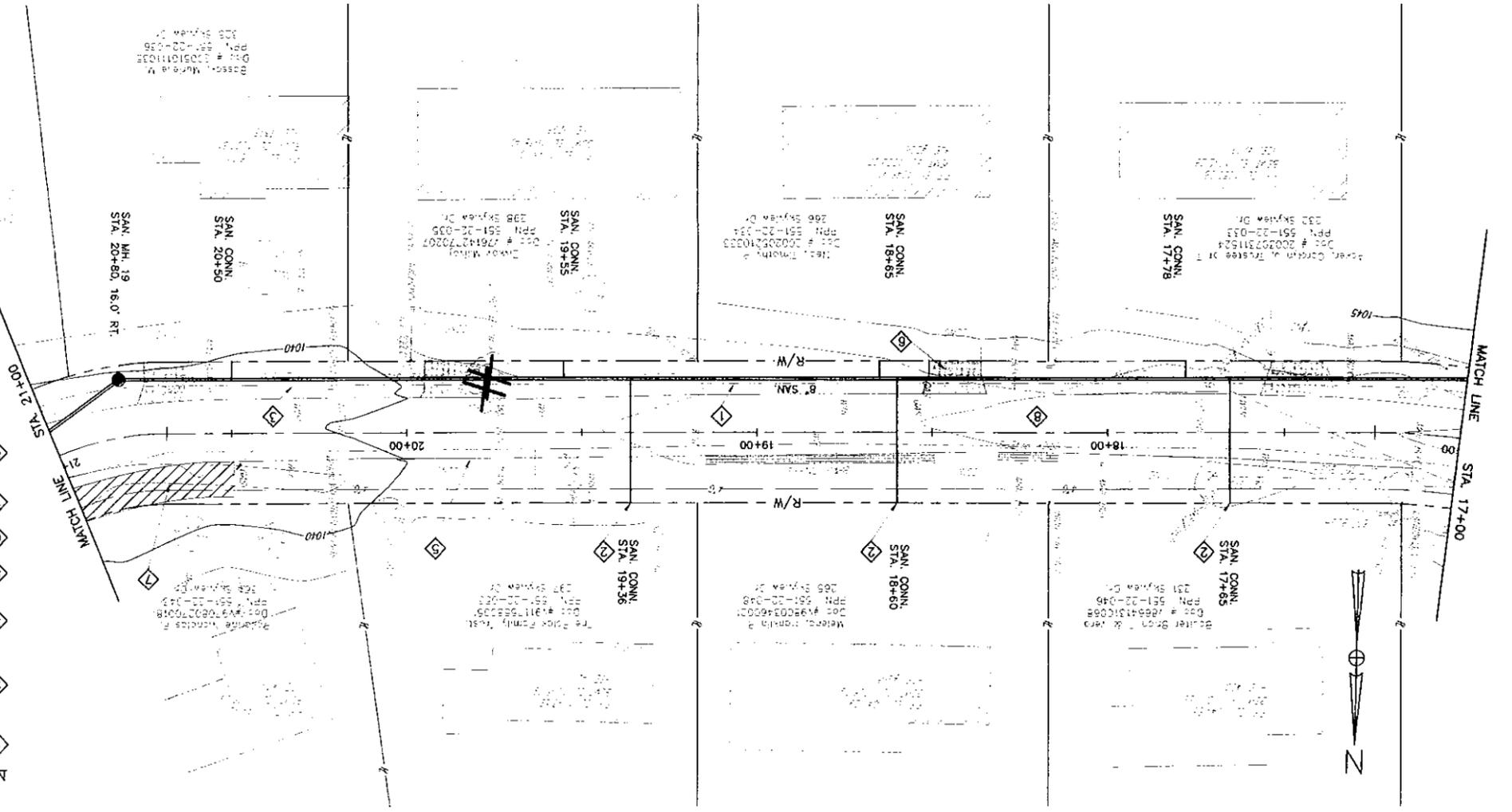
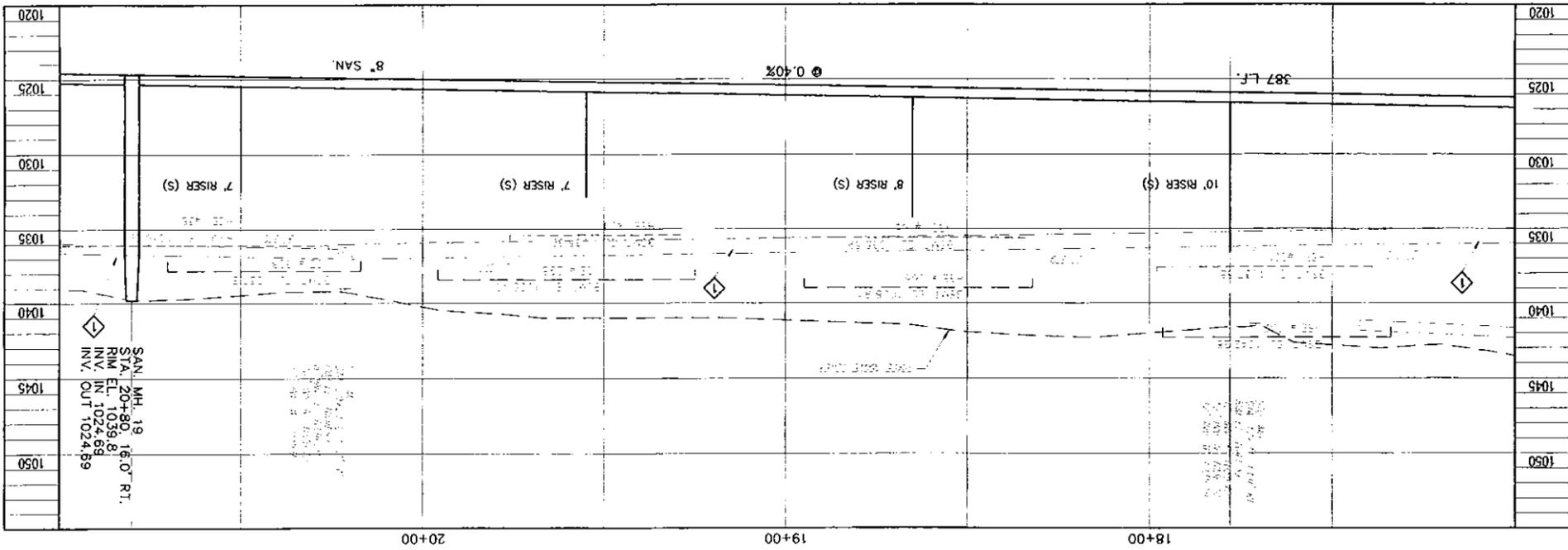
WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
SKYVIEW DRIVE
PLAN & PROFILE

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DATE	07/2007
DRAWN BY	SLM
CHECKED BY	SSS
APPROVED BY	AMS
FIG. NO.	07211
SCALE	AS SHOWN
CONTRACT NO.	07211
SHEET NO.	15
TOTAL SHEETS	20

- NOTES:**
- 1 SEE STORM SEWER REPLACEMENT NOTES ON SHEET J. FOR THE PURPOSES OF CLARITY, ALL STORM SEWERS AND APPURTENANCES ARE SHOWN WITH EXISTING DASHED LINE WEIGHTS REGARDLESS OF WHETHER THEY ARE TO BE REPLACED OR NOT.
 - 2 THE INVERT ELEVATION OF THE LATERAL CONNECTION AT THE RIGHT-OF-WAY SHALL BE 5' BELOW THE BASEMENT FLOOR ELEVATION OF THE RESIDENCE IT IS TO SERVE OR A MINIMUM OF 7' BELOW GRADE AT THE RIGHT-OF-WAY, WHICHEVER IS GREATER.
 - 3 ALL ROADSIDE SWALES IN DISTURBED AREAS SHALL BE RESHAPED TO DIRECT FLOW TO INLET BASINS PRIOR TO THE INSTALLATION OF ANY BERM REPAIRS.
 - 5 GRIND AND REPAIR ALL DRIVE APRONS THAT WILL BE REPLACED PER DETAILS SHOWN ON SHEET SD3.
 - 6 ENTIRE DRIVE APRON FROM EDGE OF PAVEMENT TO THE RIGHT-OF-WAY LINE TO BE REPLACED.
 - 7 THE CONTRACTOR SHALL INSTALL TEMPORARY ASPHALT PAVEMENT IN ORDER TO PERMIT PASSAGE OF LOCAL VEHICLE TRAFFIC AROUND CONSTRUCTION EQUIPMENT IN THESE AREAS.
 - 8 EXISTING PAVEMENT SURFACE TO BE MECHANICALLY CLEANED OF ALL DIRT, MUD AND DEBRIS PRIOR TO RESURFACING.





- NOTES:**
- 1 SEE STORM SEWER REPLACEMENT NOTES ON SHEET 3. FOR THE PURPOSES OF CLARITY, ALL STORM SEWERS AND APERTANCES ARE SHOWN WITH EXISTING DASHED LINE HEIGHTS REGARDLESS OF WHETHER THEY ARE TO BE REPLACED OR NOT.
 - 2 THE INVERT ELEVATION OF THE LATERAL CONNECTION AT THE RIGHT-OF-WAY SHALL BE 5' BELOW THE BASEMENT FLOOR ELEVATION OF THE RESIDENCE IT IS TO SERVE OR A MINIMUM OF 7' BELOW GRADE AT THE RIGHT-OF-WAY, WHICHEVER IS GREATER.
 - 3 ALL ROADSIDE SWALES IN DISTURBED AREAS SHALL BE RESHAPED TO DIRECT FLOW TO INLET BASINS PRIOR TO THE INSTALLATION OF ANY BERM REPAIRS.
 - 4 GRIND AND REPAIR ALL DRIVE APRONS THAT WILL BE REPLACED PER DETAILS SHOWN ON SHEET SD3.
 - 5 ENTIRE DRIVE APRON FROM EDGE OF PAVEMENT TO THE RIGHT-OF-WAY LINE TO BE REPLACED.
 - 6 THE CONTRACTOR SHALL INSTALL TEMPORARY ASPHALT PAVEMENT IN ORDER TO PERMIT PASSAGE OF LOCAL VEHICLE TRAFFIC AROUND CONSTRUCTION EQUIPMENT IN THESE AREAS.
 - 7 EXISTING PAVEMENT SURFACE TO BE MECHANICALLY CLEANED OF ALL DIRT, MUD AND DEBRIS PRIOR TO RESURFACING.

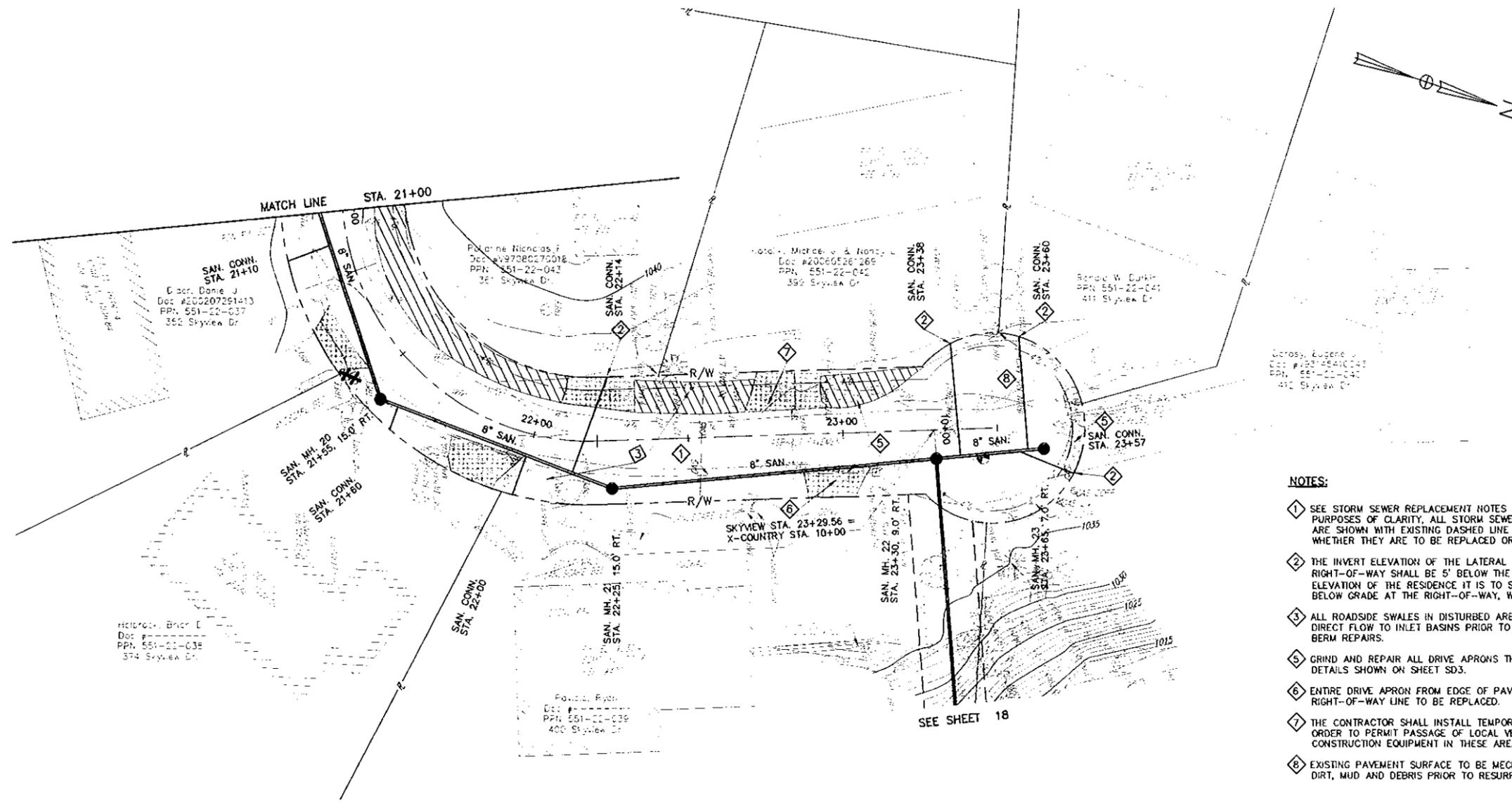
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APPROVED BY: [blank]
SCALE: 1" = 20'
SHEET NO: 07211
16 20



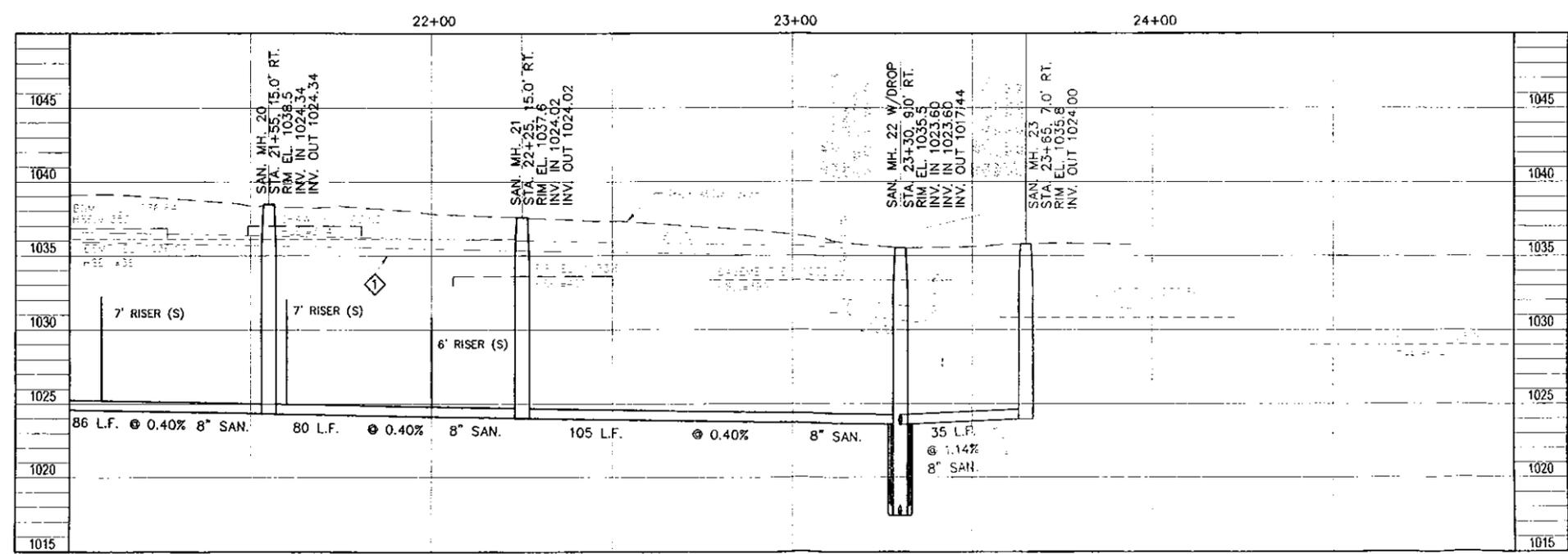
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**WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
SKYVIEW DRIVE
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SHEET NO. 07211



- NOTES:**
- 1 SEE STORM SEWER REPLACEMENT NOTES ON SHEET 3. FOR THE PURPOSES OF CLARITY, ALL STORM SEWERS AND APPURTENANCES ARE SHOWN WITH EXISTING DASHED LINE WEIGHTS REGARDLESS OF WHETHER THEY ARE TO BE REPLACED OR NOT.
 - 2 THE INVERT ELEVATION OF THE LATERAL CONNECTION AT THE RIGHT-OF-WAY SHALL BE 5' BELOW THE BASEMENT FLOOR ELEVATION OF THE RESIDENCE IT IS TO SERVE OR A MINIMUM OF 7' BELOW GRADE AT THE RIGHT-OF-WAY, WHICHEVER IS GREATER.
 - 3 ALL ROADSIDE SWALES IN DISTURBED AREAS SHALL BE RESHAPED TO DIRECT FLOW TO INLET BASINS PRIOR TO THE INSTALLATION OF ANY BERM REPAIRS.
 - 4 GRIND AND REPAIR ALL DRIVE APRONS THAT WILL BE REPLACED PER DETAILS SHOWN ON SHEET SDS.
 - 5 ENTIRE DRIVE APRON FROM EDGE OF PAVEMENT TO THE RIGHT-OF-WAY LINE TO BE REPLACED.
 - 6 THE CONTRACTOR SHALL INSTALL TEMPORARY ASPHALT PAVEMENT IN ORDER TO PERMIT PASSAGE OF LOCAL VEHICLE TRAFFIC AROUND CONSTRUCTION EQUIPMENT IN THESE AREAS.
 - 7 EXISTING PAVEMENT SURFACE TO BE MECHANICALLY CLEANED OF ALL DIRT, MUD AND DEBRIS PRIOR TO RESURFACING.

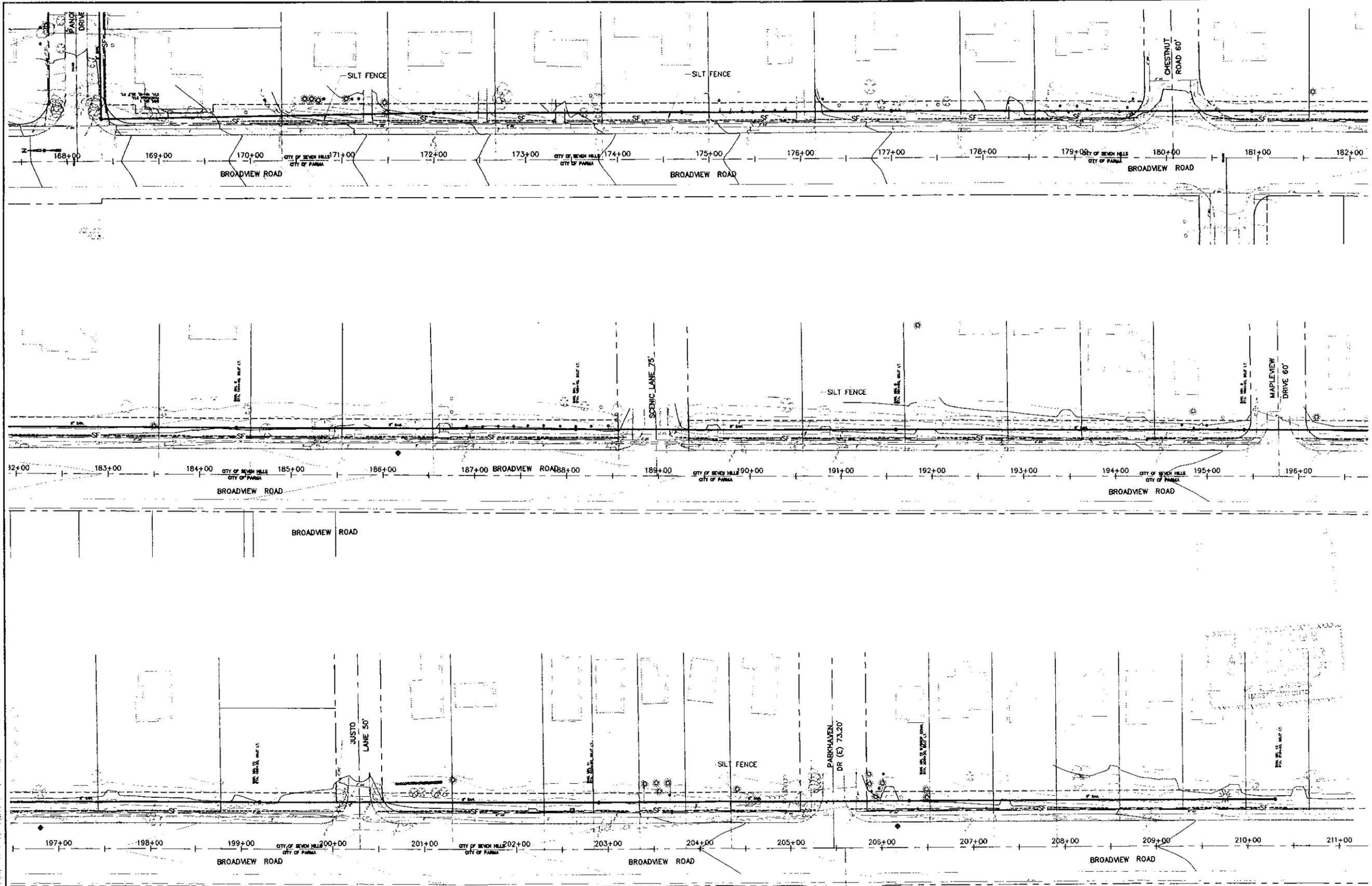


SUBMISSION	REVISION

**WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS**
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
**SKYVIEW DRIVE
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DATE	07/2007
DRAWN BY	EM
CHECKED BY	GBE
APPROVED BY	EM
P.S. No.	10228_P2_06
SCALE	AS SHOWN
CONTRACT NO.	07211
SHEET NO.	17
TOTAL SHEETS	20



- LEGEND**
- CF— CONSTRUCTION SAFETY FENCE
 - SF--- SILT FENCE
 - INLET BASIN PROTECTION

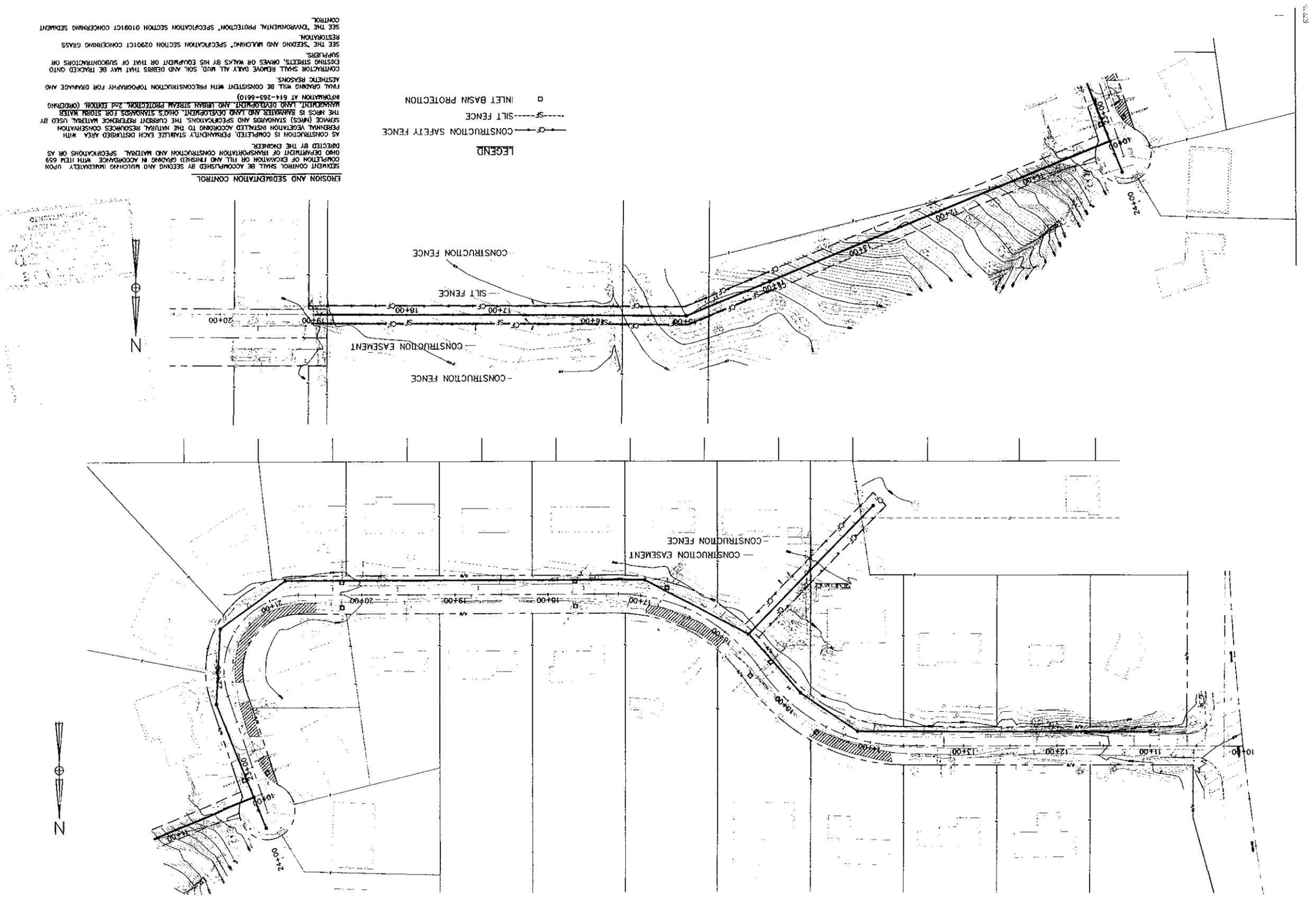
SHEET NO. 1 OF 2 REV'S ONE

**WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS**
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

EROSION CONTROL PLAN

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DATE	8/1/2007
DRAWN BY	KEE/EE
CHECKED BY	DBL
APPROVED BY	PHS
FE No.	PS
SCALE	AS SHOWN
VERT.	AS SHOWN
CONTRACT NO.	
07211	
SHEET NO.	OF
SW1	2



LEGEND

- INLET BASIN PROTECTION
- - - - SF - - - - SILT FENCE
- - - - CF - - - - CONSTRUCTION SAFETY FENCE

EROSION AND SEDIMENTATION CONTROL

SEEDING CONTROL SHALL BE ACCOMPLISHED BY SEEDING AND MULCHING IMMEDIATELY UPON COMPLETION OF EXCAVATION OR FILL AND FINISHED GRADING IN ACCORDANCE WITH ITED 659 OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.

AS CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE EACH DISTURBED AREA WITH PERENNIAL VEGETATION INSTALLED ACCORDING TO THE CURRENT RESOURCE MATERIAL USED BY SERVICE (INFC) STATIONS AND SPECIFICATIONS. THE CURRENT RESOURCE MATERIAL USED BY THE INFC IS BARRIEX AND LAND DEVELOPMENT CHIEF'S STANDARDS FOR STORM WATER MANAGEMENT, LAND DEVELOPMENT AND URBAN STREAM PROTECTION AND EROSION CONTROL (ORGRNG) INFORMATION AT 614-265-6610.

FINAL GRADING WILL BE CONSISTENT WITH PRECONSTRUCTION TOPOGRAPHY FOR DRAINAGE AND AESTHETIC REASONS.

CONTRACTOR SHALL REMOVE DAILY ALL MUD, SOIL AND DEBRIS THAT MAY BE TRACKED ONTO EXISTING STREETS, DRIVES OR WALKS BY HIS EQUIPMENT OR THAT OF SUBCONTRACTORS OR SUPPLIERS.

SEE THE 'SEEDING AND MULCHING' SPECIFICATION SECTION 02901C CONCERNING GRASS RESTORATION.

SEE THE 'ENVIRONMENTAL PROTECTION' SPECIFICATION SECTION 01091C CONCERNING SEDIMENT CONTROL.

ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. NO EXCESS SOILS OR MATERIALS ARE TO BE DISPOSED OF IN ANY WETLAND, FLOODPLAIN OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE MUST BE INSTALLED AND MAINTAINED UNTIL DISPOSAL IS COMPLETE AND THE DISPOSAL SITE IS PERMANENTLY STABILIZED.

THE CONTRACTOR SHALL GIVE A COPY OF THE SIGNED AGREEMENT FROM THE FILL SITE OWNER TO THE ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES.

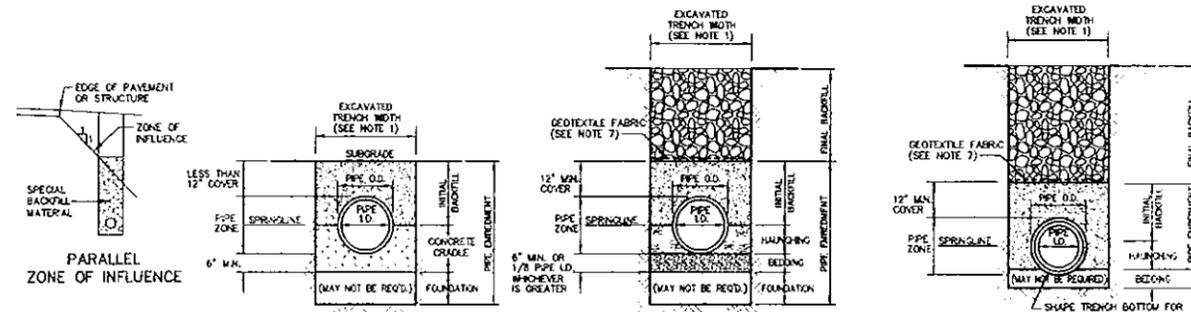
DATE: OCT 2022	SCALE: 1" = 50'	SHEET NO. OF 2
DESIGNED BY: [REDACTED]	CONTRACT NO. 07211	
CHECKED BY: [REDACTED]		
APPROVED BY: [REDACTED]		
DATE: OCT 2022		

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**WEST CREEK WATERSHED - PHASE II & III
 SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
 EROSION CONTROL PLAN**

ENCLOSURE ENDS HERE

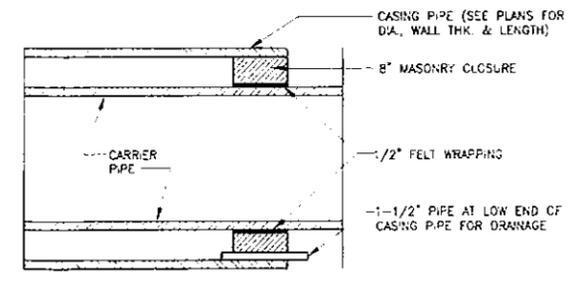
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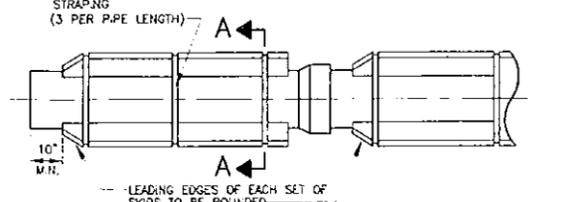
CLASS 'A' PIPE EMBEDMENT **CLASS 'B' PIPE EMBEDMENT** **CLASS 'C' PIPE EMBEDMENT**

- NOTES:**
- MAXIMUM EXCAVATED TRENCH WIDTH: THE MAXIMUM EXCAVATED TRENCH WIDTH FROM THE BOTTOM OF THE TRENCH TO 12" OVER THE TOP OF THE PIPE (WITHIN PIPE EMBEDMENT) SHALL BE O.D. + 24" FOR ALL PIPES UP TO AND INCLUDING 24" I.D. + 30" FOR PIPE FROM 24" I.D. TO 54" I.D. AND O.D. + 48" FOR PIPES SIZES 60" I.D. AND OVER.
 - FOUNDATION: WHERE AN UNSTABLE TRENCH BOTTOM CONDITION IS ENCOUNTERED, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH MATERIAL AS DIRECTED BY THE ENGINEER.
 - PIPE EMBEDMENT:
 - CLASS A: CLASS A PIPE EMBEDMENT SHALL BE USED FOR ALL PIPING UNDER PAVEMENT OR STRUCTURES WITH LESS THAN 12 INCHES OF PIPE COVER TO THE SUBGRADE. THE CONCRETE CRADLE SHALL BE IN ACCORDANCE WITH GOOD ITEM 499, CLASS "C". THE INITIAL BACKFILL SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT.
 - CLASS B: CLASS B PIPE EMBEDMENT SHALL BE USED FOR ALL PIPING UNLESS OTHERWISE NOTED ON THE PLANS OR AUTHORIZED BY THE ENGINEER. THE BEDDING AND HAUNCHING SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT. IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE, THE INITIAL BACKFILL SHALL BE AASHTO NO. 57 OR NO. 67 STONE GRANULAR PIPE EMBEDMENT. IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE, THE INITIAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER FOR ONLY REINFORCED CONCRETE PIPE AND DUCTILE IRON PIPE. THE INITIAL BACKFILL FOR ALL OTHER PIPES SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT.
 - CLASS C: CLASS C PIPE EMBEDMENT SHALL ONLY BE USED FOR DUCTILE IRON WATER MAIN, DUCTILE IRON FORCE MAINS OR AS AUTHORIZED BY THE ENGINEER. THE PIPE EMBEDMENT SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE. THE PIPE EMBEDMENT SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE. WHERE ROCK OR SHALE IS ENCOUNTERED, A MINIMUM 6-INCHES OF AASHTO NO. 57 OR NO. 67 GRANULAR PIPE BEDDING OR SAND BEDDING SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
 - FINAL BACKFILL: IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE THE FINAL BACKFILL SHALL BE SPECIAL BACKFILL MATERIAL. IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE, THE FINAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER.
 - SPECIFICATIONS: ALL TRENCHING, PIPE EMBEDMENT AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION 02300CT - EARTHWORK.
 - CLAY TRENCH DAMS: CLAY TRENCH DAMS SHALL BE REQUIRED AS SHOWN ON PLANS OR WHEN AND WHERE NECESSARY AS DIRECTED BY THE ENGINEER.
 - GEOTEXTILE FABRIC: INSTALL A GEOTEXTILE FABRIC IN ACCORDANCE WITH GOOD 712.09, TYPE A, AFTER ALL INITIAL BACKFILL CONSISTING OF AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT.
 - DETECTOR TAPE: IF REQUIRED IN THE SPECIFICATIONS, INSTALL DETECTABLE WARNING TAPE ABOVE UTILITIES, 12" BELOW FINISHED GRADE, EXCEPT 6 INCHES BELOW SUBGRADE UNDER PAVEMENT AND SLABS.

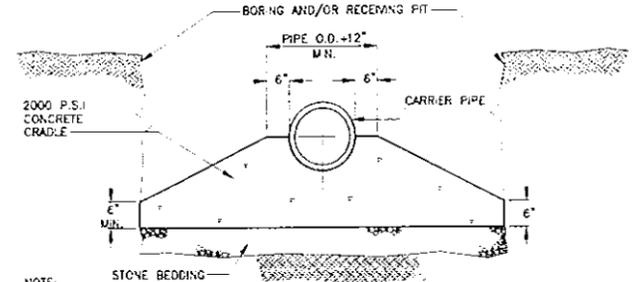
TRENCHING, EMBEDMENT AND BACKFILL DETAIL
604 NO SCALE SD-1-1



CASING PIPE CLOSURE DETAIL

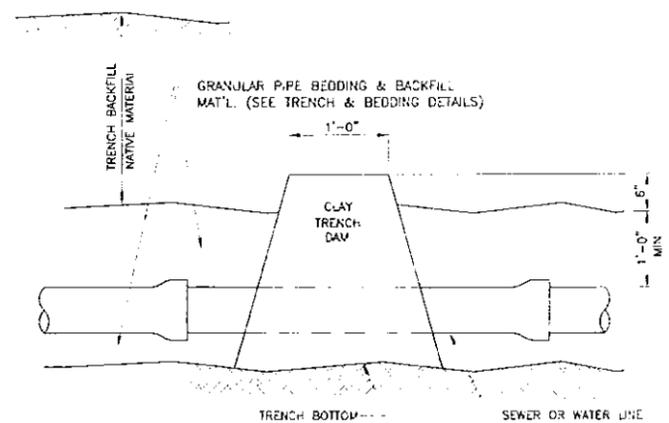


PIPE SKID DETAIL
BORING DETAIL
1/89 SD-2-6

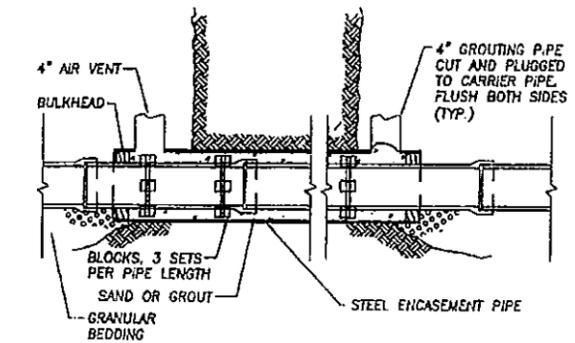


CONCRETE CRADLE DETAIL
69/02 SD-2-8

- NOTE:**
- CONCRETE CRADLE TO EXTEND FULL LENGTH AND WIDTH OF BORING AND RECEIVING PITS.
 - COST OF CONCRETE CRADLE TO BE INCLUDED IN UNIT PRICE BID FOR HIGHWAY & RAILROAD CROSSINGS.
 - A STONE CRADLE MAY BE USED WITH DUCTILE IRON PIPE MATERIAL IN LIEU OF THE CONCRETE CRADLE CALLED FOR.

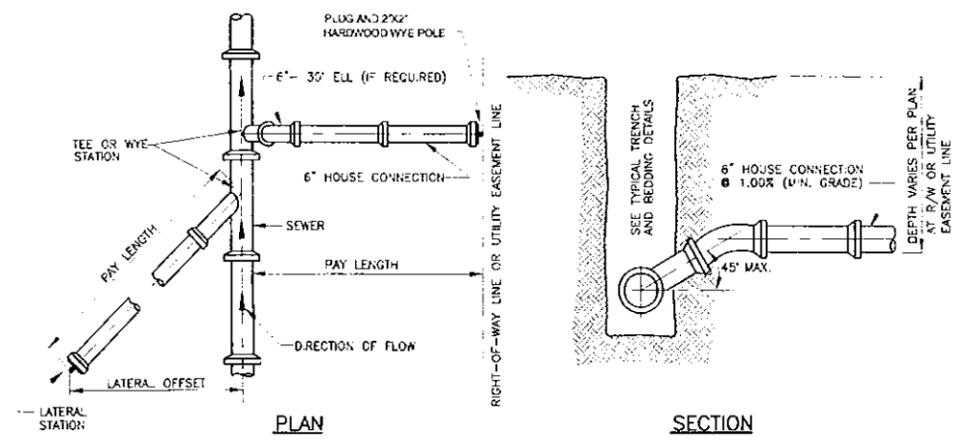


TRENCH DAM DETAIL
1/89 SD-2-14

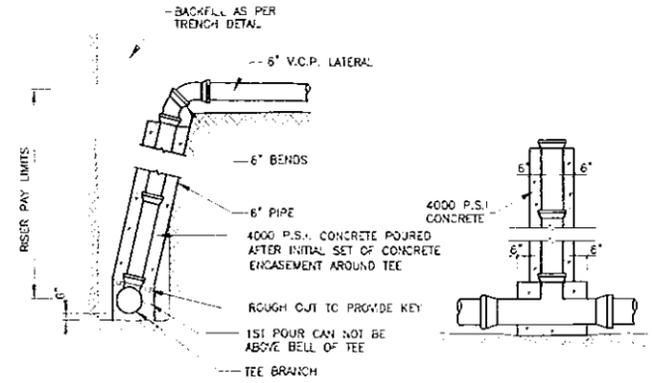


SECTION
BORING AND STEEL ENCASMENT PIPE DETAILS
09/02 SD-2-7A

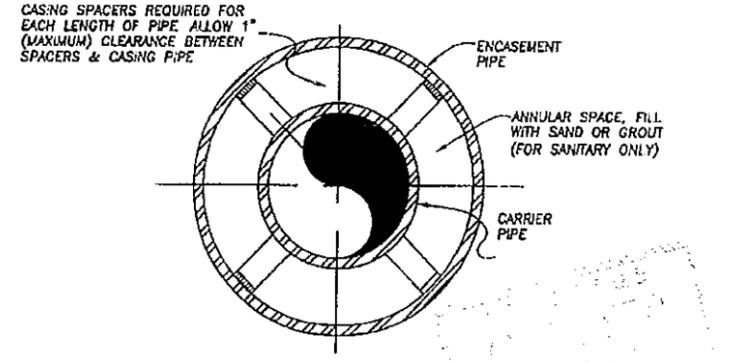
- NOTES:**
- WELD ALL ENCASMENT PIPE JOINTS
 - MINIMUM THICKNESS FOR NEW CASING PIPE IS 3/8 INCHES. MINIMUM THICKNESS FOR USED CASING PIPE IS 1/2 INCHES.
 - BLOW SAND FROM ONE END ONLY
 - CASING DIAMETER SHALL BE A MINIMUM OF 6" GREATER THAN THE LARGEST O.D. OF THE CARRIER PIPE.
 - CARRIER PIPE MUST BE CLASS 52 D.I.P.



SEWER LATERAL DETAIL
1/89 SD-2-12



SANITARY RISER DETAIL
09/02 SD-2-13



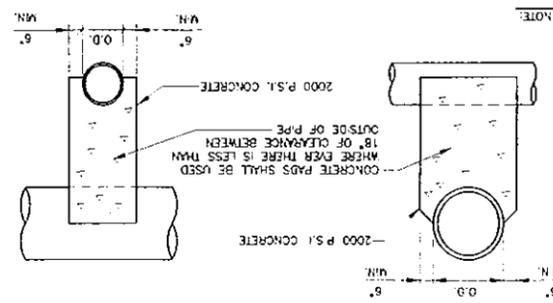
SECTION
BORING AND STEEL ENCASMENT PIPE DETAILS
09/02 SD-2-7A

DATE	10/20/07
CREATED BY	MS
CHECKED BY	MS
APPROVED BY	MS
FILE NO.	
SCALE	
HDR.	
LEPT	
CONTRACT NO.	07211
SHEET NO.	09

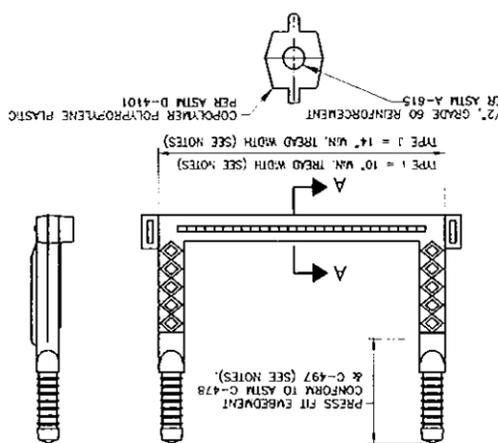
**WEST CREEK WATERSHED
SANITARY SEWER IMPROVEMENTS**
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

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6499 Brookside Woods Blvd., South Independence, Ohio 44131
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APPROVED BY	MS
FILE NO.	
SCALE	
HDR.	
LEPT	
CONTRACT NO.	07211
SHEET NO.	09
SD-1	4

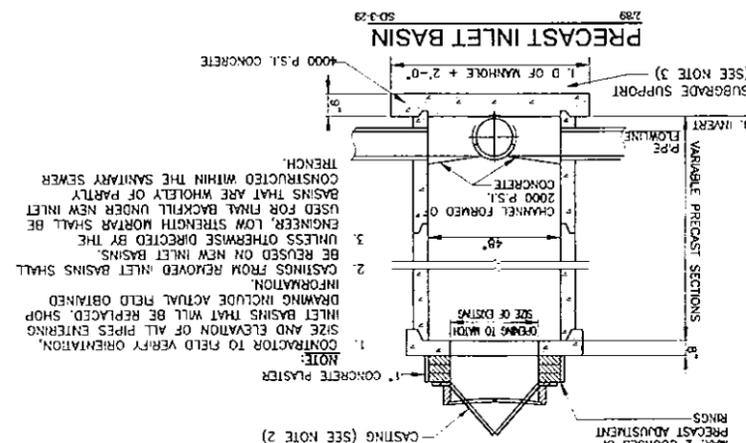
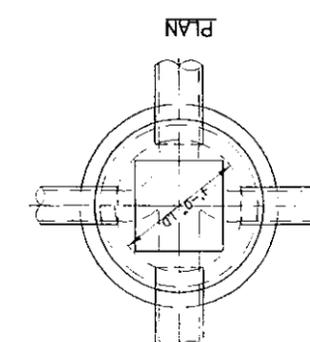


NOTE:
UNLESS OTHERWISE DIRECTED BY THE ENGINEER, WHERE TWO PIPES (SEWER & WATER) CROSS EACH OTHER, A CONCRETE PAD AND GASKET SEPARATOR SHALL BE PLACED BETWEEN THEM AS SHOWN. PERMISSON IS GRANTED TO OMIT THE PIPES, SUCH TAPPED BACKFILL SHALL BE CONTINUOUS FROM THE GRADE OF THE LOWER PIPE TO THE TOP OF THE UPPER PIPE AND AT THE BOTTOM SHALL EXTEND IN BOTH DIRECTIONS, FOR THE FULL WIDTH OF THE TRENCH.
CONCRETE PADS SHALL BE USED 18" OF CLEARANCE BETWEEN WHERE EVER THERE IS LESS THAN 2000 P.S.I. CONCRETE



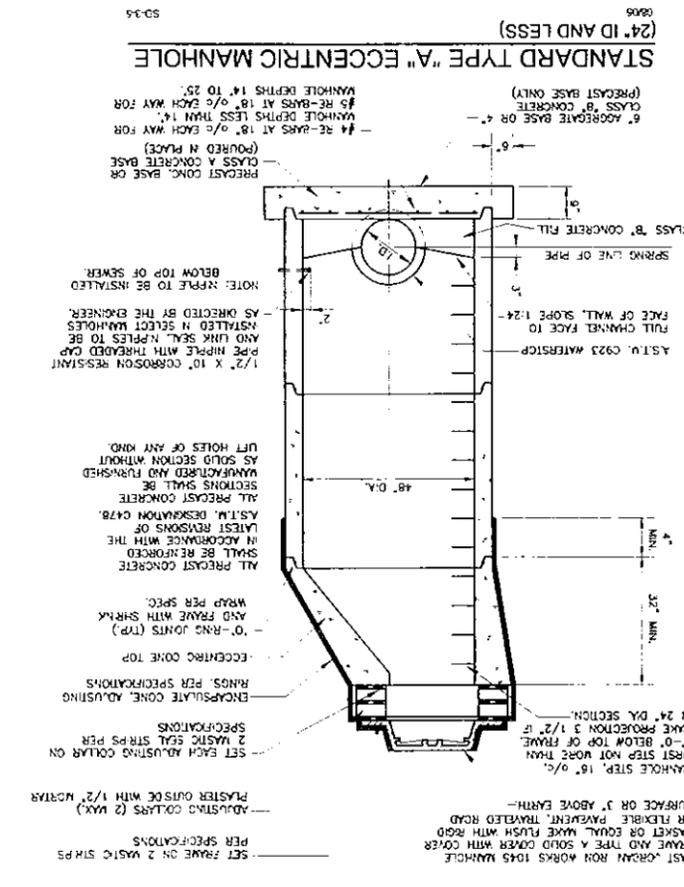
NOTES:
1) USE TYPE I STEP FOR MANHOLES OR CIRCULAR STRUCTURES OF 5'-0" DIA. OR LESS - USE 16" C/C SPACING.
2) USE TYPE II STEP FOR WALL STRUCTURES SUCH AS WALLS, WELLS, ETC. OR CIRCULAR STRUCTURES OVER 5'-0" DIA. - USE 12" C/C SPACING.
3) MOUNTING REQUIREMENTS SHALL BE IN ACCORDANCE WITH MFR'S RECOMMENDATIONS.

7/91 (N.T.S.)
SD-1-27E
TYPICAL MANHOLE STEP DETAIL



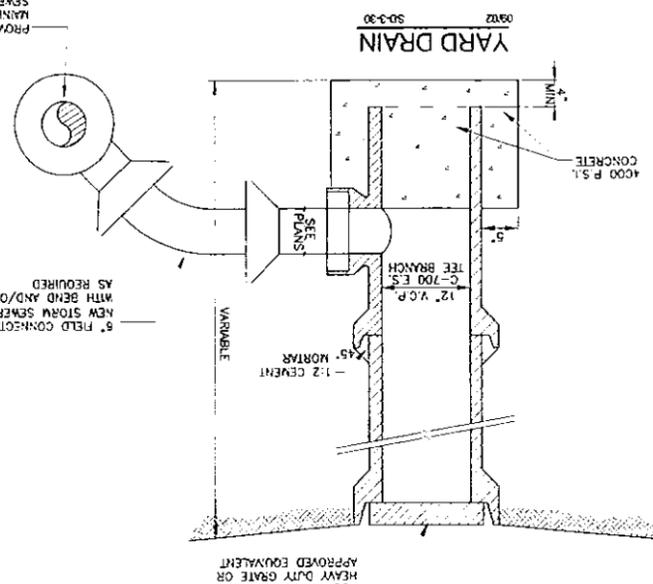
1. CONTRACTOR TO FIELD VERIFY ORIENTATION, SIZE AND ELEVATION OF ALL PIPES ENTERING INLET BASINS THAT WILL BE REPLACED. SHOP DRAWINGS INCLUDE ACTUAL FIELD OBTAINED.
2. CASTINGS FROM REMOVED INLET BASINS SHALL BE REUSED ON NEW INLET BASINS. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, LOW STRENGTH MORTAR SHALL BE USED FOR FILL BACKFILL UNDER NEW INLET BASINS THAT ARE WHOLELY OF PARTLY CONCRETE.
3. CONSTRUCTED WITHIN THE SANITARY SEWER TRENCH.

SD-3-29
PRECAST INLET BASIN



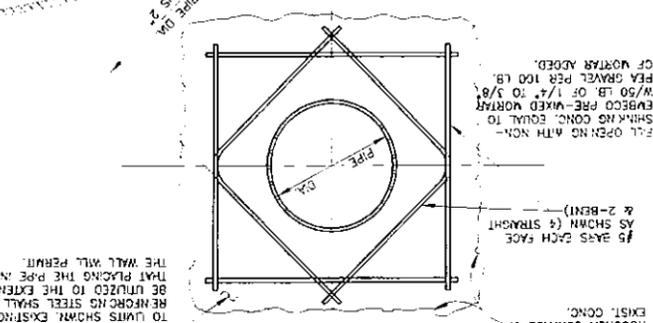
MANHOLE STEP, 18" O/C, PREST STEP NOT MORE THAN 2'-0" BELOW TOP OF FRAME. MAKE PROJECTION 3 1/2" IN 24" DIA. SECTION.
ENCAPSULATE CONCRETE ADJUSTING RINGS PER SPECIFICATIONS.
ECCENTRIC COKE TOP APPROVED BY THE ENGINEER.
0" RING JOINTS (TYP) AND FRAME WITH SHIRK WRAP PER SPEC.
ALL PRECAST CONCRETE SHALL BE REINFORCED IN ACCORDANCE WITH THE LATEST REVISIONS OF A.S.T.M. DESIGNATION C478.
SECTIONS SHALL BE MANUFACTURED AND FINISHED AS SHOWN SECTION WITHOUT LIFT HOLES OF ANY KIND.

SD-3-5
6805
(24" ID AND LESS)
STANDARD TYPE "A" ECCENTRIC MANHOLE



NEW STORM SEWER MAIN WITH BEND AND/OR FITTING AS REQUIRED.
8" FIELD CONNECTION TO MANHOLE SEE N. MANHOLE STORM SEWER.
HEAVY R-4030 HEAVY DUTY GRADE OR APPROVED EQUIVALENT.

SD-3-30
YARD DRAIN

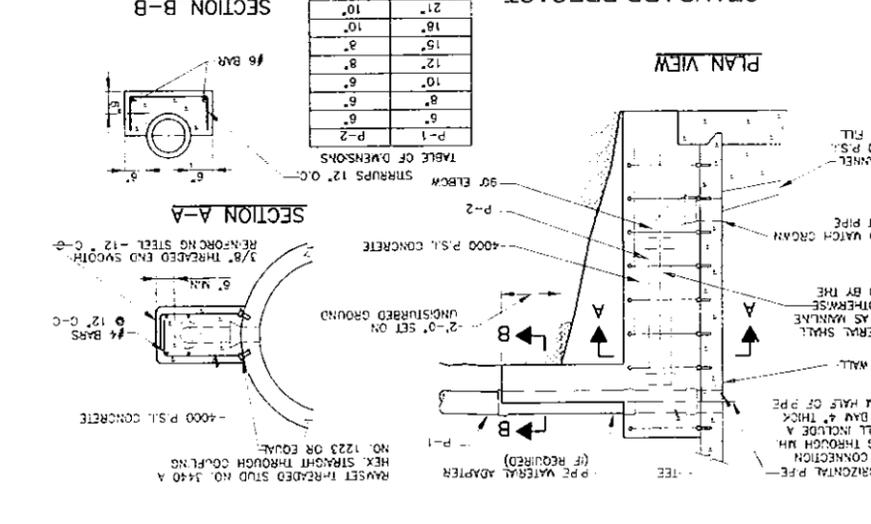


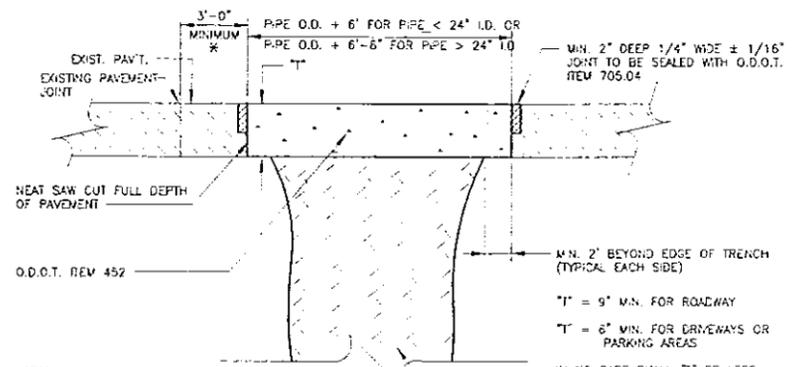
REMOVE EXISTING CONCRETE TO LIMITS SHOWN. EXIST. CONC. REINFORCING STEEL SHALL BE CUT TO THE EXTENT OF PLACING THE PIPE. THE WALL WILL PERMIT.
#5 BARS EACH FACE AS SHOWN (4 STRAIGHT & 2-BEND).
FILL OPENING WITH NON-SHRINKING CONC. EQUAL TO SHIRK CONC. EQUAL TO EVESCO PRE-WIRED MORTAR W/50 LB. OF 1/4" TO 3/8" PEA GRAVEL PER 100 LB. OF MORTAR ADDED.
FLOAT 1/8" COATING OF 1/2 BY MIGHT CEMENT SAND MORTAR INTO THE SURFACE OF PLASTER. NON-SHRINKING CONCRETE (TYP. FOR BOTH SIDES).

SD-1-10A
TYPICAL DETAIL FOR PLACING PIPE IN EXISTING WALL

SD-3-21
SANITARY MANHOLE DROP CONNECTION
STANDARD PRECAST

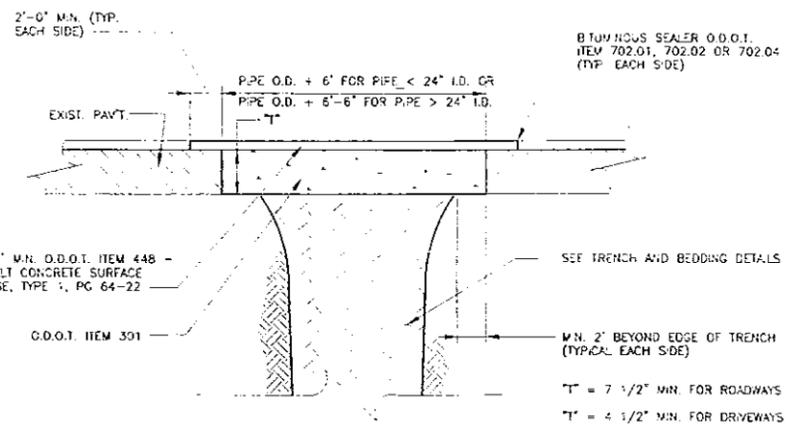
TABLE OF DIMENSIONS	STRUTS 12" O.C.
P-1	24"
P-2	21"
	18"
	15"
	12"
	10"
	8"
	6"
	6"
	6"



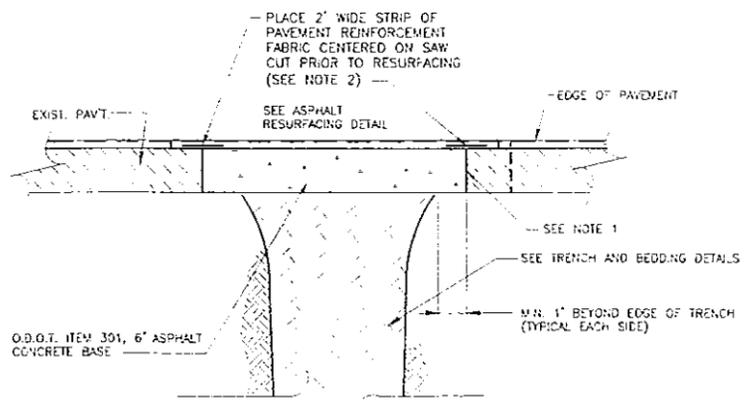


- NOTES:
- EXISTING SUBBASE MATERIAL (IF ANY) SHALL BE REPLACED, AS DIRECTED BY ENGINEER.
 - REPLACEMENT SHALL BE REINFORCED AS PER O.D.O.T. ITEM 709.10 OR 709.12 IF EXISTING PAVEMENT IS REINFORCED.
 - 5/8" HOOK-BOLT @ 30" O.C. MAY BE REQUIRED FOR PUBLIC ROADWAYS, COMMERCIAL DRIVES AND DRIVE APRONS.
- ① FOR RESIDENTIAL DRIVEWAY AND DRIVE APRONS ONLY (DRIVEWAY).

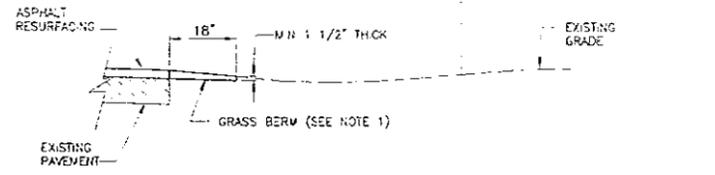
TYPE A PAVEMENT REPLACEMENT
SD-61



TYPE C PAVEMENT REPLACEMENT
SD-53

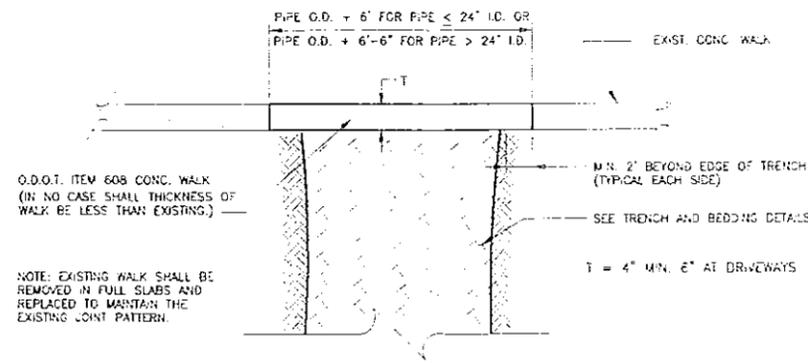


SKYVIEW PAVEMENT REPLACEMENT DETAIL
(SKYVIEW DRIVE ONLY)

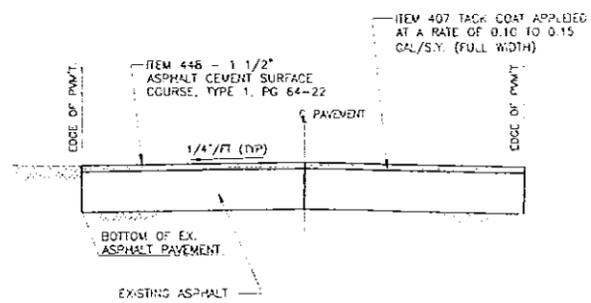


- NOTES:
- BERMS ON RESURFACED ROADS SHALL BE RECONSTRUCTED WITH TOPSOIL THEN SEEDED AND MULCHED PER SPECIFICATIONS. THE COST OF TOPSOIL BERM REPLACEMENT SHALL BE INCLUDED IN THE COST OF THE ITEM 448 ASPHALT CEMENT SURFACE COURSE.

BERM REPAIR
(SKYVIEW DRIVE)

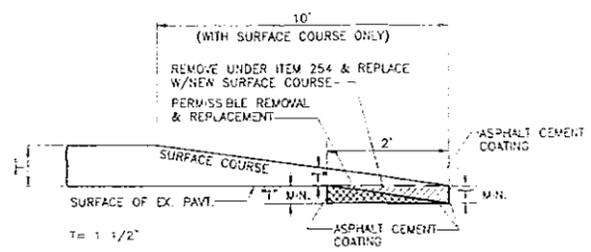


TYPE A WALK REPLACEMENT
SD-57

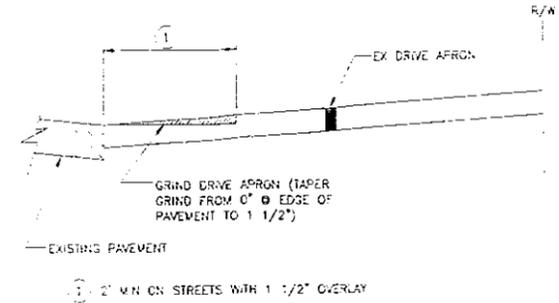


ASPHALT RESURFACING
(SKYVIEW DRIVE)

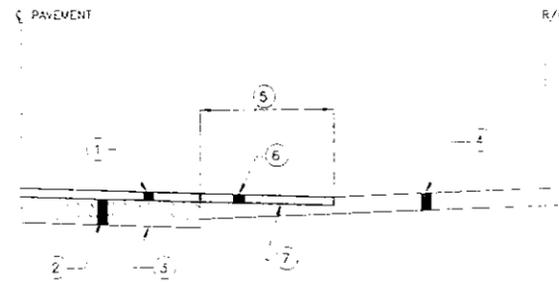
Asphalt Pavement Resurfacing Table				
Street	From Sta.	To Sta.	L.F.	Ave Width
(SKYVIEW DRIVE)	10+90	CUL-DE-SAC	1284	VARIES



BUTT JOINT



DRIVE APRON GRINDING
(SKYVIEW DRIVE)



DRIVE APRON REPAIRS
(SKYVIEW DRIVE)

NOTE:
SEE SECTION T02515 - RESTORING ROADWAYS, DRIVEWAYS, WALKS AND CURBING FOR ADDITIONAL SPECIFICATIONS REGARDING THE INSTALLATION OF PAVEMENT, SIDEWALK AND APPURTENANCES RELATED TO ITEMS SHOWN ON THIS SHEET.

WEST CREEK WATERSHED
SANITARY SEWER IMPROVEMENTS
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

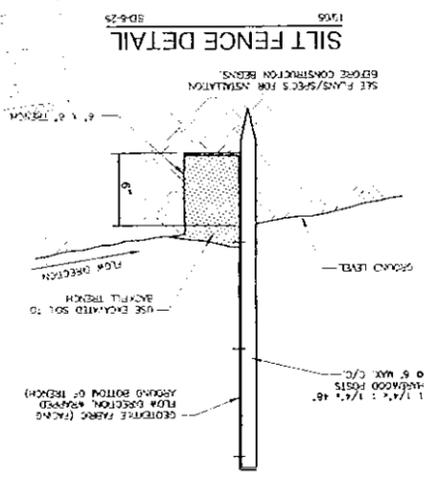
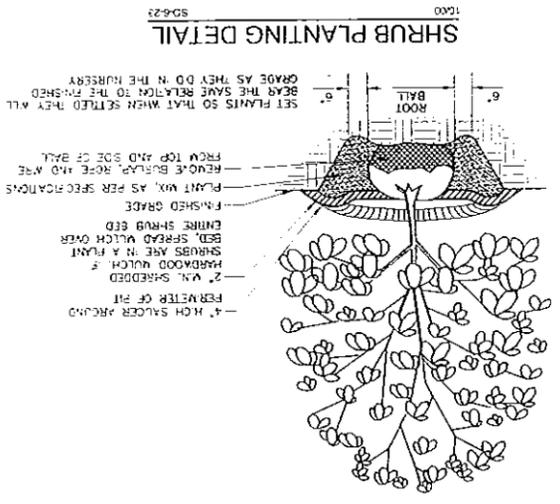
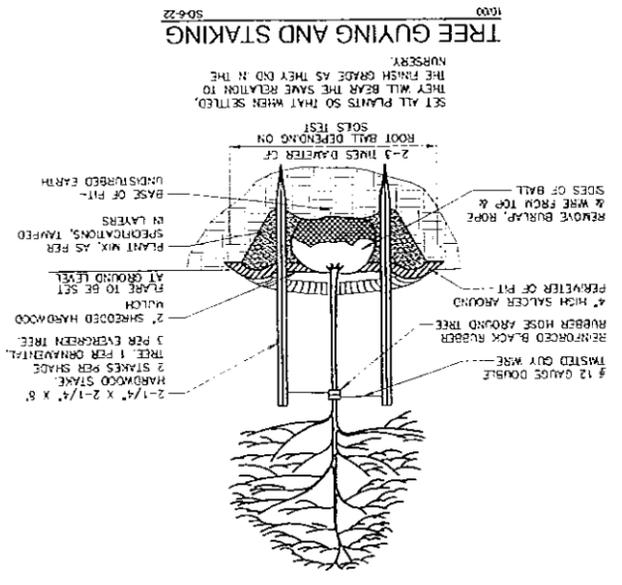
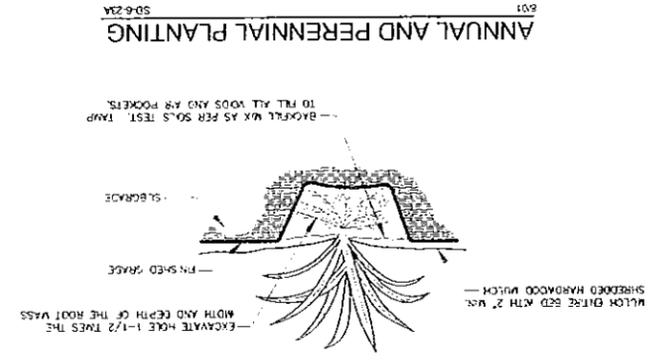
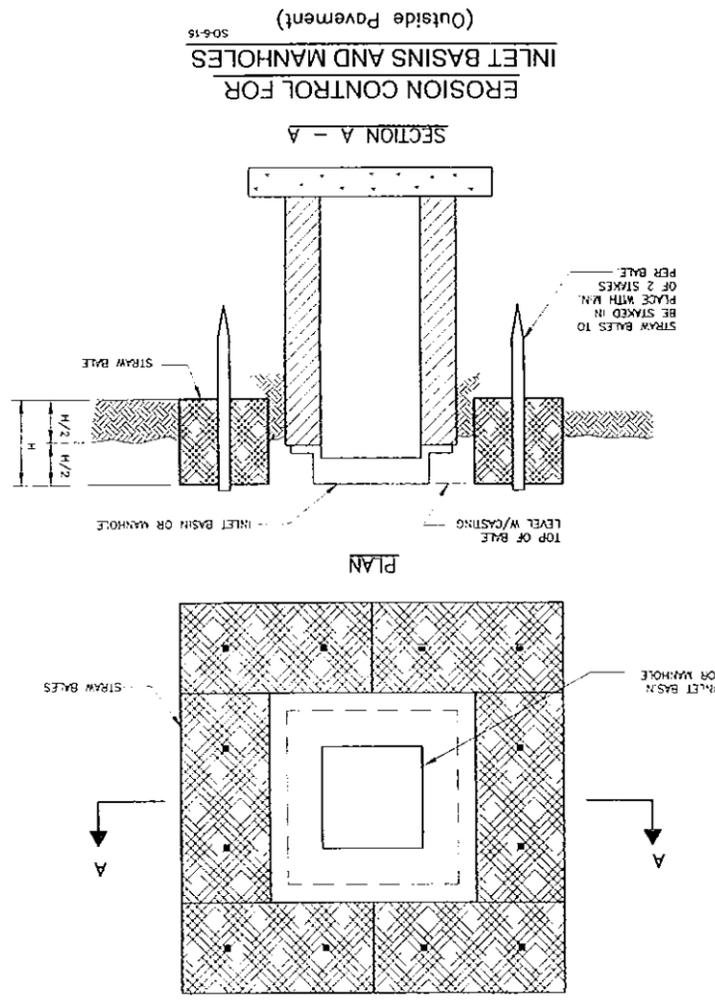
STANDARD DETAIL

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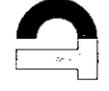
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216.524.3315 www.ctconsultants.com



DATE	08/26/2007
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APPROVED BY	ENG
P.E. No.	FO
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VERS	
CONTRACT NO.	
07211	
SHEET NO.	OF
SD-3	4



DATE:	02/05/2017
DRAWN BY:	CEB
CHECKED BY:	CEB
APPROVED BY:	PHB
SCALE:	N.T.S.
CONTRACT NO.:	
CONTRACT NO.:	07211
SHEET NO.:	4
SD-4	



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**WEST CREEK WATERSHED
 SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO**

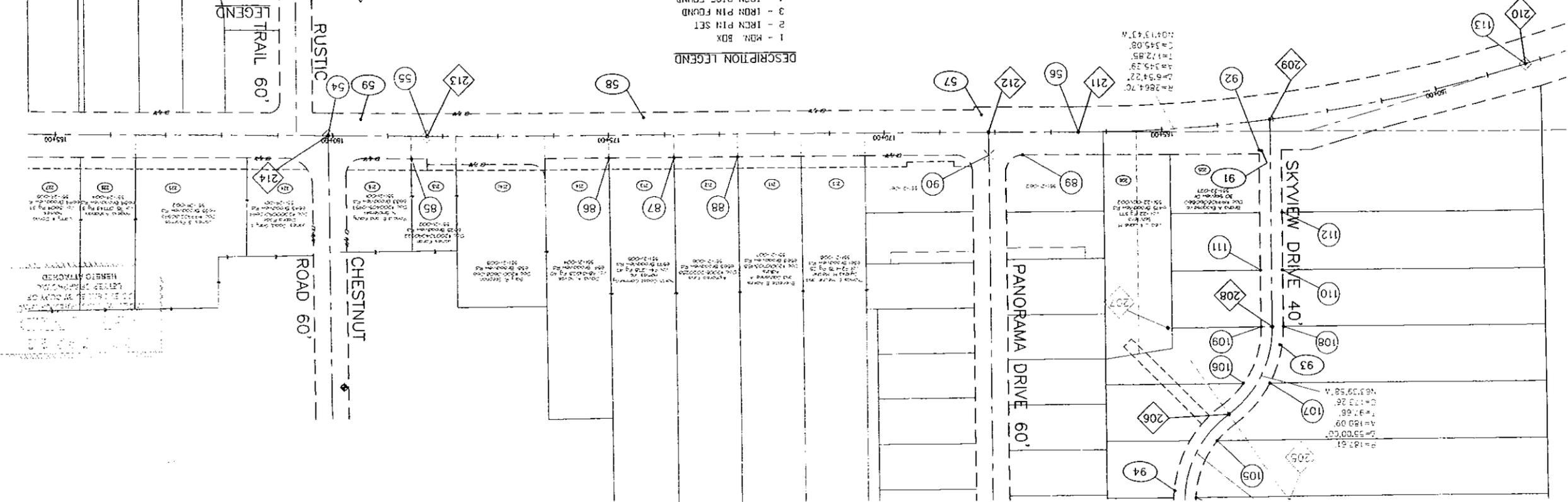
STANDARD DETAIL

NOTE
 THE SURVEY AND STREET ALIGNMENTS SHOWN HEREON
 WAS OBSERVED IN THE FIELD FOR CONSTRUCTION
 PURPOSES ONLY AND MAY NOT BE SUITABLE FOR
 PROPERTY LINE SURVEYS OR OTHER PURPOSES

BENCH MARKS
 TOP IRON PIPES SET
 ELEVATIONS ABOVE IN PROJECT
 CONTROL COORDINATE CHART

DESCRIPTION LEGEND
 1 - MON. BOX
 2 - IRON PIN SET
 3 - IRON PIN FOUND
 4 - IRON PIPE FOUND
 5 - DRILL HOLE
 6 - HUB
 7 - P. K. NAIL
 8 - CONC. MON
 9 - GPS POINTS
 10 - MISC. CIL

GPS CONTROL POINT SET
 500
 BASELINE CONTROL / REFERENCE POINT SET
 200
 EXISTING SURVEY MONUMENTATION
 800
 CALCULATED LOCATION OF CONSTRUCTION CENTERLINE
 200



PROJECT CONTROL COORDINATES

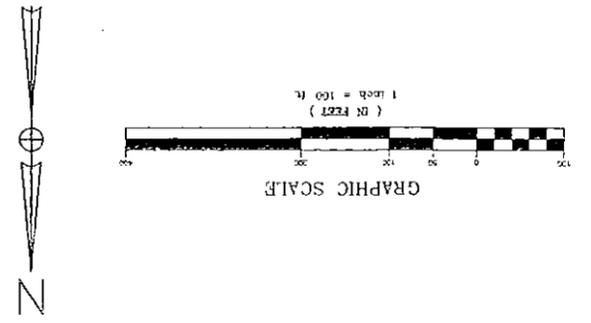
PNT	NORTH	EAST	ELEV.	DESC.
54	88625.0610	1103.80	1	110
55	88624.9230	1102.19	1	111
56	88608.9870	1058.15	1	112
57	88580.2540	1067.84	2	113
58	88588.9810	1091.83	2	205
85	88664.9440	1104.10	3	206
86	88660.6550	1094.89	3	207
87	88658.9620	1090.48	3	208
88	88657.3840	1086.71	3	209
89	88650.1560	1065.34	3	210
90	88651.2610	1067.78	99	211
91	88638.7811	1037.21	2	212
92	88637.5972	1038.18	3	213
93	88979.0050	1043.09	2	214
94	89238.1500	1043.75	2	215
105	89118.1880	1043.35	4	216
106	89047.8900	1044.19	3	217
107	89047.2400	1043.44	3	218
108	88946.8950	1042.98	3	219
109	88947.7820	1044.37	3	220

PROJECT CONTROL COORDINATES

PNT	NORTH	EAST	ELEV.	DESC.
110	88847.0250	1042.51	3	221
111	88847.7810	1044.90	4	222
112	88746.9085	1041.44	3	223
113	88480.8630	995.60	1	224
205	89249.5142	89254.2844	10	225
206	89138.8006	89102.8249	10	226
207	88951.3653	88951.3653	10	227
208	88947.5476	88947.5476	10	228
209	88583.5427	88583.5427	10	229
210	88480.8810	88480.8810	10	230
211	88608.9870	88608.9870	10	231
212	88703.7337	88611.1586	10	232
213	47687.2528	88624.9226	10	233
214	47507.7950	88625.0610	10	234

NOTE
 THE PROJECT COORDINATE SYSTEM IS BASED UPON:
 HORIZONTAL DATUM - COUNTY REGIONAL GEODETIC SURVEY (CRGS)
 MONUMENTS USED FOR CALIBRATION
 O.M.1541, O.M.1542, O.M.0346, O.M.0297 & O.M.1082
 VERTICAL DATUM - NATIONAL GEODETIC VERTICAL DATUM 1929 (NAVD 1929)

CONTROL FILE
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SC2 3
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 07211
 CONTRACT NO.
 DATE: 05/20/2007
 DRAWN BY: J. W. ...
 CHECKED BY: ...
 APPROVED BY: ...
 SCALE: 1"=150'
 PROJECT: WEST CREEK WATERSHED - PHASE II & III
 SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
CT Consultants
 engineers | architects | planners
 4400 New Center Court, Willoughby, Ohio 44094
 440.957.0900 www.ctconsultants.com

NOTE

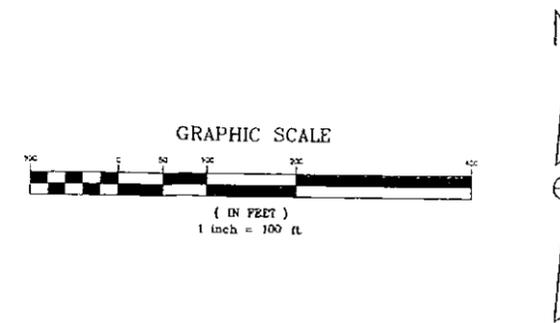
THE PROJECT COORDINATE SYSTEM IS BASED UPON:

HORIZONTAL DATUM - COUNTY REGIONAL GEODETIC SURVEY (CRGS)
 MONUMENTS USED FOR CALIBRATION
 O.M.1541, O.M.1542, O.M.0346, O.M.0297 & O.M.1082

VERTICAL DATUM - NATIONAL GEODETIC VERTICAL DATUM 1929 (NAVD 1929)

CONTROL FILE

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PROJECT CONTROL COORDINATES

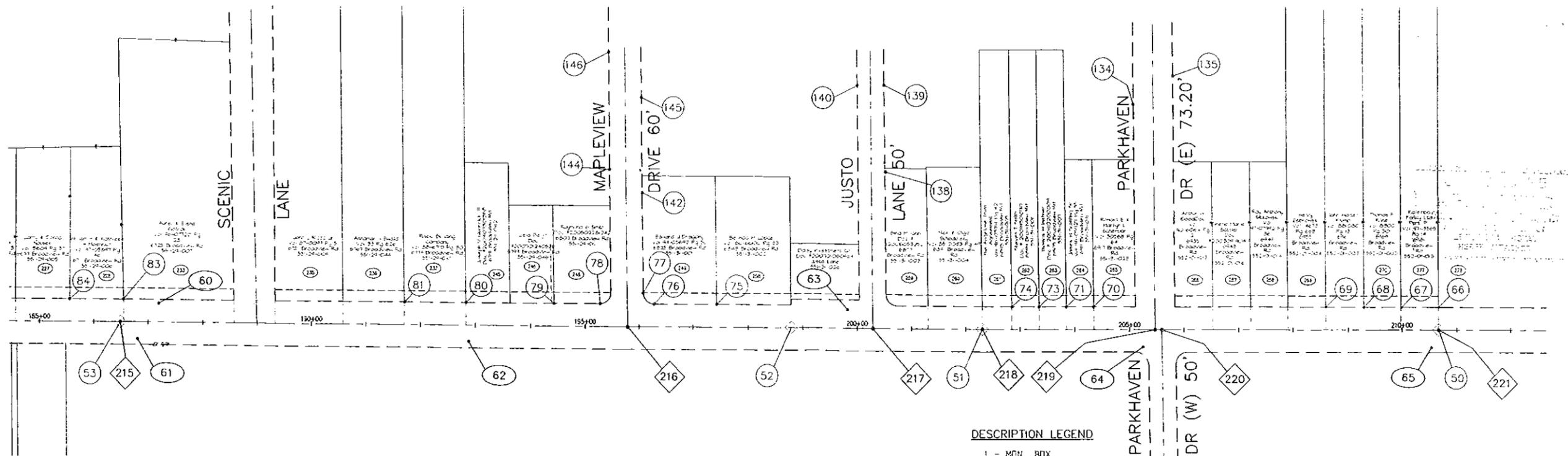
PNT	NORTH	EAST	ELEV.	DESC.
50.	44448.0260,	88648.1070,	1115.12,	1
51.	45284.6090,	88637.5210,	1107.97,	1
52.	45636.7540,	88635.5300,	1107.33,	1
53.	46866.6550,	88627.0970,	1102.88,	1
60.	46796.2470,	88660.6090,	1102.93,	2
61.	46834.6600,	88597.0540,	1102.74,	7
62.	46226.5670,	88602.3410,	1103.86,	2
63.	45533.6690,	88668.3760,	1108.66,	2
64.	44989.0150,	88610.8880,	1111.12,	2
65.	44461.1020,	88616.7270,	1116.38,	2
66.	44448.4980,	88688.0710,	1117.68,	3
67.	44516.4730,	88686.4280,	1116.37,	4
68.	44586.6200,	88686.5640,	1115.53,	3
69.	44655.6110,	88685.6800,	1114.94,	3
70.	45080.8830,	88680.0820,	1110.96,	3
71.	45131.0130,	88679.3860,	1110.41,	3
72.	45131.0480,	88679.3650,	1110.52,	3
73.	45180.8860,	88678.6280,	1110.16,	4
74.	45230.7080,	88677.7120,	1109.82,	4
75.	45772.2520,	88674.4190,	1107.74,	3

PROJECT CONTROL COORDINATES

PNT	NORTH	EAST	ELEV.	DESC.
76.	45887.6410,	88673.4290,	1106.88,	3
77.	45908.2760,	88692.7680,	1108.98,	3
78.	45987.4310,	88672.9040,	1106.26,	3
79.	46072.1960,	88672.2560,	1105.74,	3
80.	46232.1340,	88671.2780,	1103.94,	3
81.	46344.4820,	88670.5130,	1103.25,	3
82.	46617.6560,	88667.3320,	1101.98,	99
83.	46861.1150,	88667.0740,	1103.43,	3
84.	46959.8990,	88666.7630,	1103.74,	3
134.	45013.1912,	89043.0059,	1109.06,	3
135.	44940.6992,	89094.9309,	1109.25,	3
138.	45465.6944,	88917.0485,	1115.58,	4
139.	45470.3117,	89071.8800,	1110.89,	3
140.	45520.2567,	89070.7941,	1111.09,	3
142.	45911.6642,	88873.3693,	1117.64,	3
144.	45972.5109,	88914.0358,	1117.01,	3
145.	45915.5314,	89043.2803,	1113.45,	4
146.	45977.3104,	89123.9709,	1111.97,	3
215.	46866.6550,	88627.0970,	0.00,	10
216.	45936.4749,	88633.1889,	0.00,	10

PROJECT CONTROL COORDINATES

PNT	NORTH	EAST	ELEV.	DESC.
217.	45485.2746,	88636.1439,	0.00,	10
218.	45284.2989,	88637.4602,	0.00,	10
219.	44967.6734,	88641.4912,	0.00,	10
220.	44955.1956,	88641.6500,	0.00,	10
221.	44447.9967,	88648.1073,	0.00,	10



DESCRIPTION LEGEND

- 1 - MON BOX
- 2 - IRON PIN SET
- 3 - IRON PIN FOUND
- 4 - IRON PIPE FOUND
- 5 - DRILL HOLE
- 6 - HJB
- 7 - P. K. NAIL
- 8 - CONC. MON
- 9 - GPS POINTS
- 10 - MISC. CTL

LEGEND

- 500 GPS CONTROL POINT SET
- 200 BASELINE CONTROL / REFERENCE POINT SET
- 300 EXISTING SURVEY MONUMENTATION
- 200 CALCULATED LOCATION OF CONSTRUCTION CENTERLINE

BENCH MARKS

10" IRON PIPES SET
 ELEVATIONS ABOVE IN PROJECT
 CONTROL COORDINATE CHART

NOTE

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 PROPERTY LINE SURVEYS OR OTHER PURPOSES.

WEST CREEK WATERSHED - PHASE II & III
SANITARY SEWER IMPROVEMENTS
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO
SURVEY CONTROL PLAN

CT Consultants
 engineers | architects | planners
 7400 Kaver Court, Willoughby, Ohio 44094
 440.943.9999 www.ctconsultants.com



DATE	AUG 2007
DRAWN BY	JM/KJS
CHECKED BY	
APPROVED BY	
FILE NO	07211
SCALE	AS SHOWN
PROJECT NO	07211
SHEET NO	SC3
TOTAL SHEETS	3

**REPORT ON DETAIL PLANS OF A SANITARY SEWER EXTENSION (PTI #769097)
FOR WEST CREEK WATERSHED SANITARY SEWER IMPROVEMENTS PHASES II
& III SSX, LOCATED IN THE CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO**

On July 22, 2010, detail plans of the above referenced project were received by the Northeast District Office of the Ohio Environmental Protection Agency. The plans were prepared by the CT Consultants Inc. Revisions were requested with the final revisions being received on August 16, 2010.

The project consists of installing 6324 lineal feet of 8 inch diameter gravity pipe (ASTM D3034), and 536 lineal feet of 8 inch diameter gravity pipe (AWWA C151). The minimum slope for the 8 inch diameter gravity pipe will be 0.40%. The maximum manhole spacing for the sewers will be 400 feet.

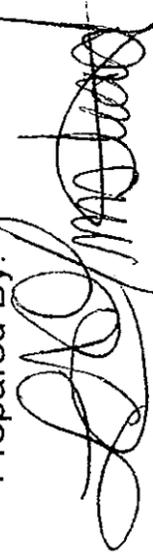
Sanitary sewer data sheets were completed and submitted with the plans. Sewage will be treated at the NEORSD - Southerly WWTP. The sewers will be owned by the City of Seven Hills.

Estimated cost of the project is \$1,290,000.00.

Summary

Detail plans of the above referenced project appear satisfactory and it is recommended they be approved subject to the usual conditions.

Prepared By:



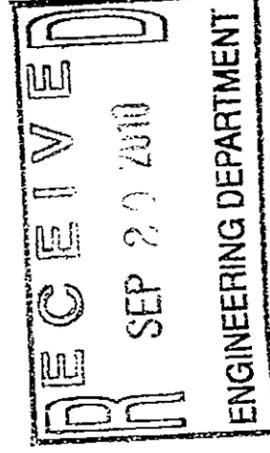
Lindsey A. Olmstead
Assistant to the District Engineer
Division of Surface Water

Reviewed By:



Virginia L. Wilson, P.E.
Environmental Engineer
Division of Surface Water

LAO/LW/mt
September 10, 2010





State of Ohio Environmental Protection Agency

STREET ADDRESS:

MAILING ADDRESS:

Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215
CITY OF SEVEN HILLS OHIO

TELE (614) 644-3020 FAX (614) 644-3184
www.epa.state.oh.us

P.O. Box 1049
Columbus, OH 43216-1049

11/29/2007

MARK PAPKE
7325 SUMMITVIEW DR
SEVEN HILLS OH 44131

RE: Approval for coverage under Ohio EPA General Perm OHC000002
STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY.

Dear Applicant:

The Ohio Environmental Protection Agency has received a Notice of Intent (NOI) for coverage under the above referenced general permit for:

Facility Name: WEST CREEK WATERSHED SANITARY SEWER IMPROVEMENT

Facility Street / Location: VARIOUS

County: Cuyahoga

City(ies) and Township(s): SEVEN HILLS ; INDEPENDENT

Ohio EPA Facility Permit Number: 3GC03630*AG

This site/facility is approved for coverage under the above referenced Ohio EPA construction general permit (CGP). Please use your Ohio EPA facility permit number in all future correspondences. Please familiarize yourself with your permit. The permit contains requirements and prohibitions with which you must comply. Coverage remains in effect until a renewal general permit is issued and Ohio EPA has contacted you in writing instructing you to request continuing permit coverage.

Be aware that if more than one operator, as defined in the permit, will be engaged at a site, each operator shall seek coverage under the general permit. One operator shall submit an NOI and the additional operator(s) shall submit a Co-permittee NOI. Co-Permittees are covered under the same facility permit number. There is no fee associated with the Co-permittee NOI form.

You may obtain additional information, copies of general permits and current forms/instructions from our web site at: <http://www.epa.state.oh.us/dsw/storm/stormform.html>

If you have any further questions, you should contact one of the following:

OHC000002 (Statewide CGP)

Mike Joseph (614) 752-0782 michael.joseph@epa.state.oh.us

OHCD00001 (Big Darby CGP)

Jason Fyffe (614) 728-1793 jason.fyffe@epa.state.oh.us

Or by calling (614) 644-2001 and asking to speak with a member of the Storm Water Unit

Sincerely,

Chris Korleski
Director

CC: D BOGOEVSKI

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

CUYAHOGA SOIL AND WATER CONSERVATION DISTRICT

6100 West Canal Road * Valley View, Ohio 44125
(216)524-6580 * Fax: (216)524-6584

Recommendation of Approval

February 5, 2008

Mr. Bob Greytak, P.E.
C T Consultants
6480 Rockside Woods Blvd., South

RE: West Creek Sanitary Ph. II & III
Plan Review - Submittal #2

Dear Mr. Greytak:

A copy of the Storm Water Pollution Prevention Plan (SWP3) and/or associated information for the above referenced project was received on January 16, 2008 and has been reviewed by the Cuyahoga Soil and Water Conservation District (SWCD). The technical review of the SWP3 was performed by the Cuyahoga SWCD in accordance with local regulation, the current edition of Ohio's "Rainwater and Land Development" standard guidance manual, and Ohio EPA's National Pollutant Discharge Elimination System (NPDES) permit (OHC000002). A review of the design calculations has not been made. While the Ohio EPA is the final authority, the SWP3, in the opinion of this office, meets or exceeds the minimum standards listed above. Note that technical reviews made by the Cuyahoga SWCD are not intended to be regulatory in nature. Regulation and enforcement is the responsibility of local government and the Ohio EPA, not the Cuyahoga SWCD.

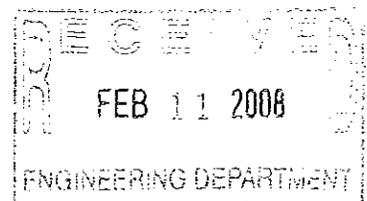
Thank you for your cooperation with this SWP3 review process.

Sincerely,



Patricia Hughes
Urban Conservation Specialist

cc: Mark K. Papke, P.E., City of Seven Hills/Engineering





March 12, 2010

Ohio Environmental Protection Agency
Division of Environmental and Financial Assistance
Attn: Gregory H. Smith, Chief
PO Box 1049
Columbus, Ohio 43216-1049

Re: Water Pollution Control Loan Fund, Letter of Support

Dear Mr. Smith:

The City of Seven Hills, Ohio is applying for Ohio Water Pollution Control Loan Fund for the West Creek Watershed Sanitary Sewer Projects. The Cuyahoga County Board of Health supports this project, as it will eliminate approximately 60 Household Sewage Treatment Systems (HSTSs) within the City. Over 82% of these systems are not capable of meeting current water quality standards due to their age and design based upon HSTS evaluations and water quality sampling that has been conducted by our agency.

The vast majority of the HSTSs within the City discharge their effluent into a storm sewer system. This project will therefore also assist the City in meeting its Phase II Stormwater requirements by eliminating these illicit discharges from the storm sewer systems. Water quality sampling results for fecal coliform bacteria within the Watershed have been found to be as high as 42,144 colonies / 100ml of water; a public health nuisance condition exists when fecal coliform bacteria levels exceed 5,000 colonies / 100ml of water. These elevated bacterial levels put the public's health at risk to exposure to waterborne pathogens.

This project will be of great benefit to our agency through the resulting improvement in water quality, not only in the Watershed, but to Lake Erie. Additionally, the installation of storm water BMPs that will address both storm water quantity and quality issues will reduce flooding and pollutant impacts from surface water runoff.

Sincerely,

Laura Travers, R.S.
Program Manager
Environmental Health Services

Serving the cities, villages and townships of Cuyahoga County since 1919

CITY OF SEVEN HILLS

**WEST CREEK WATERSHED
SANITARY SEWERS**

**Flow Monitoring
and
I/I Analysis**

August, 2009

0721101

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Appendix A	Flow Meter Graphs
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1.0 SUMMARY

1.1 EXECUTIVE SUMMARY

Sewage flow meters were installed at two locations in 2007 and 2009 to determine the inflow and infiltration rates (I/I) before and after the City instituted a downspout disconnection program for the Crossview Road subdistrict of the Seven Hills sanitary sewer system. The meters were installed in the same locations during each monitoring session. The meters were installed for approximately 30 days for each session. An analysis of the data indicates:

- Downspout disconnection from the sanitary sewer system has resulted in a significant reduction of inflow and infiltration (I/I) between 2007 and 2009 at two locations where sewage flow meters were installed.
- The downspout disconnection program resulted in an average reduction of between 64% and 68% in peak I/I flow and an average of 79% to 83% in I/I volume.
- Both flow metering sites still exhibit some response to rainfall events indicating the sewer system still has some remaining sources of I/I.

2.0 INTRODUCTION

2.1 REASON FOR FLOW MONITORING

The City of Seven Hills is under EPA Findings and Orders to expand its sanitary sewer system to serve areas that are currently served by on-site treatment systems. The connection points for the new sanitary sewers is at the western end of Panorama Drive and the western end of Firethorn Drive. Both location have sanitary sewers that connect to a subarea draining to Crossview Road. The additional average daily flow from 62 homes in the expanded sewer area is 24,800 gallons per day (gpd) with a projected peak hourly flow of 137,000 gpd.

The City has been aware that the Crossview Road subarea exhibits high flow during wet weather, thought to be caused by house downspouts connected to the sanitary sewer. The downspout connections allow rainwater to enter the sanitary sewers which can quickly overload the sanitary sewers since they were never meant to transport this water. As a result, these sewers can back up and have the potential to cause basement flooding during rain events. In addition, the rainwater displaces capacity needed to transport current and future sewage flow from homes. With the proposed expansion of the sanitary sewer system, the City needed to insure that receiving sanitary sewers will have sufficient capacity during wet weather to accept flow from the additional homes.

In 2005, the City retained United Survey, Inc. to test the sanitary sewers to determine if downspouts were connected. The testing indicated that there were a significant number of downspouts connected to the sanitary sewer. In 2007, the City retained CT Consultants to install two sewage flow meters in the Crossview Road subdistrict to quantify the magnitude of the rainwater entering the sanitary sewers. In 2008, the City ordered homeowners to disconnect downspouts and redirect the discharge to lawns. In 2009, the City again retained CT Consultants to install sewage flow meters in the same locations as 2007 to determine the reduction of

rainwater. This report presents the results of the 2007 and 2009 flow monitoring sessions.

2.2 ANALYSIS METHODOLOGY

In order to compare flow data from different rainfall events and different time periods, the flow data must be normalized based upon a common design storm. While the City has not reached a consensus with the Ohio EPA as to an appropriate design storm, this analysis uses a ten-year, one-hour design storm (1.69"/hr.) to evaluate and design sewer system improvements. This frequency design storm has been used by other communities in Northeast Ohio because it is consistent with their storm sewer design guidelines. Design storm peaking factors were developed and applied to actual metered flow data collected during known and quantified rainfall events. The peaking factor extrapolates measured flow rates to an equivalent rate for the chosen design storm.

Typically, flow monitoring is done over an extended period between 30 and 60 days. During that period, all rainfall events are evaluated and preferably a minimum of five events are chosen for further evaluation. These events are extrapolated to the design storm and then averaged. The average value allows comparison of the data from different monitoring sessions while giving consideration to seasonal effects of groundwater levels, rainfall events, and operational changes to the system. A detailed description of this process is provided in Chapter 4.

The analysis of the Crossview Road subdistrict sanitary sewer systems was conducted in the following manner.

- Flow meters were installed at key points within the sewer system and flow data was acquired over a 30 to 60 day period.
- Quality control analysis of the data was performed to insure the data reflects observations made in the field.
- The peak rate and volume of flow at each monitoring site resulting from rain induced inflow and infiltration was calculated.

3.0 FLOW MONITORING PROCEDURES AND TECHNIQUES

3.1 GENERAL

Flow monitoring provides valuable information about a sewer systems response to rain induced I/I. Flow monitoring was performed using the latest state of the art depth and velocity equipment. Rainfall was also collected at strategic locations using self-contained tipping bucket gauges with data loggers.

3.2 METERING EQUIPMENT

The equipment used to perform the flow monitoring is an area-velocity meter by the Hach Company, Model Sigma 910. The Sigma 910 is a portable data-logger equipped with a probe that measures both depth and velocity. The depth of flow is measured by means of a pressure transducer. Velocity is measured by an ultrasonic sensor.

Together, depth and velocity are used to determine the flow rate by using the continuity equation ($Q=A*V$)¹. Depth only data can be used to determine flows where a primary device (i.e., weir) is installed.

Each monitor is capable of storing 128K bytes of data. At a measurement interval of 5 minutes and a channel recording selection of depth and velocity, each monitor can store up to 40 days worth of data. The main battery life is approximately 4 weeks when data is logged at 5-minute intervals.

¹ Q is the flow rate in cubic feet per second, A is the cross sectional area of the sewer in square feet, and V is the velocity of flow in feet per second.

All information is downloaded in the field to a laptop computer. The computer and software allows the field technician to program each logger site specifically, confirm the programming data, and periodically download flow data from Sigma 910 logger's memory. The software also allows the plotting of depth vs. velocity in the field for the technician to evaluate the quality of the data generated at the site.

3.3 RAIN GAUGES

The typical rain gauge is a "tipping bucket" type gauge calibrated to measure rainfall in 0.01-inch increments. Each manufacturer has their own method and software used to collect, store and process the data. For this project, one portable self contained tipping bucket/data logger rain gauges at the Seven Hills City Hall was used to collect rainfall data.

CT's portable rain gauge is a self-contained tipping bucket/data logger; the Datataker 5, manufactured by Data Electronics, Rowville, Australia. The unit is a standard stainless steel tipping bucket using a contact switch, which sends a signal to the logger each time the bucket tips. The logger itself is a separate component, but is housed under the 8-inch diameter funnel cover. Its logging intervals range from 1 second to 18 hours. The logger is typically setup to log data every 15 minutes.

3.4 FLOW METER INSTALLATION

During the flow monitor installation, all the site-specific data is recorded on a site information sheet. The site sheet includes; location, pipe size and type, condition, site ID, date and time of installation and a site sketch. Pipe size, site ID, data and time are also programmed into the logger.

The probe is mounted on an adjustable stainless steel band and inserted in its predetermined pipe location. Insertion of the probe into the flow stream always impacts the cross sectional area of the flow stream as shown in Figure 3.1(B). The most severe effects occur when normal flow characteristics are very fast and shallow (less than 1-inch depth of flow). Proposed meter sites are based upon our understanding of the proposed project, an in-depth review of existing sewer records, and preliminary field reconnaissance. Specific site selections then target sewer segments with slight grades and smooth flow characteristics.

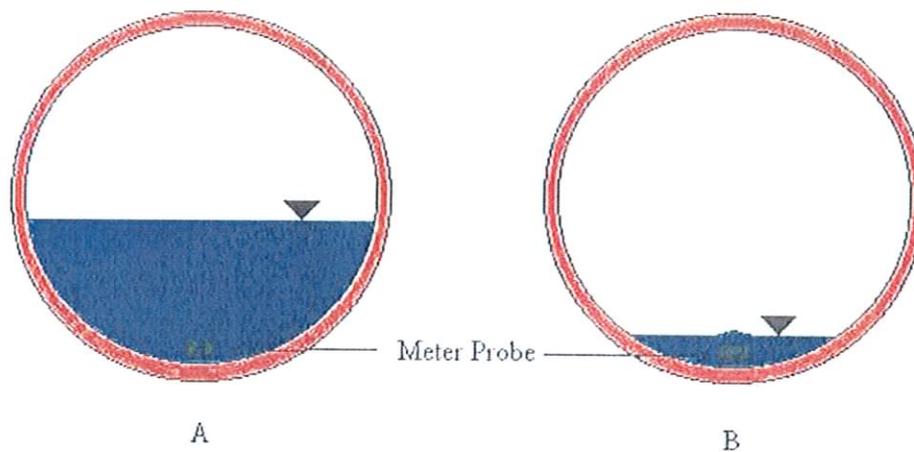


Figure 3.1

For this project, two flow monitors were installed in predetermined locations as shown in Figure 3.2. These locations were selected because:

- 1) the locations allow segregation of the sewer system into distinct smaller segments that allow for more detailed characterization of the system.
- 2) the locations allow analysis of the specific areas that were required to disconnect downspouts.

The two monitoring periods were from November 5, 2007 to December 19, 2007 and from June 16, 2009 to July 16, 2009.

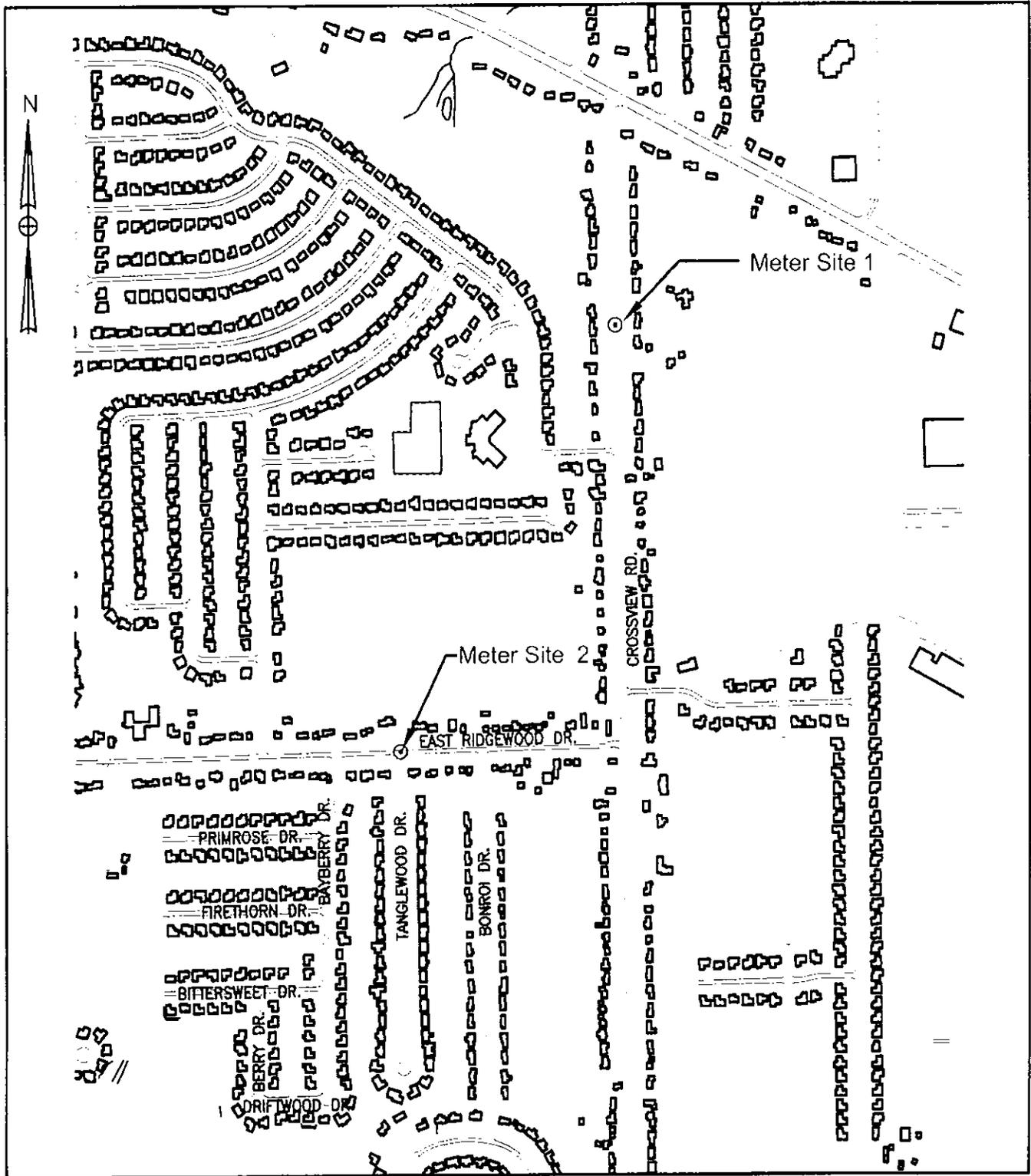


Figure 3.2
Meter Locations

3.5 MONITOR LOCATIONS

Flow monitors were placed in manholes and were given site identifier numbers.

3.5.1 Meter Site #1

Meter #1 was located in a manhole in front of 6074 Crossview Road. The sewer is a 10-inch diameter vitrified clay pipe (VCP). The tributary area includes Crossview Road, East Ridgewood Drive, Bonroi Drive, Tanglewood Lane, Bayberry Drive, Primrose Drive, Firethorn Drive, Bittersweet Drive, Waxberry Drive, and Driftwood Drive. The sewer shed area is roughly 240 acres.

The sewer had good slope and free discharge into the manhole, providing a relatively laminar flow pattern. No obstructions or broken pipe was observed at the time of installation.

3.5.2 Meter Site #2

Meter #2 was located in the effluent pipe of the manhole at the intersection of East Ridgewood Drive and Tanglewood Drive. The sewer is an 10-inch diameter VCP. The manhole was precast and in good condition. The tributary area includes a portion of East Ridgewood Drive, Tanglewood Lane, Bayberry Drive, Primrose Drive, Firethorn Drive, Bittersweet Drive, Waxberry Drive, and Driftwood Drive. The sewer shed area is roughly 126 acres.

During the 2007 monitoring session, the City was notified that an obstruction connected to a rope tied to a manhole step was removed from the effluent pipe. After removal of the obstruction the sewer had good slope and free discharge, providing a relatively laminar flow pattern.

3.6 DATA COLLECTION

Although the flow monitors can store 40 days of data at 5-minute increments, each site is visited on a 10 to 14 day rotation. The purpose of these visits is to download the flow data, check the probe for possible fouling by debris, and perform a depth calibration check. Batteries are changed every third visit (about 35-40 days). A quick field verification is done using the proprietary software to create a scatter graph of depth vs. velocity. This allows the field crews to determine if there are any physical conditions that may be causing any inaccuracies. All observations are recorded on the site information sheet to be used with the QA/QC data processing phase of the flow monitoring.

3.7 QA/QC PROCESS

A variety of anomalies affect the accuracy of flow data and analysis of that data. Therefore, the data must be subjected to quality control to insure the integrity of the data. The quality assurance process starts before the meters are installed in the field. Electronic equipment is subject to inaccuracies caused by the electromechanical sensing devices as well as slight changes over time in the electronic components. These inaccuracies can result in incorrect conclusions if they are not corrected. A variety of physical impairments within any sewer collection system can affect the electronic data and leading to the same incorrect conclusions.

The following paragraphs discuss the flow data processing from the time the meters are installed to producing the final values. This process, in part, involves the use of a group of proprietary computer programs called "CTFLOWS" that are used to adjust data and perform QA/QC checks.

3.7.1 Depth Data Verification

Prior to the meter installation, the depth sensor is bench tested at depths of zero and 24 inches. This bench testing is used to calibrate the electronic signal produced by the pressure transducer mounted in the probe. Upon installation, the actual depth of flow is checked against the logger's sensed value. If the two values disagree, field checks are made to determine the cause of the problem (i.e., inaccurate placement of the probe) and adjustments are made to correct the problem. After installation, periodic visits are made to the monitor site to collect data, measure and compare actual depth and time to the logger sensed depth and time. The actual depths are recorded on the site data sheet for evaluation by office personnel.

3.7.2 Velocity Data Verification

If site conditions allow, a velocity profile of the flow stream is performed. The profile is done with an independent portable velocity meter. Depending on the depth of flow, up to seven points, in the cross sectional area of flow are measured. Typically, the measured points are done in a pattern as shown in Figure 3.3.

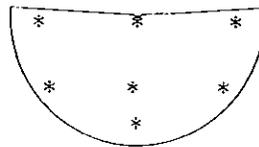


Figure 3.3 -Velocity Profile Locations

A sketch with the observed values is recorded on the back of the meter site sheet along with the date, time and depth of flow. The average of these values should agree or be within a reasonable range of what the flow meter velocity reads.

3.7.3 Data Evaluation and Analysis

The data is examined in the office for gaps and/or sudden shifts in depth caused by depth sensor and/or clock problems. The first component checked in the data evaluation process is the depth data. Within CTFLOWS, a program called CTDEPTH is used to add or subtract a linearly growing adjustment factor to the depth data to compensate for any drift. These adjustments to the depth data are determined and made to the satisfaction of the data analyst prior to the velocity analysis.

3.7.4 Velocity Analysis

The velocity analysis is based on a statistical study of velocity data combined with knowledge of the sewers gained through physical inspections. Manning's equation for open channel flow and graphs of partial flow in pipes indicate that under normal conditions, the flow velocity increases as the depth of flow increases up to 9/10 of full pipe. Under field conditions, the relationship of increasing velocity with increasing depth usually holds true although deviations from the ideal graph are commonly found due to pipe misalignments, debris, and root intrusion. Additionally, under storm conditions, flow in the collection system may slow down at the monitor due to downstream problems. These possibilities are kept in mind as the analyst processes the velocity data.

The velocity data is statistically analyzed using CT QA/QC to determine at each depth the average velocity and standard deviation of the velocities measured at that depth. At an excellent monitoring site, the velocity points will be closely grouped around the average within a tolerance of ± 10 percent. Good sites will have a tolerance of ± 20 percent. Unfortunately, some less than ideal sites must be used due to the constraints of the monitoring project, and sometimes flow velocities are lost due to debris build-up, slow flow (less than 0.5 FPS), or lack of solids. When some velocities are bad, the analyst constructs a depth/velocity chart using good data and rejecting data outside an

acceptable range as determined by the analyst. The depth/velocity chart, determined by the statistical analysis, is smoothed by the analyst to produce a curve where the discharge is continuously increasing as the depth increases. This chart is then used to replace velocities outside the acceptable range with the acceptable value for the given depth. This approach subjugates the velocity data to depth data, which is appropriate based on the current relative accuracy of depth and velocity measurement technologies.

3.7.5 Final Check

The final QA/QC check analyses flows from upstream monitors down to lower monitors to ensure flow is increasing. Where continuity is lacking, field investigations are proposed or performed to look for reasons for the loss of flow. After the QA/QC analysis is completed, the flow information is used to project design storms used for evaluation and planning efforts.

4.0 FLOW PROJECTIONS

4.1 FLOW PROJECTION METHODOLOGY

The following pages describe typical methodology used to evaluate sanitary sewer flow data and project actual metered data to a chosen design storm. The narrative will describe a design storm, the steps for determining a peak storm flow rate, the quantification of storm related I/I, a design storm hydrograph, design storm retention volume and the effect of upstream overflows.

4.1.1 Design Storm

A design storm (also referred to as the recurrence interval) is classified by the probability of its occurring in a given year. A 10-year design storm has a 10% probability (1/10) of occurring, and a 100-year design storm has a 1% probability (1/100) of occurring in a given year. Table 4.1 illustrates the probability of a design storm event within periods of various lengths.

Table 4.1

Probability That an Event of Given Recurrence Interval Will be Equaled or Exceeded During Periods of Various Lengths

Recurrence, yr.	Period, yr.	1	5	10	25	50	100	200	500
		Probability							
1		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2		0.5	0.97	0.999	*	*	*	*	*
5		0.2	0.67	0.89	0.966	*	*	*	*
10		0.1	0.41	0.65	0.93	0.995	*	*	*
50		0.02	0.1	0.18	0.4	0.64	0.87	0.98	*
100		0.01	0.05	0.1	0.22	0.4	0.63	0.87	0.993
200		0.005	0.02	0.05	0.12	0.22	0.39	0.63	0.92

* In these cases the probability can never be exactly 1, but for all practical purposes its value may be taken as unity

The design storm is the parameter used to size collection system facilities (i.e., relief sewers, detention basins, pump stations, etc.). The recurrence interval used for planning or design is selected by the community or regulatory agency based on the level of protection desired for the residents or the environment.

Design storms are further classified as to the time interval in which the rain falls and is usually set as the most intense one (1) or two (2) hours of the storm. The amount of rainfall for the design storm is statistically determined from historical rainfall records. These rainfall amounts have been compiled and are published by a variety of government organizations. Two sources commonly used are tables published by the Northeast Ohio Areawide Coordinating Agency (NOACA) and "Rainfall Frequency Atlas of the Midwest," (Huff, Floyd A., and James R. Angel, Illinois State Water Survey, Champaign, Bulletin 71, 1992).

The Ohio EPA has indicated in other communities that the city should utilize the same design storm for I/I related improvements as that used to design its storm sewer system. For this study a 10-year, 1-hour rainfall event was selected for the analysis. The design storm will produce 1.69 inches of rainfall in one hour. Since a statistically valid number of design storms does not normally occur during the flow monitoring period, the metered flow data is projected to a design storm using factors from typical design storm values and metered flow data.

4.1.2 Design Storm Peak Flow Rate

The metered flow data is extrapolated to estimate the peak flow rate during a design storm. The extrapolation assumes all upstream flow can reach the site unrestricted. By projecting the flows to a design storm, the sites can be analyzed for the amount of infiltration and inflow (I/I) associated with that particular design rainfall event. The

calculated amount of I/I make it possible to compare sites from different time periods or to compare locations that were far apart and experienced different rainfall intensities during the same event. The projected flows and I/I allow the engineer to design facilities capable of handling rain-induced flows for the selected design storm. A typical design storm hydrograph is shown in Figure 4.1.

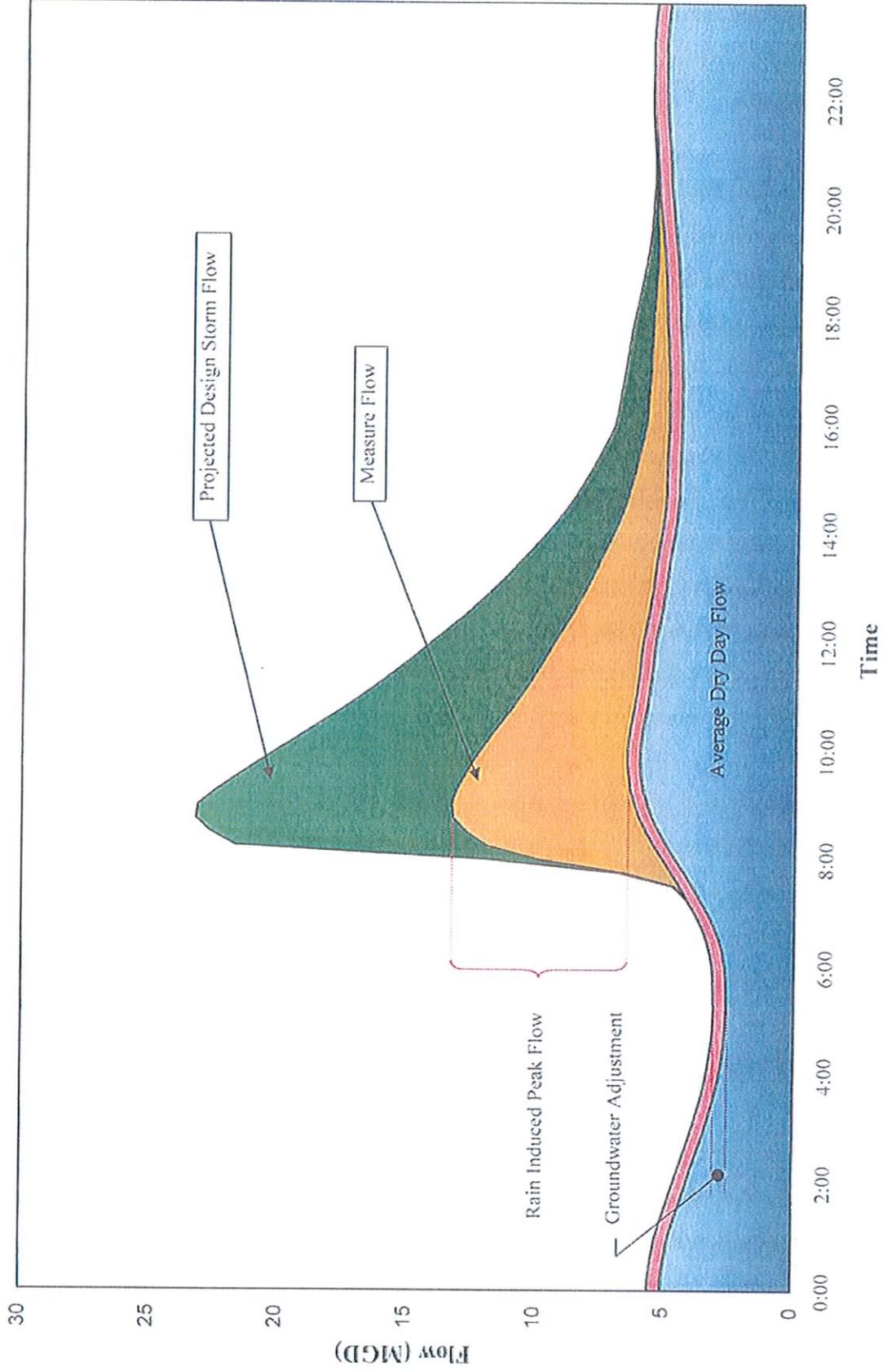
The first step in projecting flow rates is to choose five days of dry flows occurring during the week (Monday through Friday) to develop characteristic base flows. The selection of dry days usually consists of days where no rain has fallen for at least two to three days prior. If major storms occurred on the weekend, then Saturday and Sunday dry days were determined separately from weekday flows since their flow characteristics are frequently different than weekday flows. If possible, the same dry days are used for all sites in the project. A graph of dispersed dry days is reviewed to ensure similarity. If inconsistencies exist, other dry days are chosen. The days are then averaged together to form the average dry day flow.

Rain days are then chosen to use for projections and analysis of flows. High intensity storms of one (1) to two (2) hours in duration are best suited for most projects. Generally, a minimum of three to five rain days are used from a 90-day monitoring period. If possible, the same rain days are used for all sites in the study. A graph of each rain day is reviewed to compare depth and velocity increases to the rainfall.

A groundwater adjustment factor is then determined for each rain day by subtracting the average of the dry day flows from the measured flow just prior to the start of the storm. This adjusts the measured flow for high or low groundwater conditions, or residual effects of a previous rainfall.

The average dry day flow and the groundwater adjustment factor are subtracted from the corresponding rain day flow for each fifteen-minute increment. This difference is the

Figure 4.1
Typical Design Storm Hydrograph



measured rain-induced flow. A 1-hour moving average is then calculated from the 15-minute readings. The maximum of the 1-hour moving averages is the rain-induced peak hour flow.

The next step is to determine peaking factors used to normalize all storms recorded during the monitoring period. The design storm rainfall is divided by the actual rainfall during the storm (i.e., if the design storm is 1.69 inches of rain and 0.66 inches of rain fell during the peak hour of the storm, then the peaking factor for that storm would be $1.69/0.66$ or 2.56.)

After development of a peaking factor, the projected design storm rain-induced flow is calculated. For each storm the measured rain-induced peak hour flow is multiplied by its respective peaking factor to get the design storm peak hour rain-induced flow. The design storm peak hour rain-induced flows from the different storms are then averaged to produce the *storm related peak-hour I/I rate*. The design storm flows (and volumes) are averaged in order to take into account variations in the rainfall intensity along with other antecedent conditions that affect the data.

The total peak hour flow is then calculated. The design storm peak-hour I/I rate is added to the average dry day peak hour flow which includes normal groundwater I/I. This produces a worst case scenario where the rainfall occurs at the same time as the normal diurnal peak flow rate. The result is the *design storm peak hour flow rate*, which is used to design flow rate dependent facilities, such as sewers and pump stations.

4.1.3 Design Storm I/I Volume

The methodology used to project the total quantity of I/I produced by a design storm starts in a manner similar to the peak rate section. The dry day base flow hydrograph is developed; rain days are chosen (they may be different than the days used for peak rate

calculations): and a groundwater adjustment factor is determined for each rain day.

The methodology changes at this point in the analysis. An I/I volume is calculated for each 15-minute reading that the measured flow is greater than average dry weather flow. The incremental volumes are summed to determine the total measured I/I volume for the given storm. The individual storm volumes are normalized to the design storm volume by applying a peaking factor based on total rainfall. The individual storm volumes are then multiplied by their respective peaking factors to produce individual design storm volumes. The individual design storm volumes are then averaged to determine the *design storm I/I volume* for the monitored site.

4.1.4 Design Storm Hydrograph

When the *design storm peak-hour flow rate* is combined with the *design storm I/I volume*, a design storm hydrograph can be constructed. This graph represents flow rates that would be observed at the site if a design storm were to occur. Typically, the rising leg of the hydrograph reaches the peak-hour rate quickly. The falling leg is calculated such that the total volume under the hydrograph is equal to the *design storm I/I volume*.

4.2 SITE SPECIFIC FLOW PROJECTIONS

Graphs showing both sewage flow and rainfall events for each month during the monitoring period are provided in Appendix A.

4.2.1 Site #1

Monitor Site #1 is at 6074 Crossview Road. The average 2007 design storm I/I rate was 10.1 mgd while the average design storm I/I rate in 2009 was 3.2 mgd., a reduction of 68%. The average design storm I/I volume in 2007 was 0.92 million gallons while the 2009 design storm volume fell to 0.16 million gallons, an 83% reduction. The design storm summary sheets are shown in Tables 4.2 and 4.3.

4.2.2 Site #2

Meter Site #2 was at the intersection of East Ridgewood Drive and Tanglewood Lane. The average 2007 design storm I/I rate was 5.9 mgd while the average design storm I/I rate in 2009 was 2.1 mgd., a reduction of 64%. The average design storm I/I volume in 2007 was 0.47 million gallons while the 2009 design storm volume fell to 0.099 million gallons, an 79% reduction. The design storm summary sheets are shown in Tables 4.4 and 4.5.



Table 4.2

City of Seven Hills - 2007

Site ID West Creek - Site 01 (Crossview)

Meter Location: 01
 Design Storm: 10 year 1-hr
 Design Rainfall: 1.69 in./1-hr

Dry Day ADF - 0.122 MGD
 Sewer Size - 10 in.

Peak Flow Summary

Storm Date	Storm Day	Rainfall 1-hr (in.)	Peak Hour Measured I/I Rate (MGD)	Peaking Factor	Design Storm I/I Rate (MGD)
11/11/07	Sunday	0.06	0.149	28.20	4.202
11/12/07	Monday	0.12	1.409	14.10	19.867
11/21/07	Wednesday	0.11	1.230	15.40	18.942
12/02/07	Saturday	0.17	0.934	9.90	9.247
12/05/07	Wednesday	0.07	0.059	24.10	1.422
12/13/07	Thursday	0.23	0.888	7.30	6.482
DESIGN STORM I/I RATE (Average)					10.027

I/I Volume Summary

Storm Date	Storm Day	Rainfall Total (in.)	Measured I/I Volume (gal)	Design Storm Volume Factor	Design Storm Volume (gal)
11/11/07	Sunday	0.35	19,694	4.83	95,122
11/12/07	Monday	1.61	483,259	1.05	507,422
11/21/07	Wednesday	1.46	771,095	1.16	894,470
12/02/07	Sunday	0.86	548,061	1.97	1,079,680
12/05/07	Wednesday	0.07	22,568	24.14	544,792
12/13/07	Thursday	0.51	715,219	3.31	2,367,375
DESIGN STORM I/I VOLUME (Average)					914,810

Table 4.3

City of Seven Hills - 2009

Site ID West Creek - Site 01 (Crossview)

Meter Location: 01
 Design Storm: 10 year 1-hr
 Design Rainfall: 1.89 in./1-hr

Dry Day ADF - 0.054 MGD
 Sewer Size - 10 in.

Peak Flow Summary

Storm Date	Storm Day	Rainfall 1-hr (in.)	Peak Hour Measured I/I Rate (MGD)	Peaking Factor	Design Storm I/I Rate (MGD)
06/17/09	Wednesday	0.17	0.452	9.90	4.475
06/20/09	Saturday	0.16	0.216	10.60	2.290
06/25/09	Thursday	0.21	0.457	8.00	3.656
06/30/09	Tuesday	0.14	0.219	12.10	2.650
07/11/09	Saturday	0.53	0.805	3.20	2.576
DESIGN STORM I/I RATE (Average)					3.129

I/I Volume Summary

Storm Date	Storm Day	Rainfall Total (in.)	Measured I/I Volume (gal)	Design Storm Volume Factor	Design Storm Volume (gal)
06/17/09	Wednesday	0.55	36,541	3.07	112,181
06/20/09	Saturday	0.40	67,424	4.23	285,204
06/25/09	Thursday	0.72	40,429	2.35	95,008
06/30/09	Tuesday	0.21	22,914	8.05	184,458
07/11/09	Saturday	1.08	84,365	1.56	131,609
DESIGN STORM I/I VOLUME (Average)					161,692

Table 4.4

City of Seven Hills - 2007

Site ID West Creek - Site 02 (E. Ridgewood)

Meter Location: 02
 Design Storm: 10 year 1-hr
 Design Rainfall: 1.69 in / 1-hr

Dry Day ADF - 0.055 MGD
 Sewer Size - 10 in.

Peak Flow Summary

Storm Date	Storm Day	Rainfall 1-hr (in.)	Peak Hour Measured I/I Rate (MGD)	Peaking Factor	Design Storm I/I Rate (MGD)
11/11/07	Sunday	0.06	0.121	28.20	3.412
11/12/07	Monday	0.12	0.816	14.10	11.506
11/21/07	Wednesday	0.11	0.668	15.40	10.287
12/02/07	Saturday	0.17	0.493	9.90	4.881
12/05/07	Wednesday	0.07	0.054	24.10	1.301
12/13/07	Thursday	0.23	0.484	7.30	3.533
DESIGN STORM I/I RATE (Average)					5.820

I/I Volume Summary

Storm Date	Storm Day	Rainfall Total (in.)	Measured I/I Volume (gal)	Design Storm Volume Factor	Design Storm Volume (gal)
11/11/07	Sunday	0.35	17,072	4.83	82,458
11/12/07	Monday	1.61	232,992	1.05	244,642
11/21/07	Wednesday	1.46	355,530	1.16	412,415
12/02/07	Sunday	0.86	295,773	1.97	582,673
12/05/07	Wednesday	0.07	19,945	24.14	481,472
12/13/07	Thursday	0.51	307,969	3.31	1,019,377
DESIGN STORM I/I VOLUME (Average)					470,506

Table 4.5

City of Seven Hills - 2009

Site ID West Creek - Site 02 (E. Ridgewood)

Meter Location: 02
 Design Storm: 10 year 1-hr
 Design Rainfall: 1.69 in./1-hr

Dry Day ADF - 0.063 MGD
 Sewer Size - 10 in

Peak Flow Summary

Storm Date	Storm Day	Rainfall 1-hr (in.)	Peak Hour Measured I/I Rate (MGD)	Peaking Factor	Design Storm I/I Rate (MGD)
06/17/09	Wednesday	0.17	0.282	9.90	2.792
06/20/09	Saturday	0.16	0.147	10.60	1.558
06/25/09	Thursday	0.21	0.312	8.00	2.496
06/30/09	Tuesday	0.14	0.148	12.10	1.791
07/11/09	Saturday	0.53	0.470	3.20	1.504
DESIGN STORM I/I RATE (Average)					2.028

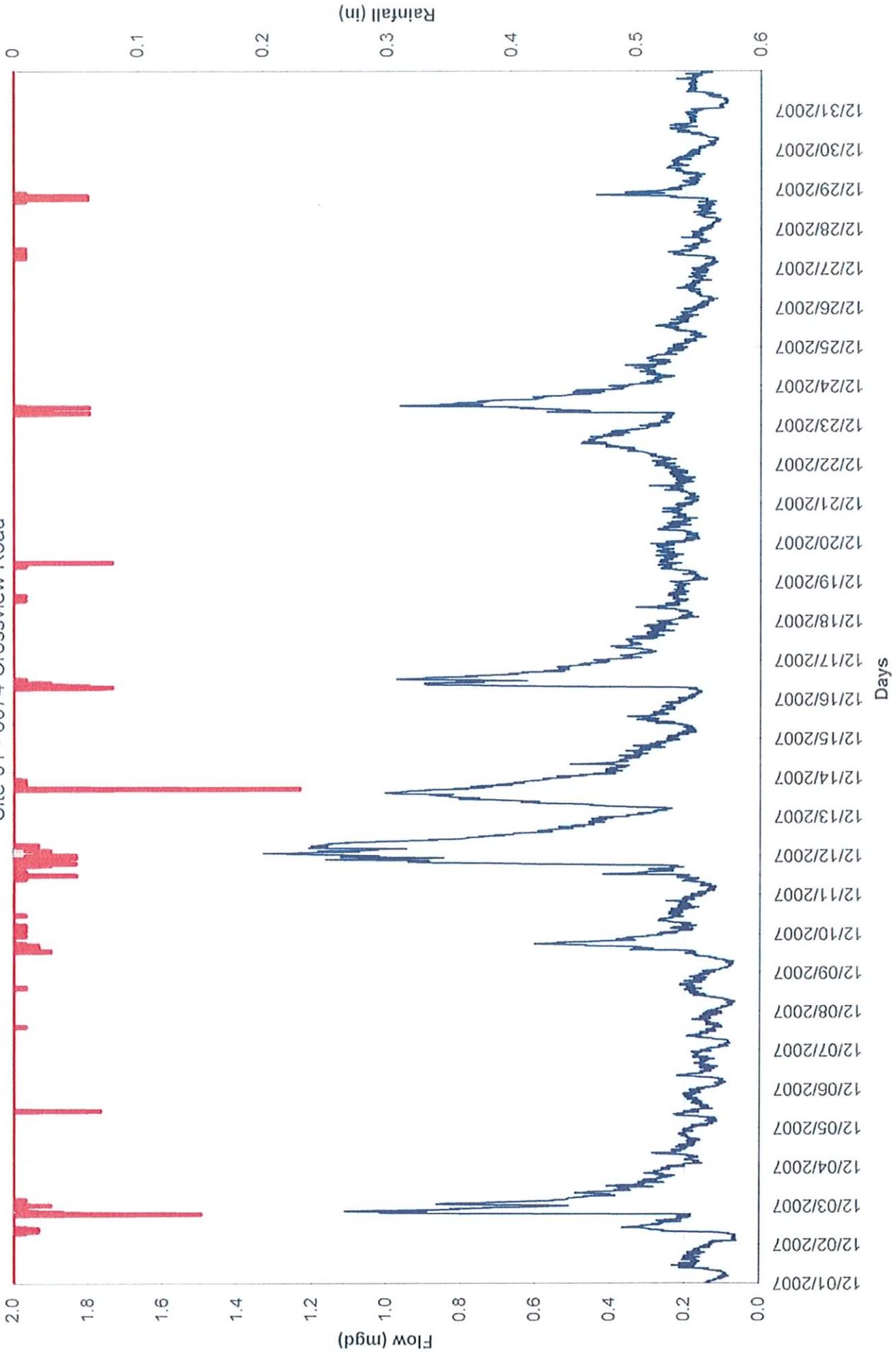
I/I Volume Summary

Storm Date	Storm Day	Rainfall Total (in.)	Measured I/I Volume (gal)	Design Storm Volume Factor	Design Storm Volume (gal)
06/17/09	Wednesday	0.55	21,588	3.07	66,275
06/20/09	Saturday	0.40	39,979	4.23	169,111
06/25/09	Thursday	0.72	26,774	2.35	62,919
06/30/09	Tuesday	0.21	14,390	8.05	115,840
07/11/09	Saturday	1.08	50,432	1.56	78,674
DESIGN STORM I/I VOLUME (Average)					98,564

APPENDIX A

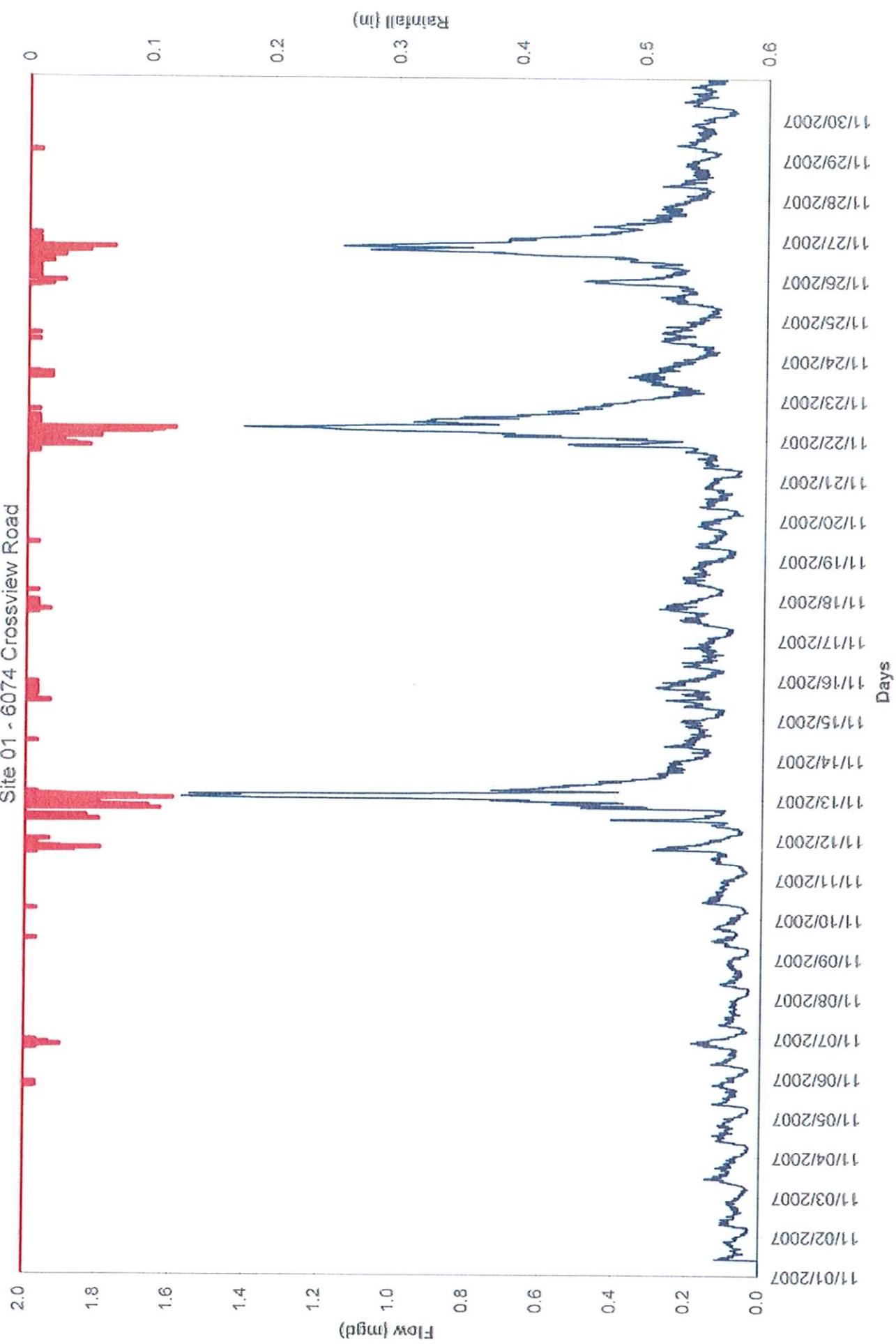
City of Seven Hills - 2007

Site 01 - 6074 Crossview Road



City of Seven Hills - 2007

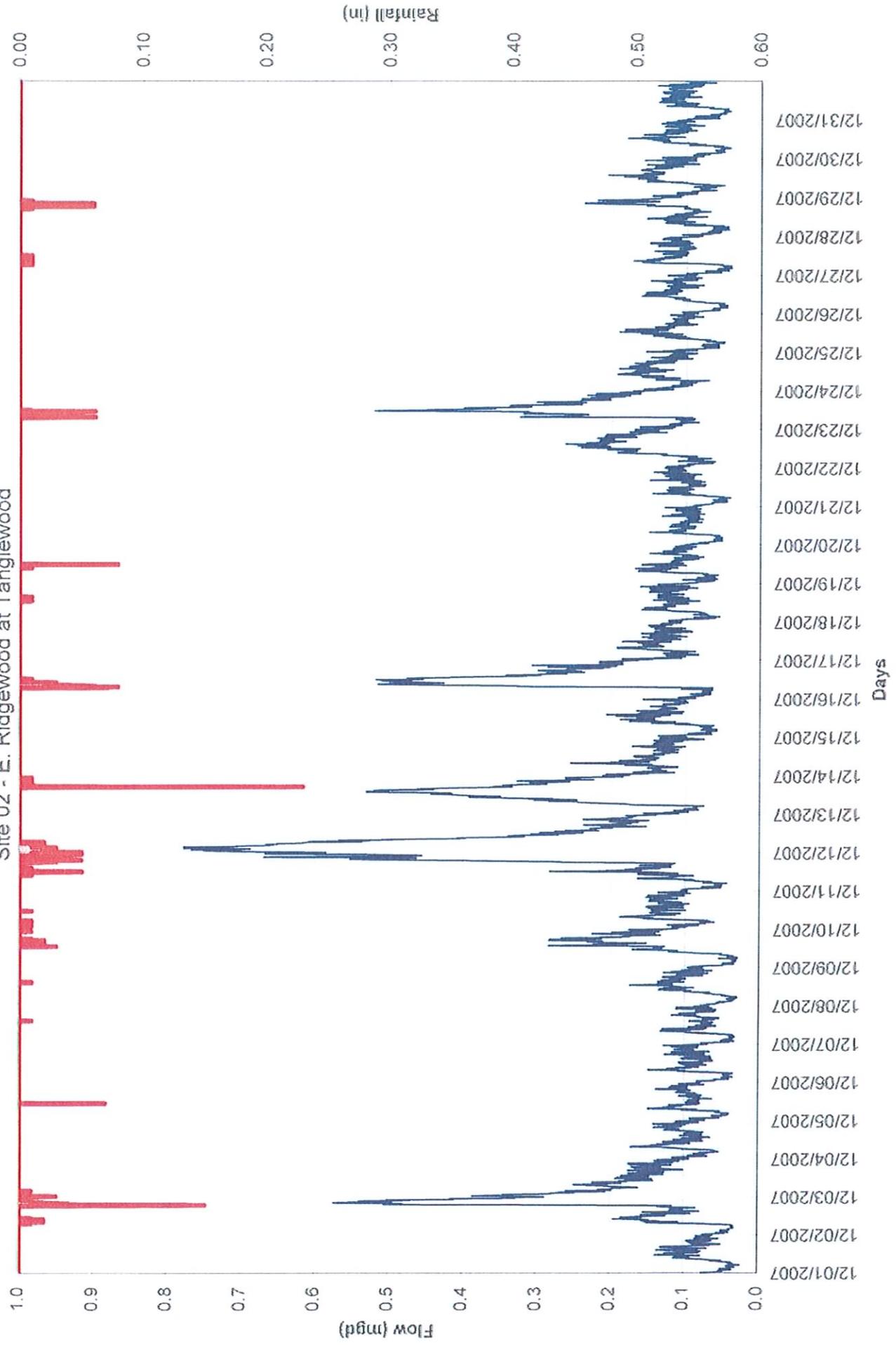
Site 01 - 6074 Crossview Road



— Flow — Rainfall

City of Seven Hills - 2007

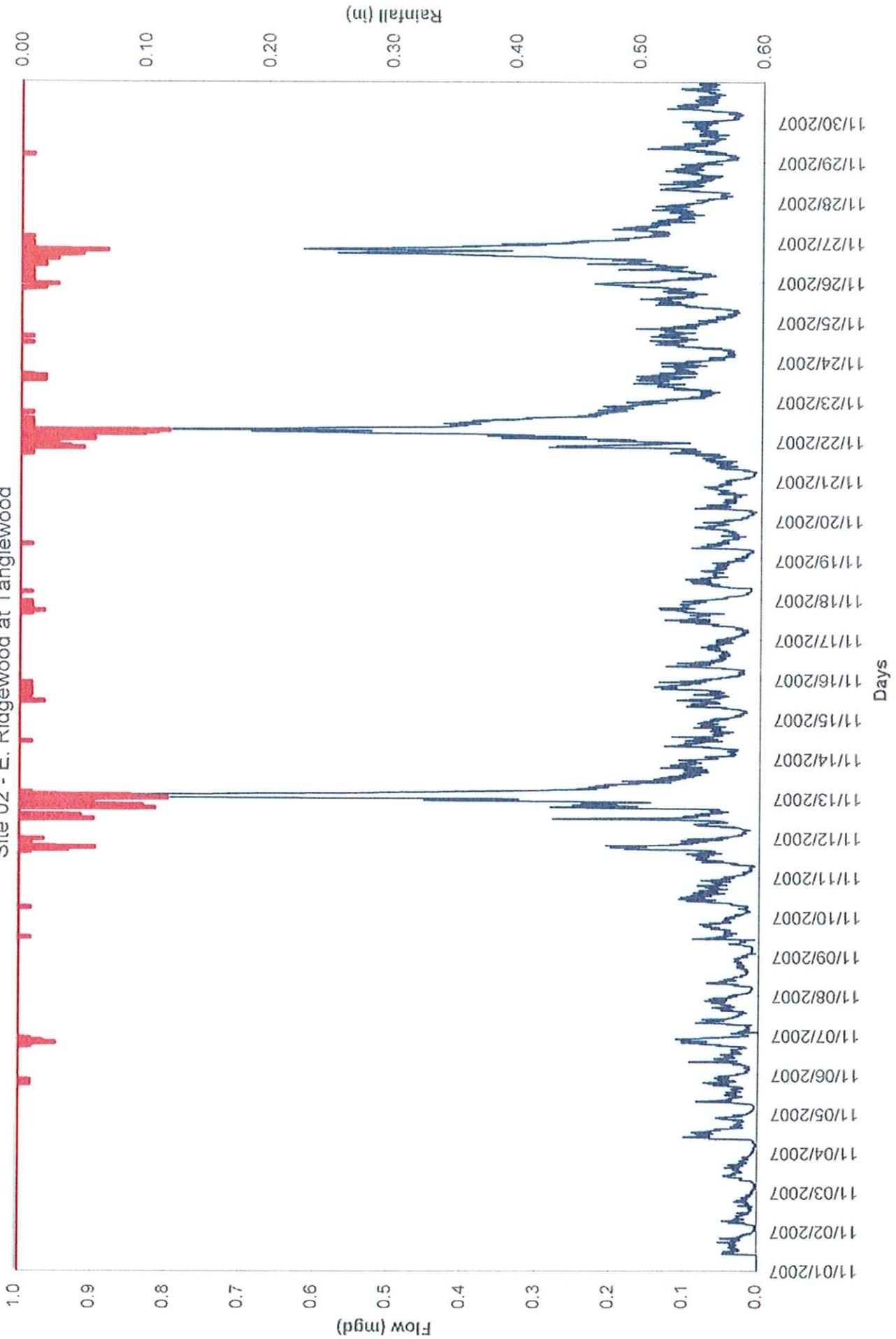
Site 02 - E. Ridgewood at Tanglewood



— Flow — Rainfall

City of Severn Hills - 2007

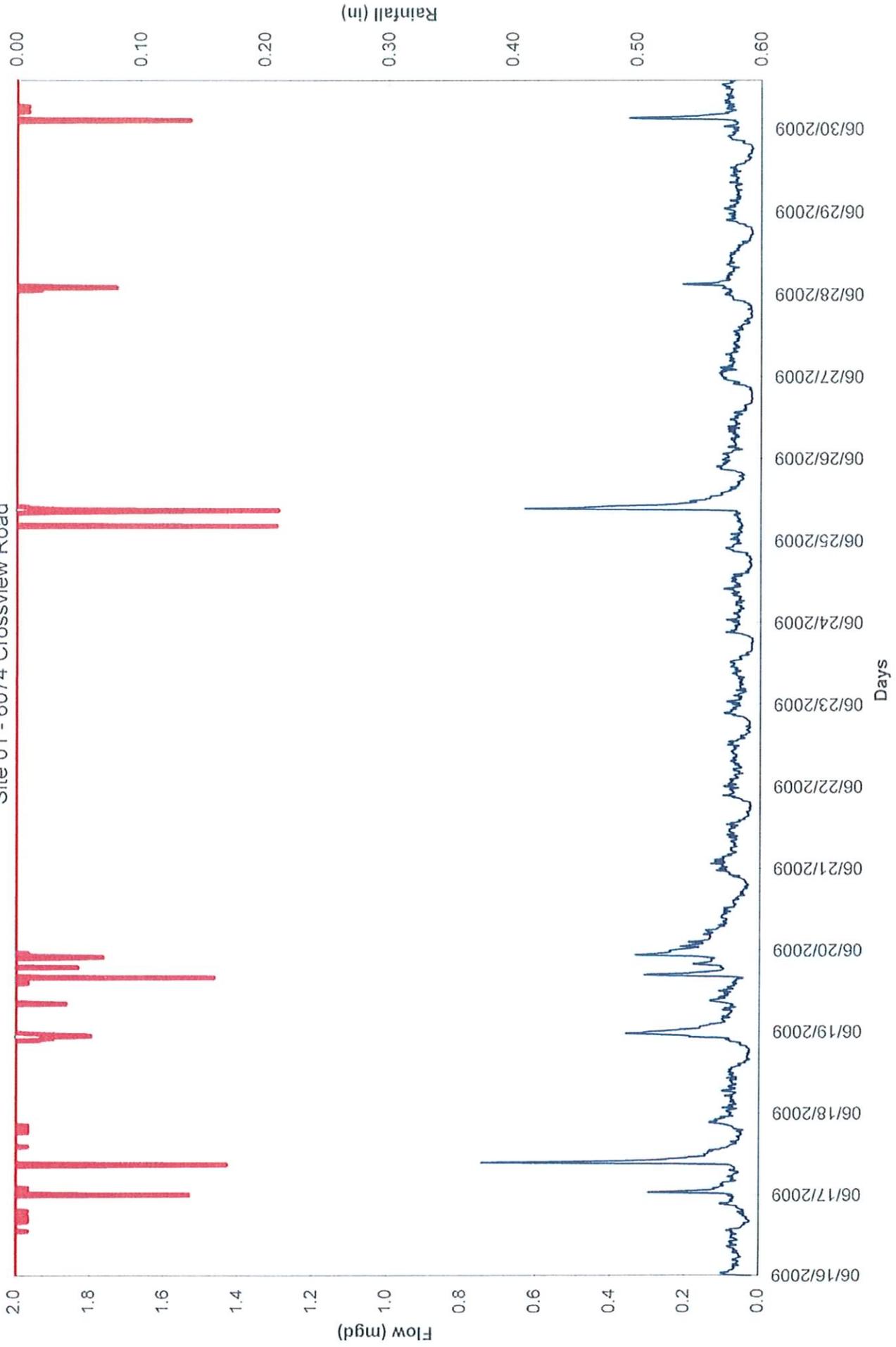
Site 02 - E. Ridgewood at Tanglewood



— Flow — Rainfall

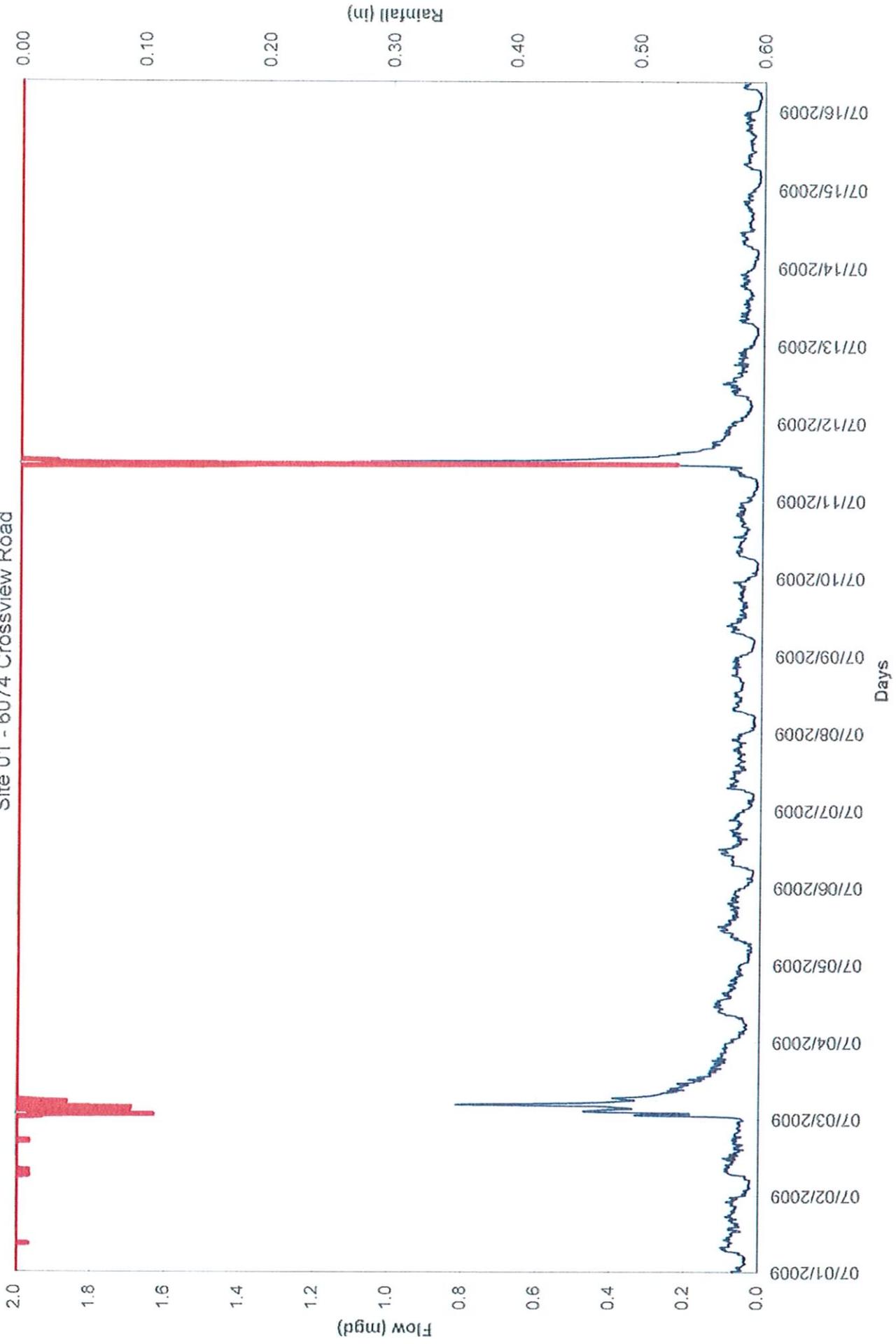
City of Seven Hills - 2009

Site 01 - 6074 Crossview Road



City of Seven Hills - 2009

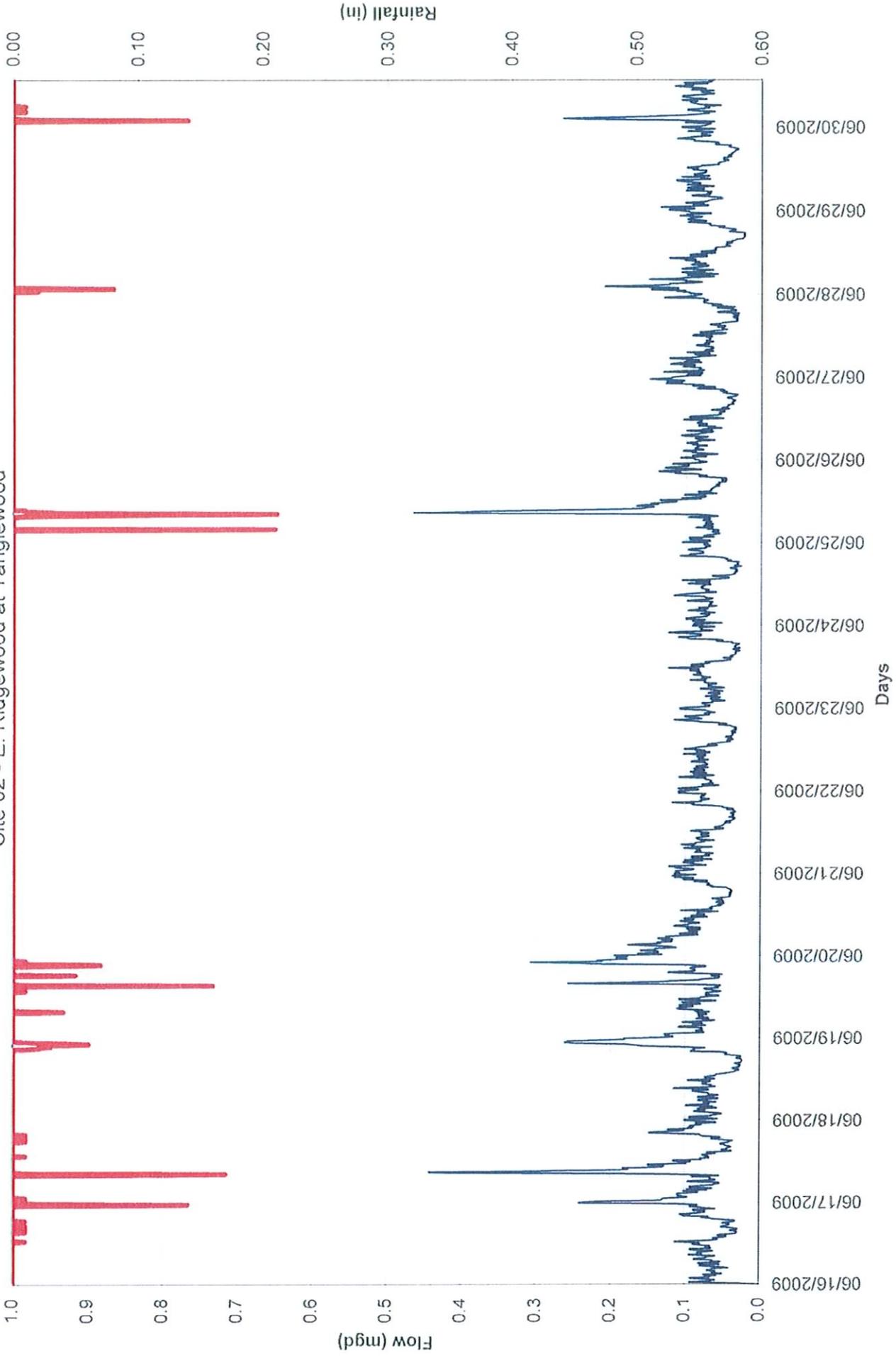
Site 01 - 6074 Crossview Road



— Flow — Rainfall

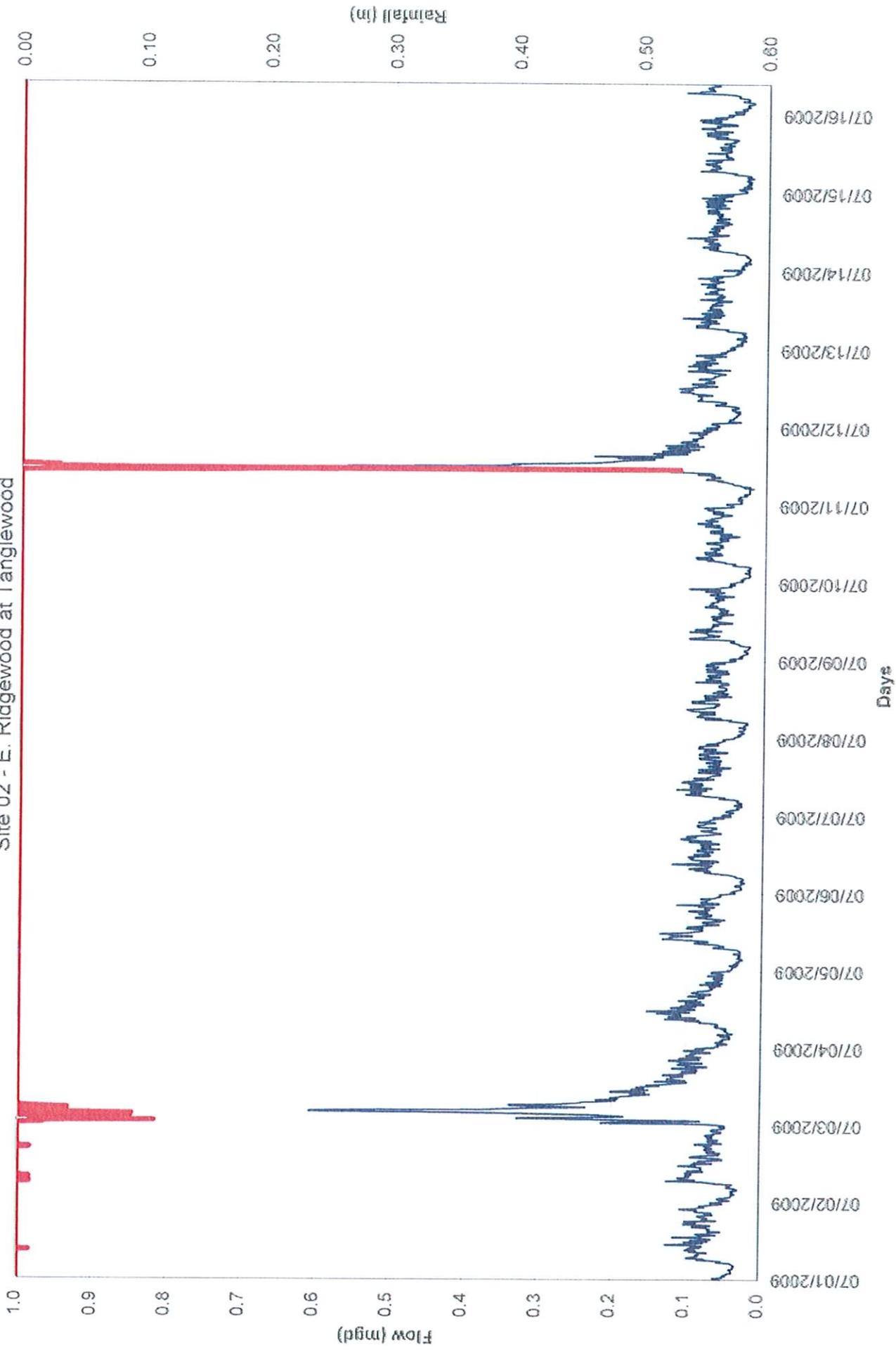
City of Seven Hills - 2009

Site 02 - E. Ridgewood at Tanglewood



City of Seven Hills - 2009

Site 02 - E. Ridgewood at Tanglewood



— Flow — Rainfall



CITY OF SEVEN HILLS

WEST CREEK WATERSHED

PHASE II AND III SANITARY SEWER IMPROVEMENTS

BASIS OF DESIGN REPORT

July, 2007

07211/0721101



CT Consultants
engineers | architects | planners

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I. DESCRIPTION OF THE PROJECT

The City of Seven Hills is under orders from the Ohio EPA to install sanitary sewers in areas of the West Creek watershed that are currently served by on-site treatment systems (septic tanks). According to the General Plan, Phase I – Project 1 of the improvements has been completed.

Phase II Improvements

Phase II improvements will provide sanitary sewer service to 33 residential dwellings and 1 vacant parcel in the City of Seven Hills, on Broadview Road (north of Chestnut Drive) and Skyview Drive.

There are two projects within Phase II – Project 1, which is in the north part of Phase II and runs along Skyview Drive, and Project 2, which is in the southern portion of Phase II and runs along Broadview Road. The General Plan presented two alternative alignments to service the seven parcels in Phase II, Project 2. Project 2B consists of approximately 1,200 lineal feet of sanitary sewer installed in easements through the rear yards of the parcels, as seen in Exhibit A. The sewer discharges into an existing sanitary sewer located at the west end of Marion Lane that is located between parcels 551-21-006 and 551-21-007. The sanitary sewer in Project 2A will be installed in easements along the west side of the parcels, parallel and adjacent to the Broadview Road right-of-way. This alignment consists of approximately 1,050 lineal feet of sewer that will flow north then east and connect to an existing sanitary sewer on Panorama Drive.

The parcels abutting Skyview Drive (Phase II, Project 1) will be serviced by sanitary sewer approximately 2,100 lineal feet long that begins near the west end of Skyview Drive and flows east, then north to the cul-de-sac. From this point, the sewer turns east again passing through two East Ridgewood Drive parcels and will connect to an existing sewer at westerly terminus of Firethorn Drive. Project 1 also includes a 260 lineal feet long segment of sewer that will provide service to the home and vacant lot located at 6475 Broadview Road.

Records indicate that the home at 6475 Broadview Road may encroach on to the parcel located directly to the north. Both parcels are owned by the same individual and the General Plan provided only one connection for both parcels. The vacant parcel mentioned above is located at 361 Skyline Drive.

Phase III Improvements

Sanitary sewers for the Phase III improvements will provide service to 26 residential dwellings and 1 vacant parcel abutting Broadview Road, in the City of Seven Hills, from the first parcel north of the cemetery (located just south of at East Parkhaven Drive), north to Rustic Trail in the

City of Parma. The County Health Department Records identify the dwelling at 6917 Broadview Road as being connected to the sanitary sewer on East Parkhaven Drive and therefore it has not been included in the dwelling count mentioned above. The residence at 6655 Broadview Road appears to straddle two parcels and will be provided with only one lateral connection. The lot at the northeast corner of Justo Lane (no address) is the vacant lot mentioned above.

Two alternative alignments were studied in the General Plan for Phase III. Option 1 is an alignment within easements parallel to Broadview Road, the flows north then west to the City of Parma. Option 2 is broken into three smaller segments, Projects 1A, 1B and 1C that are also installed within easements where each segment discharges to a different existing Seven Hills sewer. Option 1 consists of a total of about 3,300 lineal feet of sanitary sewer, 300 feet of which will be installed in the City of Parma. The total lineal footage of sewer under Option 2 is approximately 2,800 lineal feet. Option 2 sewers are located in the back yards of the parcels they service, as seen in Exhibit A. Project 1A consists of approximately 1,100 lineal feet of sanitary sewer and will discharge into an existing sewer located on Scenic Lane. Project 1B consists of the installation of about 800 lineal feet of sewer that will discharge into an existing sewer located on Maplevue Drive. Project 1C services parcels between Justo Lane and the south boundary of Phase III and consist of approximately 900 lineal feet that discharge to an existing sewer on East Parkhaven Drive.

All of the sewers in Phase II and III will be set at a depth whereby basements can be serviced by gravity sewer connections.

See drawing Exhibit A for the approximate location of all of the Phase II and III project alternative alignments.

II. PREVIOUS STUDIES/REPORTS

Previous studies or reports related to these proposed improvements include:

- Seven Hills West Creek Watershed General Plan Amended November 7, 2005
- Solar Testing – Soil borings B1 – B6 on Broadview Road

It should be noted that the General Plan strongly recommended rectification of downstream I/I problems prior to connection of any new sewers into existing Seven Hills sanitary sewers. Previous smoke testing results specifically targeted Firethorn Drive and Crossview Drive (i.e. - outlet sewers for Skyview Drive) as having persistent sewer backups that needed to be corrected before new flows were introduced into the system.

III. ALTERNATIVE ANALYSIS

Several factors were considered in determining which alignments would be most advantageous for servicing houses in Phase II and III along Broadview Road. The following is a list of some of the more important items that were examined prior to making any conclusions or recommendation regarding the selection of alignments.

- Work requirements within road right-of-ways or easements;
- Number and types of easements required;
- Impact the construction will have on property owners;
- Estimated construction cost of improvements;
- Future sewer operation and maintenance requirements;
- Impact sewer construction will have on existing utilities and infrastructure;
- Existing subsurface groundwater and soil conditions;
- Traffic maintenance requirements;
- Construction materials storage and handling; and
- Restoration requirements.

Construction of the sewer within easements parallel to Broadview Road will provide easier access for the equipment and materials than working in the rear yard of the properties. Contractor's would generally prefer to deal with traffic control issues rather than more personal issues that will occur if construction takes place in someone's back yard. Construction in the front of the house gives more privacy to residents and creates a safer environment for families. Children would be less likely to play near the construction site in the more visible roadway area than in the back yard of their own homes.

Most of the existing septic systems are located in front yards, giving the front yard alignment an advantage over the back yard alignment. It is assumed that most of the existing plumbing will exit the homes in the direction of Broadview Road making the cost of constructing private lateral connections less for most of the homeowners.

Some of the leaching beds of these septic systems are known to extend into the construction zone of the front yard alignment. Similar or more dramatic impacts may exist on a few parcels if the sewer is constructed in the rear yards where construction may cross through existing systems. In addition to the leach beds, other rear yard obstacles must be avoided such as garages, septic tanks, utility sheds, landscape beds, decorative bushes and trees, and other structures commonly found in back yards. Conversely, the front yard alignment has more utilities to contend with, especially where side street crossings occur.

Typically, buried stone access drives are provided over or adjacent to sewers installed outside of right-of-ways in order to permit year round access to manholes for maintenance purposes. Sewer

systems constructed adjacent to or within the public right-of-way do not require the access drives.

Less easement width will be required for work done adjacent to the road right-of-way that will be required for work done in backyards. Experience has shown that sewer construction through rear yard areas such as these will disturb an area a minimum of 40 feet wide. The cost of construction may be severely impacted if a narrower work corridor is provided. A work area of this size will likely be needed for the rear yard alignment in order to provide sufficient room for equipment and trucks to safely pass by open excavated trenches.

Taking into consideration the above analysis, it is recommended that the front yard alignment, following along Broadview Road for Phase III and the southern section of Phase II. We believe that the calculated benefits of this alignment are greater than the benefits of using the alternative alignment in the back yards.

As mentioned in the General Plan, there is only one feasible alternative for the Skyline Drive portion of the Phase II improvements. Since Skyview Drive is a dead end street, maintenance of traffic during construction will be a major problem. Two minor changes to the General Plan alignment are recommended. The first change would be to the connection servicing the dwelling at 6475 Broadview Road. The proposed alignment would connect to the sewer on Skyview Drive a little further to the east and avoid going under an existing driveway and a retaining wall. The second change would occur between the cul-de-sac and Firethorn Drive. The proposed change would result in a sewer extending west from Firethorn Drive on an alignment parallel to the centerline of Firethorn Drive. This would permit a future possible extension of Firethorn Drive if the vacant land to the west were ever considered for development.

CT Consultants, Inc. recommends the following sanitary sewer alternatives be installed for the reasons identified in this basis of design:

- **Phase II – Project 1 with the mentioned minor alignment changes for service to 6475 Broadview Road and an alignment revision to the segment of sewer between the Skyview Drive cul-de-sac and Firethorn Drive.**
- **Phase II – Project 2A**
- **Phase III – Option 1**

IV. SEWER SIZING

Sanitary flows from Phase II and Phase III areas are based on the current zoning and ultimate population density of the developments. The Cuyahoga County Standards, which are consistent with Ohio EPA guidelines, was used as a basis of design for computing the estimated sanitary

sewage flow from the unsewered areas. Sewers will be a minimum of 8-inch in diameter and be designed to convey peak wet weather flows from the respective service areas. Average daily flow (ADF) is based on 400 gpcd. The ADF was peaked by a factor of 5.0 and an I/I allowance of 375 gal/acre was added to determine the total projected peak flow from the service area.

Recommended Service Area	Total Parcels Served	ADF (GPD)	PF	PHF Dry (GPD)	I/I (GPD)	Total Peak Flow (MGD)	Min. Sewer Size & Slope ¹	Sewer Capacity at Minimum Slope
Phase III, Option 1	27	10,800	5	54,000	6640	.061	8" @ 0.40%	0.49
Phase II, Project 2A	7	2800	5	14,000	1540	.016	8" @ 0.40%	0.49
Phase II, Project 1 ²	28	11,200	5	56,000	5140	.061	8" @ 0.40%	0.49

Notes:

¹ The first manhole run of each sewer segment will be sloped at a minimum grade of 0.50% in order to increase the initial velocity of flow in the sewer run.

² For computation purposes, the total count for parcel served was increased by one to account for the possibility of there being two parcels served on Broadview Road instead of one. (If zoning permits)

V. SPECIFICATIONS

The following is a list of technical specifications that are being proposed for use for the Phase II and III sanitary sewer improvements projects. The list may need to be modified to include additional specifications if required as part of the final design.

PROPOSED SPECIFICATIONS			
Section	Description	Section	Description
01091CT	Environmental Protection	02300CT	Earthwork
02110CT	Removal of Obstructions and Structures	02485CT	Protection of Existing Vegetation
02230CT	Site Clearing	02516CT	Pavement Replacement
02240AIA	Dewatering	02730CT	Sanitary Sewer Systems
02260AIA	Excavation Support and Protection	T02810	Irrigation System Repair
T02294	Horizontal Directional Drilling	02901CT	Seeding, Sodding and Mulching
02295CT	Horizontal Boring and Pipe Jacking	02902CT	Trees, Shrubs and Ground Cover

Piping materials proposed for use on the Phase II and III improvements are shown in the following table. Several materials are suitable for use for pipelines installed by horizontal directional drilling methods. Ohio EPA has recently approved the use of both DIP and HDPE pipe on projects designed by CT Consultants, Inc.

PROPOSED MATERIAL SPECIFICATIONS				
Pipeline	Installation Method	Material Specification	Joint Specification	Location
Sanitary Sewer	Open cut excavation	PVC conforming to ASTM D-3034, SDR 26	Integral bell and spigot conforming to ASTM D-3212	All sanitary sewers except those installed by boring or horizontal drilling
Sanitary Sewer	Bored steel casing pipe	PVC conforming to ASTM D-3034, SDR 26	Integral bell and spigot conforming to ASTM D-3212	Phase III – Broadview Road crossing and Phase II – adjacent existing home at Panorama Drive
Sanitary Sewer	Horizontal directional drilling	HDPE conforming to AWWA C-906, DR 11	Butt heat fusion conforming to ASTM D-2657	Phase II – Sewer connection to 6475 Broadview Road and 1st segment of sewer east of Skyview cul-de-sac
Sanitary Sewer (Alternative material)	Horizontal directional drilling	DIP conforming to ANSI/AWWA C151/A21.51, Cl. 52, polyethylene encased	Restrained joint pipe conforming to ANSI/AWWA C111/A21.11	Phase II – Sewer connection to 6475 Broadview Road and 1st segment of sewer east of Skyview cul-de-sac
Casing Pipe	Horizontal boring	Steel, minimum 0.375 inch thick, conforming to ASTM A130, Grade B with bit. coating outside	Fully welded on circumference	Same as bored locations mentioned above

On-site shale materials noted in the following table may not be suitable for use as backfill if the material can not be easily crushed to a size where it can be compacted sufficiently to prevent trench settlement in the future. The cost of utilizing excavated shale materials may be higher

than trucking in off-site borrow materials for use as backfill material if special shale crushing methods and/or devices must be used.

PROPOSED TRENCH BACKFILL	
Location	Backfill Materials
Under pavement, drives and aprons (and within pavement zone of influence)	Special backfill conforming to ODOT Item 304 crushed gravel or limestone
Outside of pavement, drives, aprons and the pavement zone of influence	Suitable on-site excavated materials including shale crushed to a maximum size of six (6") inches.

VI. DETAILS

Standard and miscellaneous construction details for Phase II and II improvements are listed below. Copies of these details are included in the Appendix of this report.

PROPOSED DETAILS			
Number	Description	Number	Description
SD-1-1	Trench & Bedding Detail	SD-3-1	Std. Type "A" Concentric Manhole
SD-2-6	Boring Detail	SD-3-21	Std. Precast Sanitary Drop Connection
SD-2-8	Concrete Cradle Detail	SD-3-27E	Typical Manhole Step
SD-2-12	Sanitary Lateral Detail	SD-5-1	Pavement Replacement Type "A"
SD-2-13	Sanitary Riser Detail	SD-5-3	Pavement Replacement Type "C"
SD-2-14	Trench Dam Detail	SD-5-7	Type A Walk Replacement
SD-2-16	Pipe Crossing Detail	SD-5-21	Curb Ramps

VII. SPECIAL CONSTRUCTION

There are several aspects to these projects that warrant special consideration regarding the construction of recommended improvements. The list includes the installation of sewers under Broadview Road; at the intersection of Broadview and Panorama Drive; on Skyview Drive east of the cul-de-sac; the connection from Skyview Drive to the property at 6475 Broadview Road; and the construction of the sewers along Skyline Drive itself.

The sewer crossing at the intersection of Broadview Road and Rustic Drive is proposed to be installed by horizontal boring and jacking methods where the sanitary sewer will be placed in a steel casing pipe. This method is preferred over open-cut excavation since it will minimize the impact of to traffic on Broadview Road and will avoid having to cross and support or replace numerous utilities. A less expensive "trenchless" installation technique is horizontal directional

drilling (HDD). HDD is not recommended at this location due to the subsurface conditions identified in the soils report. Holding line and grade on a directionally drilled sewer with minimal slope through the highly weathered, layered shale substratum at this location is not likely.

The existing residence located at 80 Panorama Drive was constructed with a very small side yard setback from Broadview Road. The sanitary sewer passing the home may need to be installed in a bored steel casing pipe in order to prevent damage to structure or foundation.

Numerous issues must be taken into account regarding the construction of sewer improvements through the Skyview Drive right-of-way and through easements east of the cul-de-sac. Construction within the narrow 40 foot wide road right-of-way will require constant upgrading of traffic maintenance procedures to permit resident ingress and egress access from their properties. It should be anticipated that the entire road will need to be rebuilt due to the impact of sewer trenches, construction traffic, sewer lateral installations and the condition of the existing pavement.

According to the Cuyahoga County Soil and Water Conservation District (SWCD) maps, the steep, heavily wooded slope east of the Skyview Drive cul-de-sac consists of thin (20-inch to 40-inch thick) layer of Brecksville silt loam over soft shale bedrock. The SWCD notes that steep slopes are very unstable, prone to hillside slippage and erosion. Installations of sanitary sewers by horizontal directional drilling methods through this area are recommended for several reasons. Chief among those reasons is the preservation of the trees and vegetation that help stabilize the steeply sloping hillside adjacent to the pavement. Consideration should be given to re-aligning the sewer west of the terminus of Firethorn Drive to permit a future possible extension of the right-of-way.

VIII. APPROVALS REQUIRED

The following approvals will be required for these projects:

- Ohio EPA (submittals include: Permit-to-Install & Notice of Intent)
- City of Parma
- City of Seven Hills

IX. FUNDING OPTIONS, ASSESSMENT OPTIONS

Funding Options

It is our understanding that this project will be financed through property assessments. Cash flow from the assessments is not available until completion of the project. Therefore the City needs to consider a source of funding during construction of the project, usually through notes (bonds) or grants. Since the cost of borrowing money is a component of the assessment cost, any reduction in interest costs will be reflected in lower assessments. The City may want to consider pursuing a source of low interest loans to supplement any grant sources that may be available to finance the construction.

The Ohio EPA, Division of Environmental and Financial Assistance (DEFA) offers low interest loans through the *Water Pollution Control Loan Fund (WPCLF)*. The interest rate for the 3rd quarter of 2007 is 3.25%. By law, the minimum interest rate available is 3.2%.

The City may also want to explore participation in the *Water Resource Restoration Sponsor Program (WRRSP)*. Communities receiving WPCLF loans may apply for participation in the WRRSP, where the interest on their loan is applied to a project that addresses the restoration of water quality or habitat. In return for the sponsorship, the community receives an additional 0.1% reduction in the WPCLF loan rate.

While the WPCLF and the WRRSP programs offer attractive interest rates, the seed money for these programs is from the Federal government. Therefore, the loan application process requires environmental, historical, financial, and social impact analysis. The analysis is performed by DEFA and usually time consuming. Recent projects have had loan processing periods of 9 to 12 months.

An alternative source of low interest loans is through the Ohio Water Development Authority (OWDA) where the interest rate is 4.97% (3rd quarter, 2007). While the interest rate is higher, the loan processing is much shorter and does not require the impact analysis associated with the WPCLF. Loan processing periods are typically 3 to 4 months.

Assessments Options

The Ohio Revised Code 727.01 allows assessments to be levied by any of the following methods:

- By a percentage of the tax value of the property assessed;
- In proportion to the benefits that may result from the improvement;
- By the front foot of the property bounding and abutting upon the improvement.

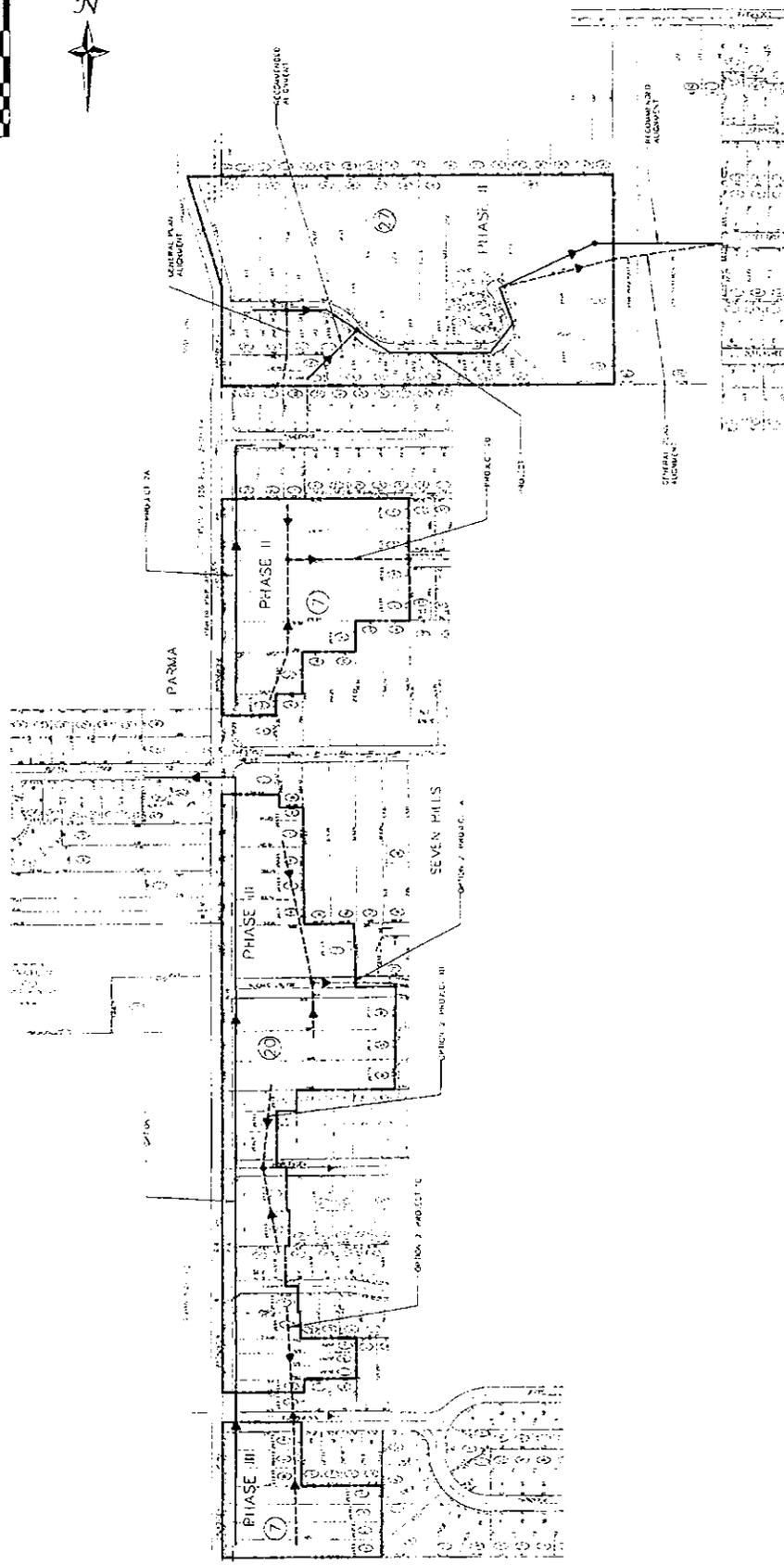
The City may want to consider an analysis of the assessments using each of the permitted methods to determine which method best equalizes the costs to the homeowners.

X. CONSTRUCTION BUDGET

At this stage of the design, the opinion of probable construction cost can only be developed using “planning level” estimates. We have reviewed the estimates in the General Plan and find them typical of costs for this type of construction. However, we expect that the special construction aspects of the project discussed in Section VII will add costs not included in the “planning level” estimates.

The opinion of probable construction cost will be further developed throughout the design process.

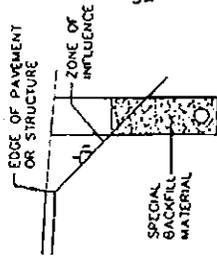
The General Plan included “*Other Costs*” regarding downstream improvements that are needed to reduce inflow and infiltration in segments of the existing Seven Hills sewers that will be impacted by flow from the Phase II and III projects. Capacity analysis studies and design of any downstream improvements is beyond the scope of services provided under this design. It is assumed that downstream deficiencies in the existing sewers are not capacity related and the City is currently proceeding with a program to reduce or eliminate clean water entry into the existing system.



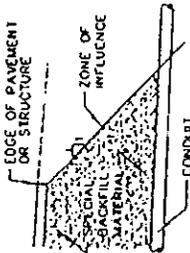
LEGEND

	PROPOSED SEWER ALIGNMENTS
	EXISTING SEWER ALIGNMENTS
	EXISTING SANITARY MAIN
	PHASE BOUNDARY
	SUBAREA LATERAL CONNECTION

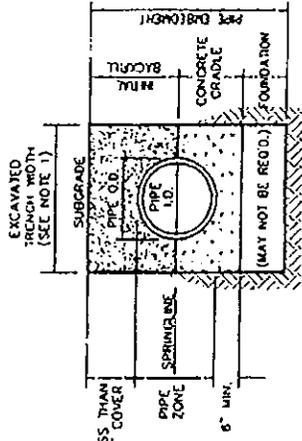
APPENDIX
STANDARD DETAILS



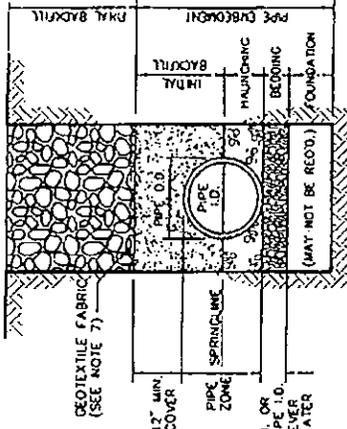
PARALLEL ZONE OF INFLUENCE



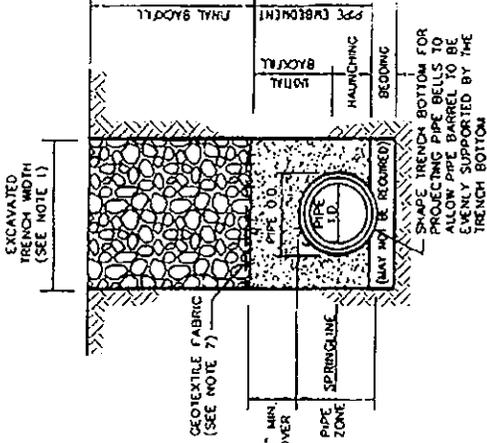
TRANSVERSE ZONE OF INFLUENCE



CLASS 'A' PIPE EMBEDMENT



CLASS 'B' PIPE EMBEDMENT



CLASS 'C' PIPE EMBEDMENT

NOTES:

1. MAXIMUM EXCAVATED TRENCH WIDTH: THE MAXIMUM EXCAVATED TRENCH WIDTH FROM THE BOTTOM OF THE TRENCH TO 12" OVER THE TOP OF THE PIPE (WITHIN PIPE EMBEDMENT) SHALL BE 24" FOR ALL PIPES UP TO AND INCLUDING 24" I.D. + 30" FOR PIPE FROM 24" I.D. TO 36" I.D. AND O.D. + 48" FOR PIPES SIZES 36" I.D. AND OVER.
2. FOUNDATION: WHERE AN UNSTABLE TRENCH BOTTOM CONDITION IS ENCOUNTERED, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH MATERIAL AS DIRECTED BY THE ENGINEER.
3. PIPE EMBEDMENT:

CLASS A: CLASS A PIPE EMBEDMENT SHALL BE USED FOR ALL PIPING UNDER PAVEMENT OR STRUCTURES WITH LESS THAN 12 INCHES OF PIPE COVER TO THE SUBGRADE. THE CONCRETE CRADLE SHALL BE IN ACCORDANCE WITH ODOT ITEM 499, CLASS 'C'. THE INITIAL BACKFILL SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT.

CLASS B: CLASS B PIPE EMBEDMENT SHALL BE USED FOR ALL PIPING UNLESS OTHERWISE NOTED ON THE PLANS OR AUTHORIZED BY THE ENGINEER. THE BEDDING AND HAUNCHING SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE. THE INITIAL BACKFILL SHALL BE AASHTO NO. 57 OR NO. 67 STONE GRANULAR PIPE EMBEDMENT IN ALL AREAS OUTSIDE OF PAVEMENT STRUCTURES OR THE ZONE OF INFLUENCE. THE INITIAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER FOR ONLY REINFORCED CONCRETE PIPE AND DUCTILE IRON PIPE. THE INITIAL BACKFILL FOR ALL OTHER PIPES SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT.

CLASS C: CLASS C PIPE EMBEDMENT SHALL ONLY BE USED FOR DUCTILE IRON WATER MAIN, DUCTILE IRON FORCE MAINS OR AS AUTHORIZED BY THE ENGINEER. THE PIPE EMBEDMENT SHALL BE AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE. THE PIPE EMBEDMENT SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER IN ALL AREAS OUTSIDE OF PAVEMENT STRUCTURES OR THE ZONE OF INFLUENCE. WHERE ROCK OR SHALE IS ENCOUNTERED, A MINIMUM 6-INCHES OF AASHTO NO. 57 OR NO. 67 GRANULAR PIPE BEDDING OR SAND BEDDING SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

4. FINAL BACKFILL: IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE THE FINAL BACKFILL SHALL BE SPECIAL BACKFILL MATERIAL IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE. THE FINAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER.

5. SPECIFICATIONS: ALL TRENCHING, PIPE EMBEDMENT AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION 02300CT - EARTHWORK.

6. CLAY TRENCH DAMS: CLAY TRENCH DAMS SHALL BE REQUIRED AS SHOWN ON PLANS OR WHEN AND WHERE NECESSARY AS DIRECTED BY THE ENGINEER.

7. GEOTEXTILE FABRIC: INSTALL A GEOTEXTILE FABRIC IN ACCORDANCE WITH ODOT 712.09, TYPE A, AFTER ALL INITIAL BACKFILL CONSISTING OF AASHTO NO. 57 OR NO. 67 GRANULAR PIPE EMBEDMENT.

8. DETECTOR TAPE: IF REQUIRED IN THE SPECIFICATIONS, INSTALL DETECTABLE WARNING TAPE ABOVE UTILITIES, 12" BELOW FINISHED GRADE, EXCEPT 6 INCHES BELOW SUBGRADE UNDER PAVEMENT AND SLABS.

TRENCHING, EMBEDMENT AND BACKFILL DETAIL

6/04 NO SCALE SD-1-1

* = engineer to specify

MANHOLE FRAME AND TYPE * SOLID COVER OR EQUAL. MAKE FLUSH WITH RIGID OR FLEXIBLE PAVEMENT, TRAVELED ROAD SURFACE OR 3" ABOVE EARTH.

MANHOLE STEP, 16" o/c, FIRST STEP NOT MORE THAN 2'-0" BELOW TOP OF FRAME. MAKE PROJECTION 3 1/2" IF IN 24" DIA. SECTION.

SET FRAME ON 2 MASTIC STRIPS PER SPECIFICATIONS

ADJUSTING COLLARS (2 MAX.) PLASTER OUTSIDE WITH 1/2" MORTAR

SET EACH ADJUSTING COLLAR ON 2 MASTIC SEAL STRIPS PER SPECIFICATIONS

ENCAPSULATE CONE, ADJUSTING RINGS. PER SPECIFICATIONS

ECCENTRIC CONE TOP

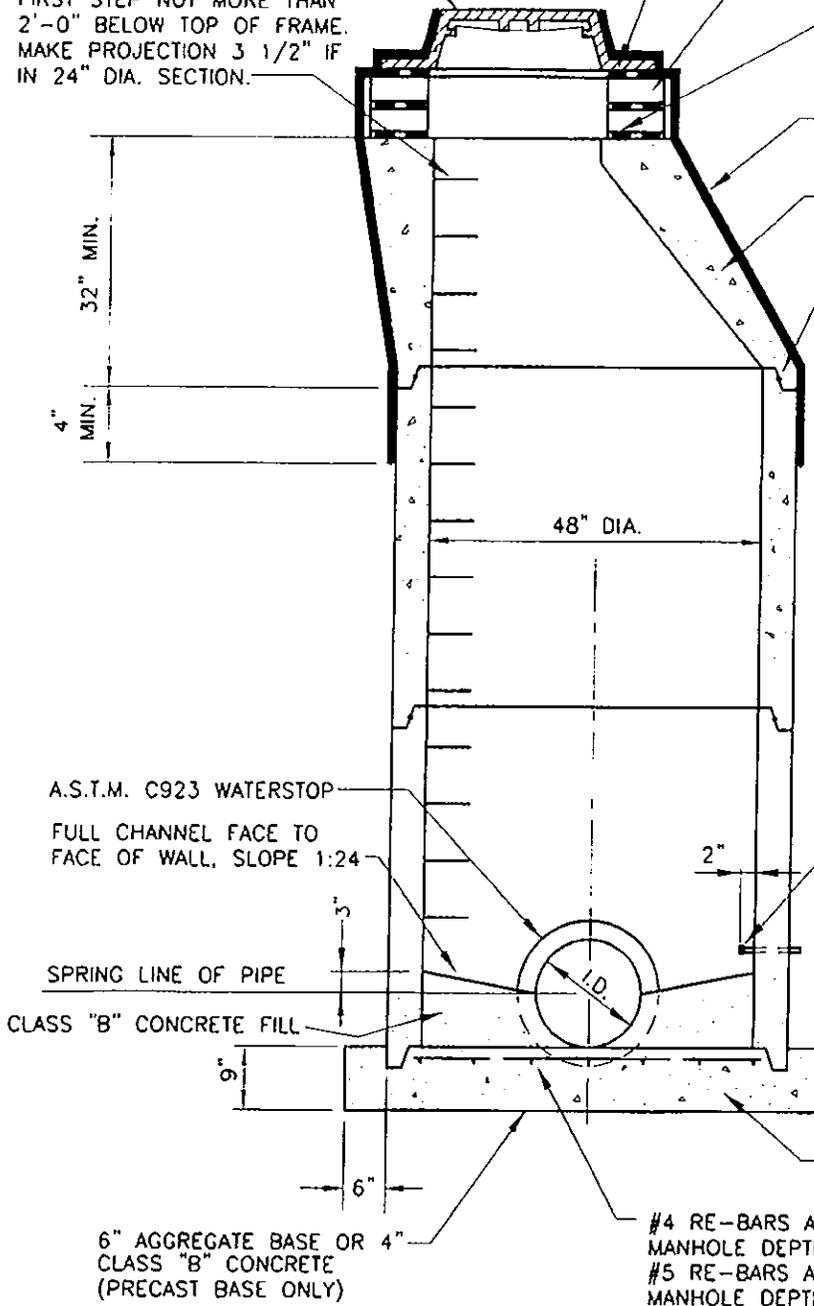
'O'-RING JOINTS (TYP.) AND FRAME WITH SHRINK WRAP PER SPEC.

ALL PRECAST CONCRETE SHALL BE REINFORCED IN ACCORDANCE WITH THE LATEST REVISIONS OF A.S.T.M. DESIGNATION C478.

ALL PRECAST CONCRETE SECTIONS SHALL BE MANUFACTURED AND FURNISHED AS SOLID SECTION WITHOUT LIFT HOLES OF ANY KIND.

1/2" X 10" CORROSION RESISTANT PIPE NIPPLE WITH THREADED CAP AND LINK SEAL. NIPPLES TO BE INSTALLED IN SELECT MANHOLES AS DIRECTED BY THE ENGINEER.

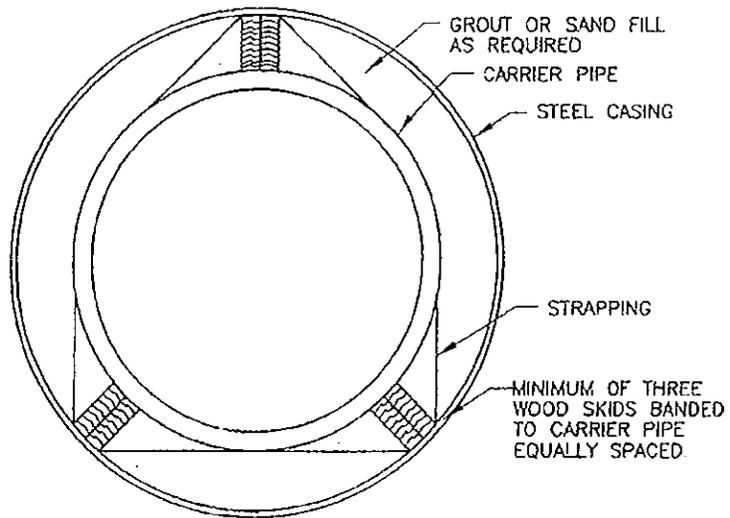
NOTE: NIPPLE TO BE INSTALLED BELOW TOP OF SEWER.



STANDARD TYPE "A" ECCENTRIC MANHOLE

(24" ID AND LESS)

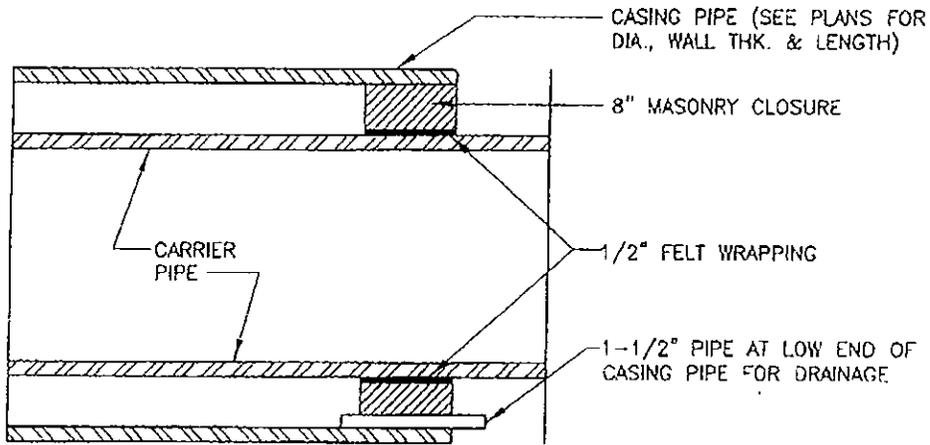
CARRIER PIPE	STEEL CASING PIPE			
DIA.	DIA.	THICK.	GRADE	TYPE OF FILL



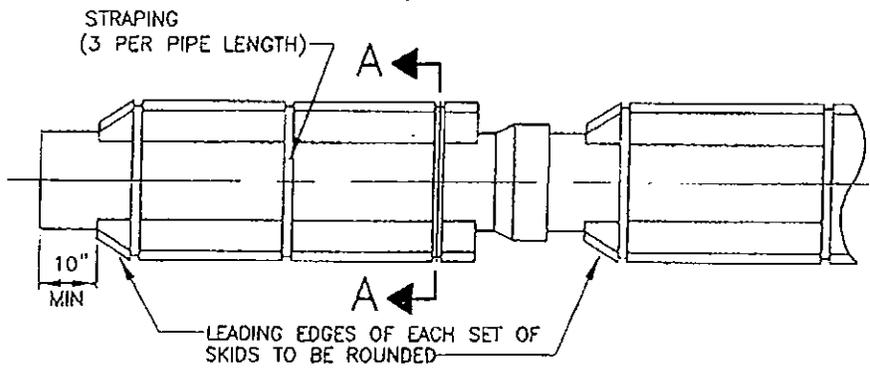
SECTION "A-A"
BORING DETAIL

1/89

SD-2-7

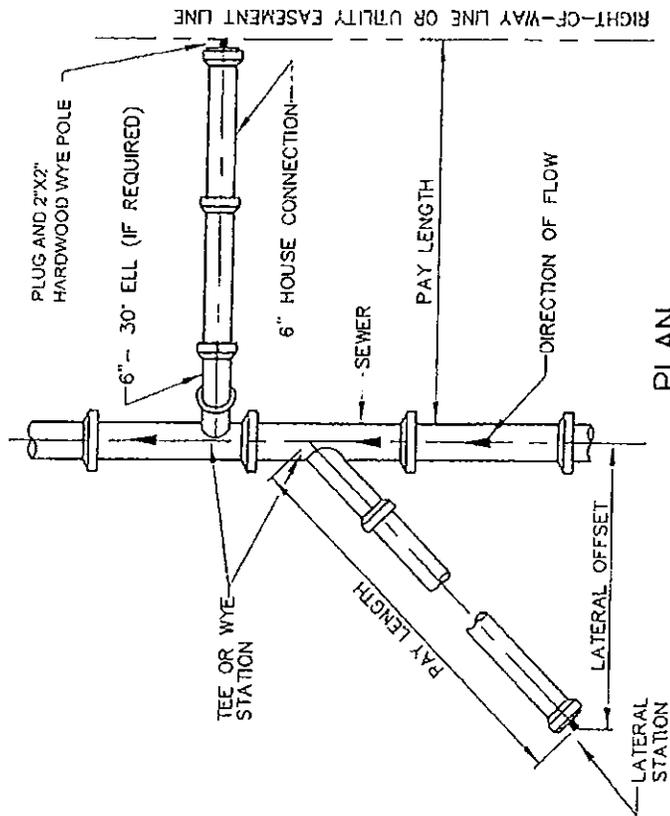


CASING PIPE CLOSURE DETAIL

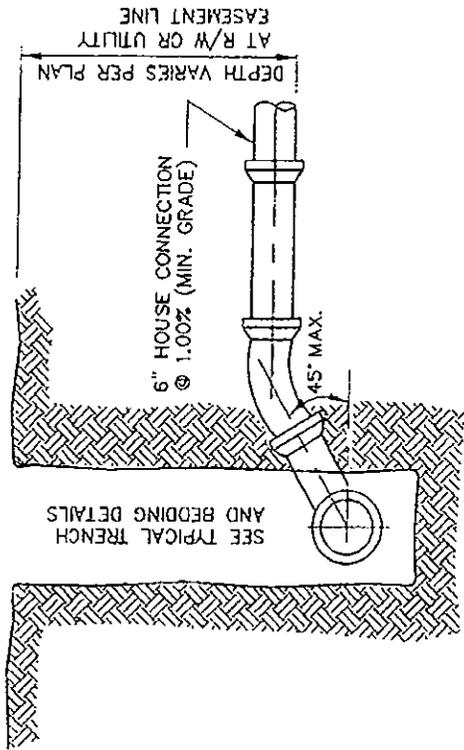


PIPE SKID DETAIL

BORING DETAIL

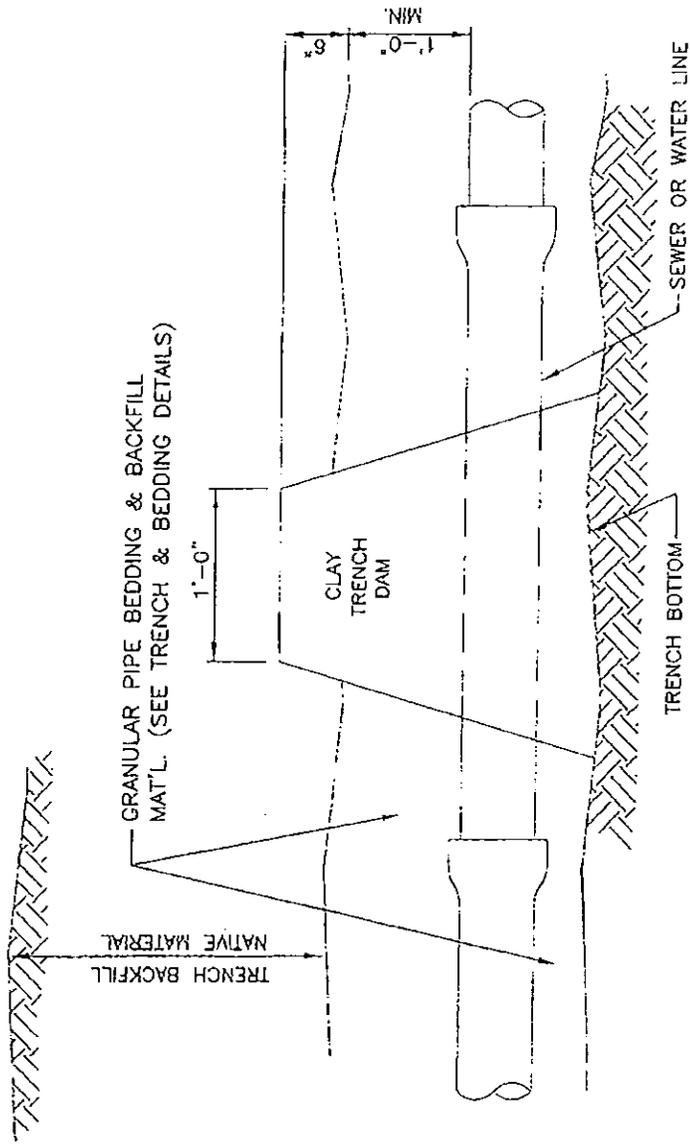


PLAN



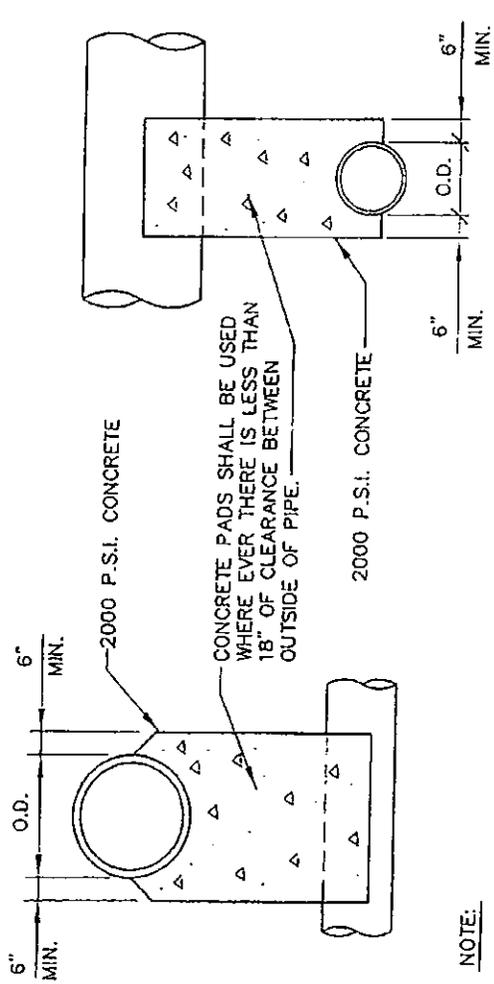
SECTION

SEWER LATERAL DETAIL
1/R9 SD-2-12



TRENCH DAM DETAIL

1/89 SD-2-14



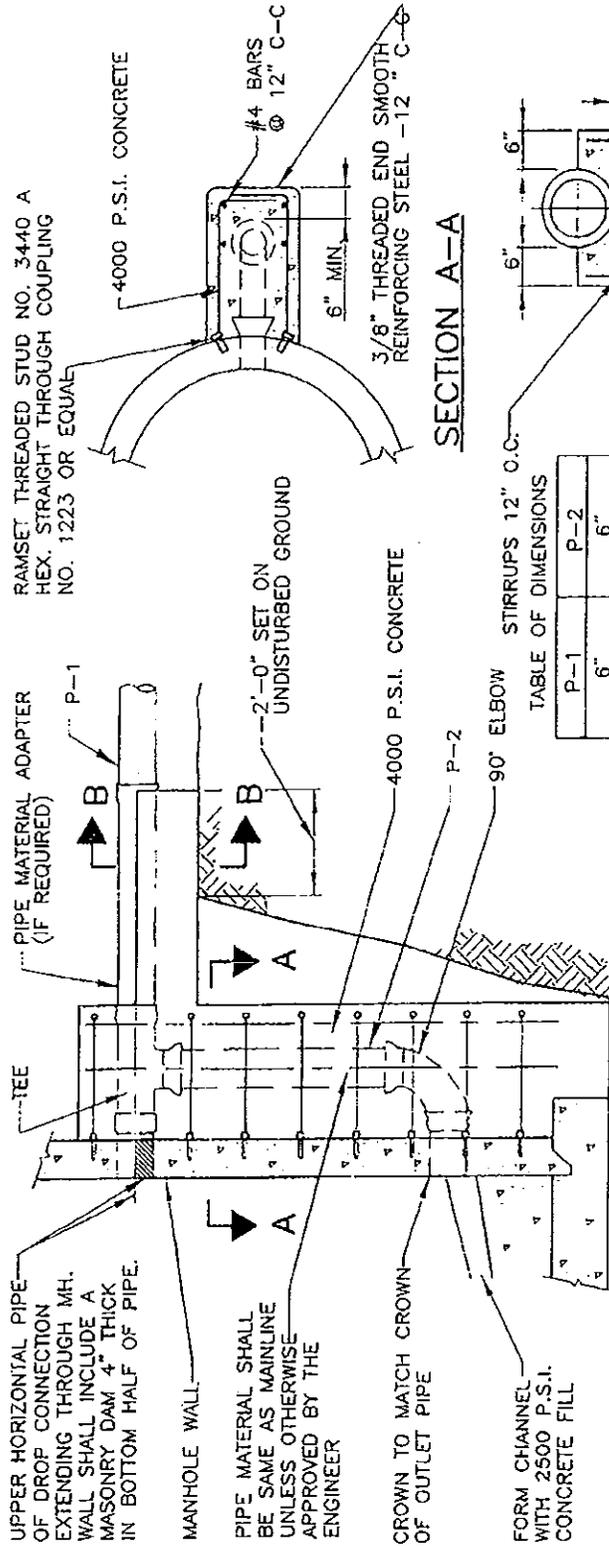
NOTE:

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, WHERE TWO PIPES (SEWER & WATER) CROSS EACH OTHER, A CONCRETE PAD AND CRADLE SEPARATOR SHALL BE PLACED BETWEEN THEM AS INDICATED ABOVE. WHERE PERMISSION IS GRANTED TO OMIT THE CONCRETE PADS, GRANULAR BACKFILL SHALL BE TAMPED IN 6" LAYERS AROUND BOTH PIPES. SUCH TAMPED BACKFILL SHALL BE CONTINUOUS FROM THE CRADLE OF THE LOWER PIPE TO THE TOP OF THE UPPER PIPE AND AT THE BOTTOM SHALL EXTEND IN BOTH DIRECTIONS, FOR THE FULL WIDTH OF THE TRENCH.

PIPE CROSSING DETAIL

11/88

SD-2-16



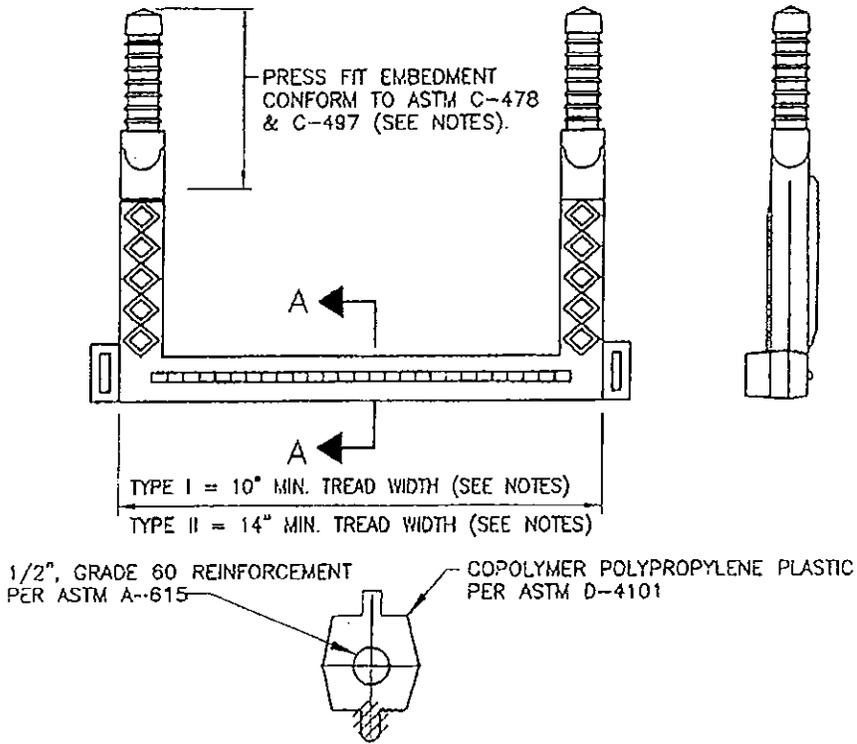
PLAN VIEW

SECTION B-B

STANDARD PRECAST
SANITARY MANHOLE DROP CONNECTION

9/93

SD-3-21



SECTION A - A

NOTES:

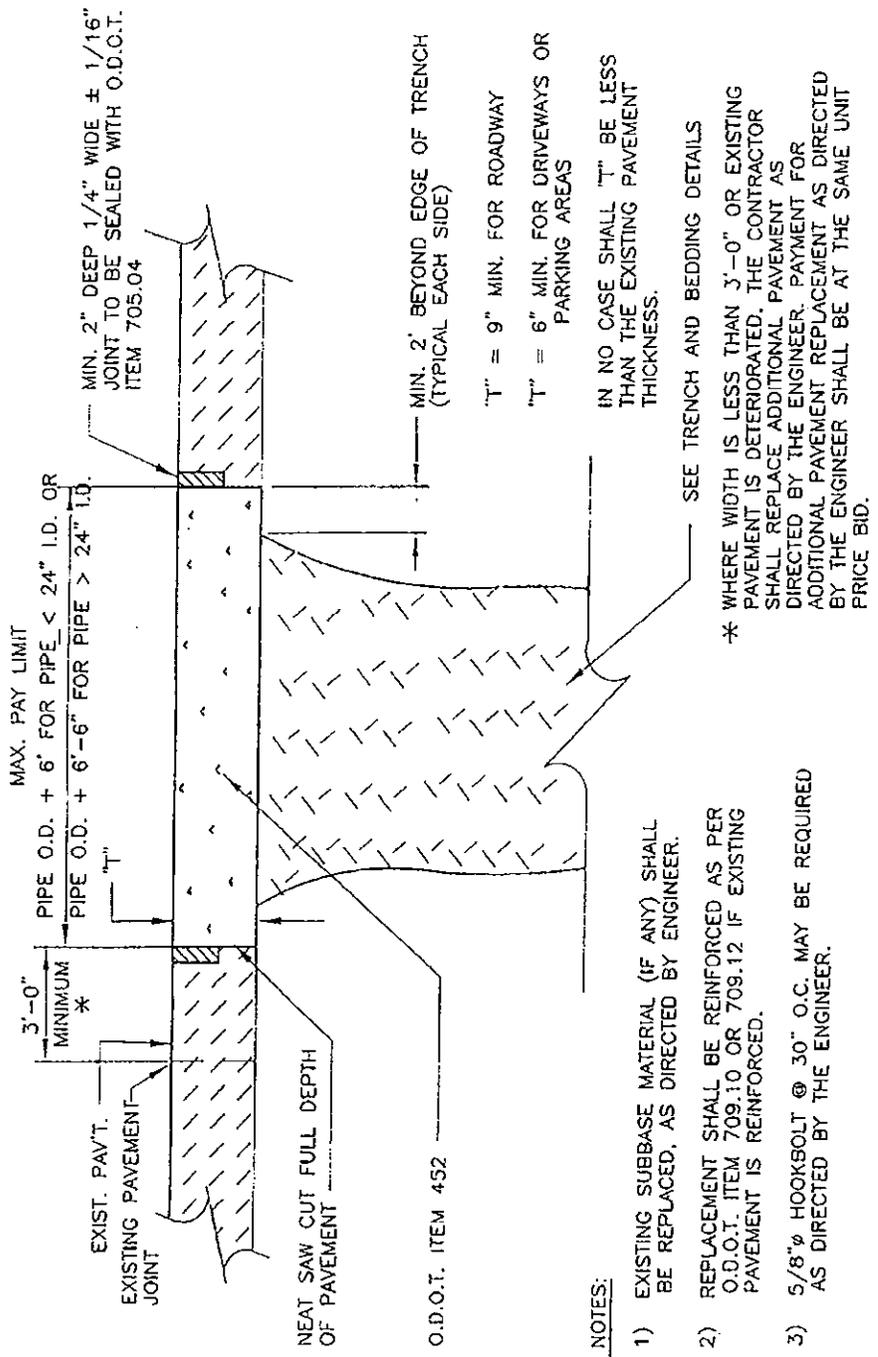
- 1.) USE TYPE I STEP FOR MANHOLES OR CIRCULAR STRUCTURES OF 5'-0" DIA. OR LESS - USE 16" C/C SPACING
- 2.) USE TYPE II STEP FOR FLAT WALL STRUCTURES SUCH AS VAULTS, WELLS, ETC. OR CIRCULAR STRUCTURES OVER 5'-0" DIA - USE 12" C/C SPACING.
- 3.) MOUNTING REQUIREMENTS SHALL BE IN ACCORDANCE WITH MFR'S RECOMMENDATIONS.

TYPICAL MANHOLE STEP DETAIL

7/91

(N.T.S.)

SD-3-27E



NOTES:

- 1) EXISTING SUBBASE MATERIAL (IF ANY) SHALL BE REPLACED, AS DIRECTED BY ENGINEER.
- 2) REPLACEMENT SHALL BE REINFORCED AS PER O.D.O.T. ITEM 709.10 OR 709.12 IF EXISTING PAVEMENT IS REINFORCED.
- 3) 5/8" HOOKBOLT @ 30" O.C. MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

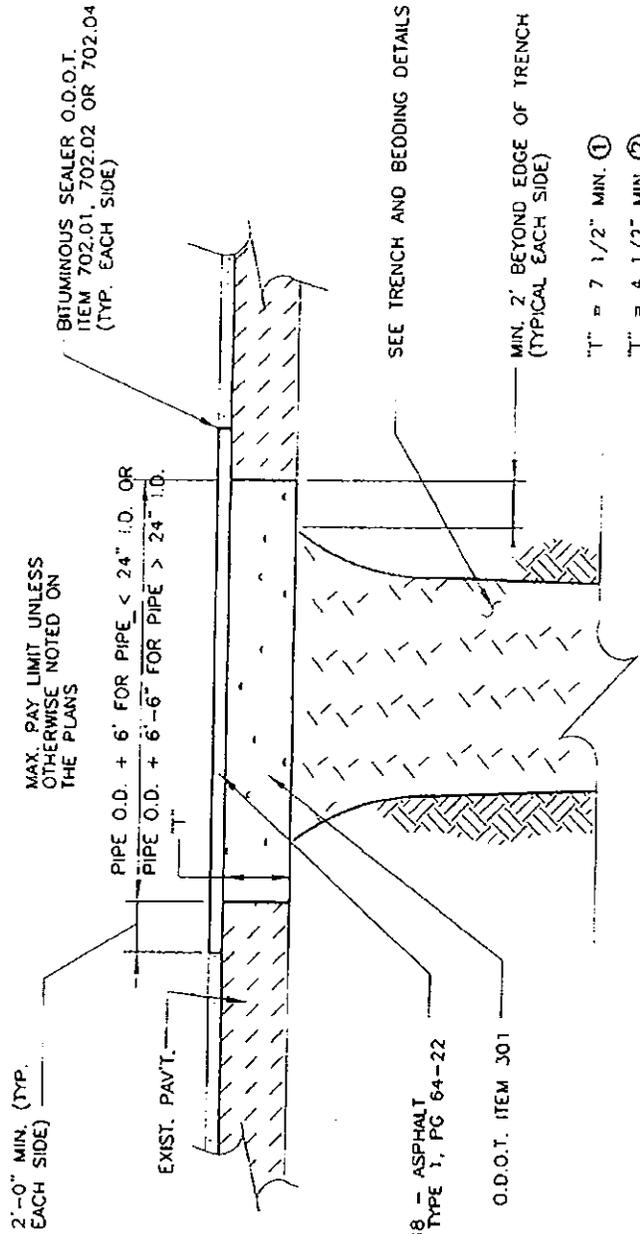
TYPE A PAVEMENT REPLACEMENT

5/90

SD-5-1

NOTES:

- ① FOR PUBLIC ROADWAYS, COMMERCIAL DRIVES AND DRIVE APRONS.
- ② FOR RESIDENTIAL DRIVEWAY AND DRIVE APRONS ONLY (DRIVEWAY).



NOTE:

- 1) EXISTING SUBBASE MATERIAL (IF ANY) SHALL BE REPLACED, AS DIRECTED BY ENGINEER.

IN NO CASE SHALL THE THICKNESS OF THE OVERLAY AND/OR "T" BE LESS THAN EXISTING.

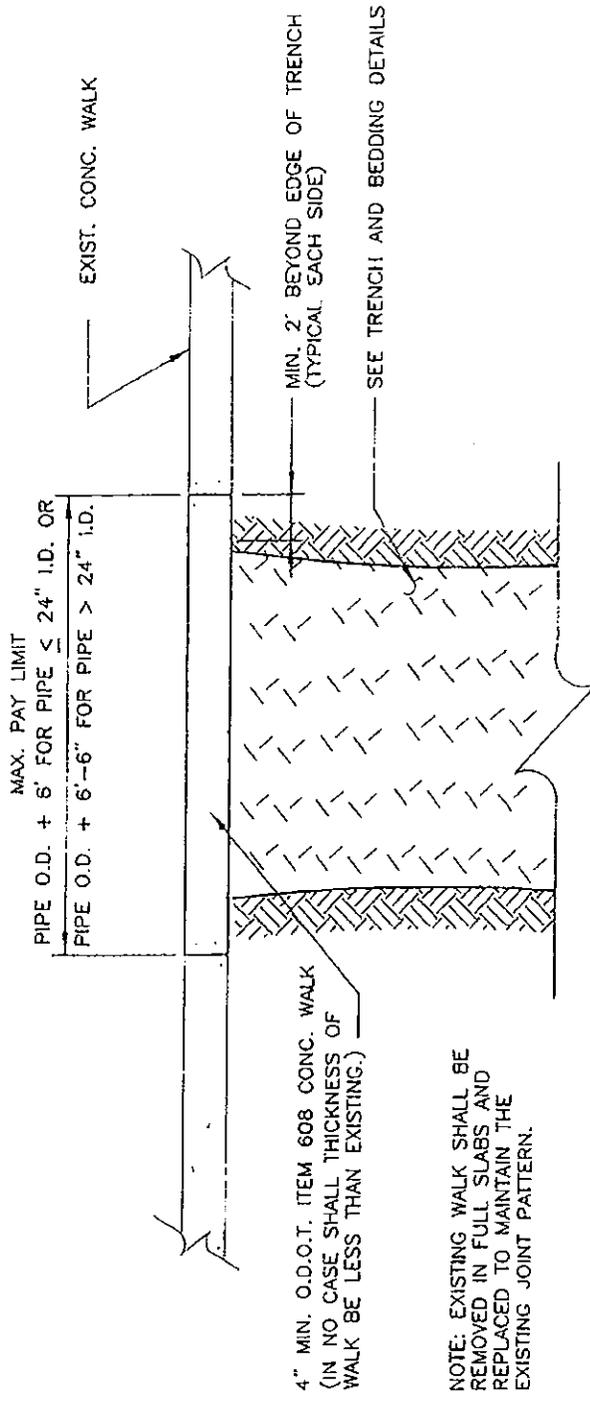
"T" = 7 1/2" MIN. ①

"T" = 4 1/2" MIN. ②

TYPE C PAVEMENT REPLACEMENT

6/07

SD-5-3

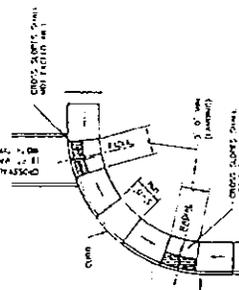


4" MIN. O.D.O.T. ITEM 608 CONC. WALK
 (IN NO CASE SHALL THICKNESS OF
 WALK BE LESS THAN EXISTING.)

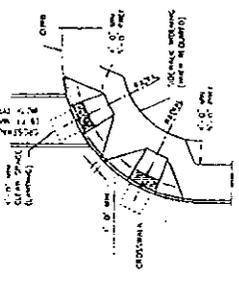
NOTE: EXISTING WALK SHALL BE
 REMOVED IN FULL SLABS AND
 REPLACED TO MAINTAIN THE
 EXISTING JOINT PATTERN.

TYPE A WALK REPLACEMENT

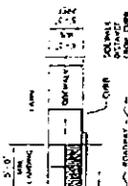
12/86 SD-5-7



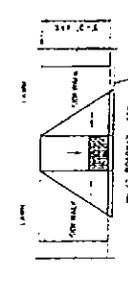
DESIGN 'A' PERPENDICULAR RAMP
 (FOR ADDITIONAL REQUIREMENTS)



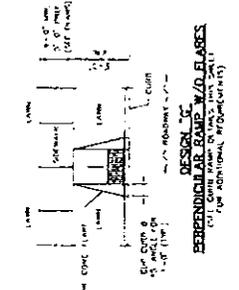
DESIGN 'B' PERPENDICULAR RAMP
 (FOR ADDITIONAL REQUIREMENTS)



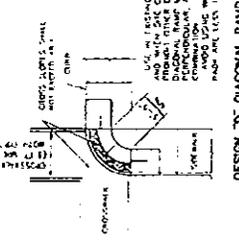
DESIGN 'C' PARALLEL RAMP
 (FOR ADDITIONAL REQUIREMENTS)



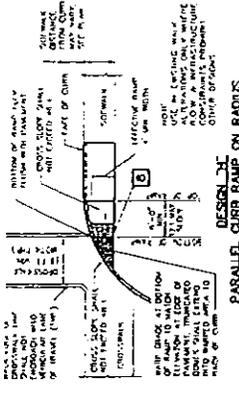
DESIGN 'D' PARALLEL RAMP
 (FOR ADDITIONAL REQUIREMENTS)



DESIGN 'E' CURB RAMP WITH FLARE
 (FOR ADDITIONAL REQUIREMENTS)



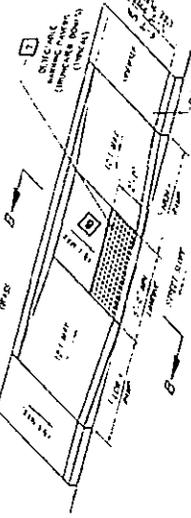
DESIGN 'F' DIAGONAL RAMP
 (FOR ADDITIONAL REQUIREMENTS)



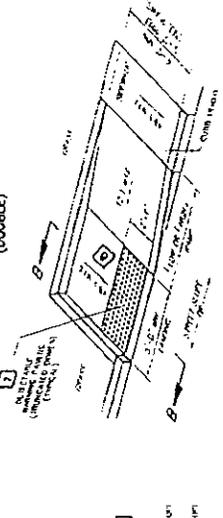
DESIGN 'G' PARALLEL CURB RAMP ON RADIUS
 (FOR ADDITIONAL REQUIREMENTS)

DETAIL NOTES

1. WAY OF RAMP SHOULD BE 3'-0" WIDE, UNLESS OTHERWISE SPECIFIED. TO BE 3'-0" WIDE, UNLESS OTHERWISE SPECIFIED. TO BE 3'-0" WIDE, UNLESS OTHERWISE SPECIFIED.
2. A FLARE SHALL BE USED AT THE END OF THE RAMP TO PROVIDE A SMOOTH TRANSITION TO THE SURFACE OF THE RAMP. THE FLARE SHALL BE 3'-0" WIDE AND 1'-0" HIGH.
3. THE RAMP SHALL BE 1'-0" WIDE, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" WIDE, UNLESS OTHERWISE SPECIFIED.
4. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.
5. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.
6. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.
7. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.
8. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.
9. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.
10. THE CURB SHALL BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED. TO BE 1'-0" HIGH, UNLESS OTHERWISE SPECIFIED.



PERPENDICULAR CURB RAMP DETAIL



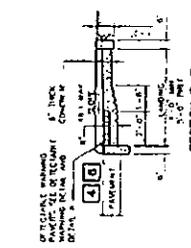
PARALLEL CURB RAMP DETAIL

TABLE 1

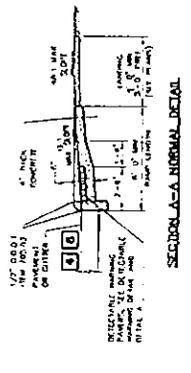
ITEM	DESCRIPTION	UNIT	QUANTITY
1	CONCRETE	CU YD	1.00
2	REINFORCING BARS	TON	0.50
3	FORMWORK	SQ YD	1.00
4	PAVEMENT	SQ YD	1.00
5	GRASS	SQ YD	1.00
6	LANDSCAPING	HR	1.00

TABLE 2

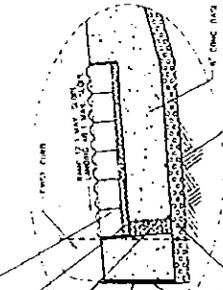
ITEM	DESCRIPTION	UNIT	QUANTITY
1	CONCRETE	CU YD	1.00
2	REINFORCING BARS	TON	0.50
3	FORMWORK	SQ YD	1.00
4	PAVEMENT	SQ YD	1.00
5	GRASS	SQ YD	1.00
6	LANDSCAPING	HR	1.00



SECTION A-NORMAL DETAIL



SECTION B-PARALLEL DETAIL



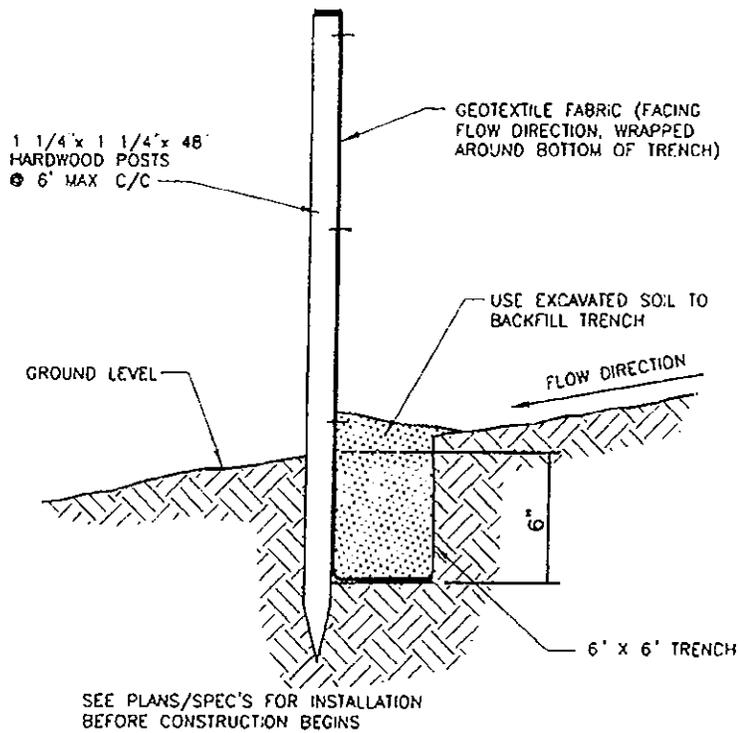
DETAIL A

DETAIL B

CT Consultants
 engineers architects planners



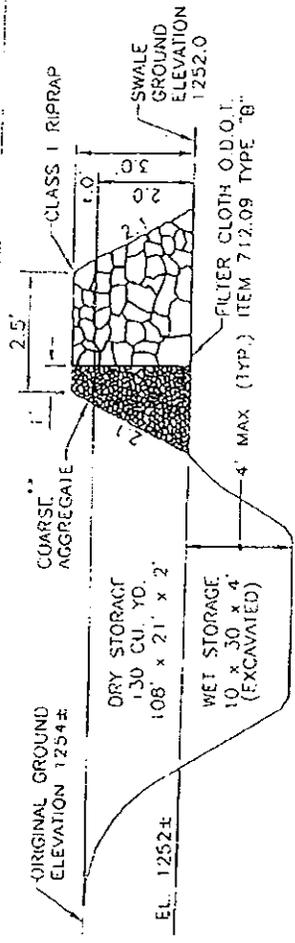
NO.	REVISION	DATE
1	ISSUED FOR PERMIT	11/15/11
2	REVISED PER COMMENTS	11/15/11
3	REVISED PER COMMENTS	11/15/11
4	REVISED PER COMMENTS	11/15/11
5	REVISED PER COMMENTS	11/15/11
6	REVISED PER COMMENTS	11/15/11
7	REVISED PER COMMENTS	11/15/11
8	REVISED PER COMMENTS	11/15/11
9	REVISED PER COMMENTS	11/15/11
10	REVISED PER COMMENTS	11/15/11



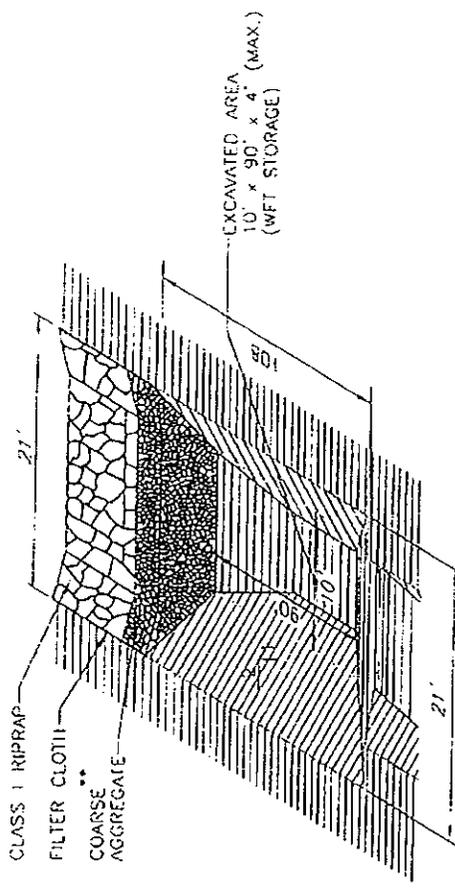
SILT FENCE DETAIL

10/05

SD-6-25



CROSS SECTION OF OUTLET



OUTLET (PERSPECTIVE VIEW)

** COARSE AGGREGATE SHALL BE O.D.O.T #3, #357 OR #5

TEMPORARY SEDIMENT TRAP
N.T.S

August 9, 2010

Mr. Jeff Hickling
Engineering Department
City of Seven Hills
7325 Summitview Drive
Seven Hills, Ohio 44131

**Re: *West Creek Watershed Sanitary Sewer Improvements Phases 2 & 3 –
Seven Hills, Ohio***

Dear Mr. Hickling:

This correspondence is being provided in response to your August 5, 2010 submittal regarding the West Creek Watershed Sanitary Sewer Improvements Phases 2 and 3 Project in Seven Hills, Ohio. According to the information submitted, the sewer project will convey sanitary sewage to the District's Southerly Wastewater Treatment Plant. The District has adequate capacity at the Southerly Wastewater Treatment Plant to treat the sanitary sewage from this project (See Attachment A).

Also, for your information, Section 3.0315 of Title III – Separate Sanitary Sewer Code of the District's Code of Regulations and the Seven Hills Community Discharge Permit require that the District be informed of all new residential, industrial and commercial connections. See Attachment B for additional information.

If you have any questions or if you should need additional information, please contact Mary Maciejowski at (216) 881-6600, ext. 6466.

Sincerely,



David McNeeley,
Director of Operation and Maintenance

Attachments

C: PTI File (w/o attachment)

- (d) the recommendations that may be relevant to a Community's development of means to achieve a performance objective.

Section 3.0308 Design Standards - The latest edition of the Uniform Standard Sewer Details approved for use by the Cuyahoga County Sanitary Engineering Department, The City of Cleveland, The Cuyahoga County Municipal Engineers Association, and The District shall apply to all of the improvements proposed to achieve the performance objectives. See Section 3.0504 regarding Certification of Conformance with these design standards.

Section 3.0309 District's Role - The role of the District relative to this Title is to identify the performance objectives to be achieved by a Community, share recommendations made to the District regarding means by which the desired Community performance is to be accomplished, assess and accept compliance plans submitted by a given Community, and assess and enforce compliance under this Title.

Section 3.0310 Community Role - The role of the Community is to evaluate and select the means by which the performance objectives identified in a given Community Discharge Permit can be achieved, and to design, construct, finance, and maintain the necessary improvements. The Community shall also initiate and continue Best Management Practices identified in its permit.

The implementing Community shall be solely responsible for projects set forth in its community compliance plan and for compliance with the performance objective(s) identified in its Community Discharge Permit.

Section 3.0311 No New Sanitary Overflows - No Community overflows shall exist except for those in existence on July 1, 1985 provided that such overflows are controlled in accordance with the Community Discharge Permit. Community overflows not disclosed in the Community Compliance Plan shall be presumed to have not been in existence by the aforementioned date.

Section 3.0312: No Dry Weather Separate Sanitary Sewer Overflows - Dry weather separate sanitary sewer overflows from any source are prohibited.

Section 3.0313: Dry Weather Separate Sanitary Sewer Overflow Reporting - The Community shall report any occurrence of a dry weather separate sanitary sewer overflow within 24 hours of discovery to the Permit Manager in the District's Planning Department. Written documentation of such overflows describing the cause of the overflow and the corrective measure taken or currently underway to

Eliminate the overflow shall be submitted to the district within 5 days. Circumstances that cause the occurrence of a dry weather separate sanitary sewer overflow must be corrected immediately. Examples of circumstances

that require immediate correction include, but are not limited to, the following: blockages in the separate sanitary sewer system, flow regulator failure, improper connections, cracked or broken sewers, or pump station malfunctions. Reporting said overflows to the District does not relieve the community of any obligation for the proper reporting to the appropriate state or federal agency.

Section 3.0314 Wet Weather Separate Sanitary Overflow Reporting - The Community shall report any occurrence of a wet weather separate sewer overflow within 24 hours of discovery to the Permit Manager in the District's Planning Department. This report shall contain, at a minimum, the location and description of the overflow structure, the estimated duration and volume of overflow and any known occurrence of basement flooding within the service area of the collection system containing the wet weather flow. Reporting these wet weather overflows to the District does not relieve the Community of any obligation for the proper reporting to the appropriate state or federal agency.

Section 3.0315 No Flow Volume/Service Area Changes - The Community is prohibited from causing or allowing any additions or deletions to the local sewer system within its municipal boundaries that will result in a change of the District's service area without prior written approval of the District. The community is also prohibited from causing or allowing any additions or deletions to the local sewer system outside its municipal boundaries that will result in a change of the District's service area without prior written approval of the District.

All new residential, industrial, and commercial connections, extensions of existing sewers, and new sewer construction shall be reported to the attention of the business supervisor of the District's Water Quality and Industrial Surveillance (WQIS) department (641-6000). New connections that are not reported to the District are in violation of the permit.

Section 3.0316 Schedule for Performance Objective Achievement - Performance objectives shall be achieved as soon as practicable. As soon as practicable shall be determined on a case by case basis taking all relevant factors into consideration. These factors shall primarily include, but are not limited to, the following:

- (a) The date at which the District sewer, if any, to which a peak flow reduction performance objective is related or for which an overflow control performance objective is dependent, is available to receive flow.

- (b) The reasonable time necessary to plan, design, and construct the required facilities, including rehabilitation.
- (c) Financial considerations.
- (d) Impact of any delay upon areas and facilities to which the flow is tributary.
- (e) Externally imposed schedule requirements.

Section 3.0317 Sewer Maps - Each Community shall maintain a current map of all sanitary and combined sewers within its territorial jurisdiction. Also to be shown are the storm sewers to which a sanitary sewer overflow discharges. The District shall establish minimum standards for such maps, making use of existing Community maps whenever possible.



City of Seven Hills Ohio

7325 SUMMITVIEW DRIVE • SEVEN HILLS, OHIO 44131 • PHONE 216/524-4421

October 27, 2005

Ohio Environmental Protection Agency
2100 E. Aurora Road
Twinsburg, Ohio 44087-1969

Attention: Sandra M. Cappotto
Environmental Specialist

Re: Seven Hills West Creek Watershed General Plan Amended

Dear Ms. Cappotto:

Enclosed, please find two (2) copies of the City's Revised West Creek Watershed General Plan dated October 27, 2005. This plan indicates a firm commitment from our City to comply with Ohio EPA Director's Findings and Orders. The comments in your letter dated June 28, 2005 have been addressed herein.

Phase I is anticipated to be complete by January 2007 where 143 of the 204 septic systems (70%) will be eliminated. The completion date for the entire project has been accelerated to February 1, 2008 from April 2, 2009 previously submitted.

Should you have any questions or comments, please do not hesitate to call.

Sincerely,

Stewart Lovece, P.E., P.S.
City Engineer

Cc: Mayor David Bentkowski
Bill Bishilany, Service Director
Richard Pignatiello, Law Director

CITY OF SEVEN HILLS
REVISED GENERAL PLAN
FOR WEST CREEK WATERSHED
REDUCTION OF
SEPTIC TANK OUTFALLS



PREPARED FOR SUBMITTAL TO OHIO EPA
Revised: October 27, 2005

Revised by:
City of Seven Hills Engineering Department
Stewart Lovece PE, PS
City Engineer
7325 Summitview Drive
Seven Hills, OH 44131
Phone 216-525-6226



10/27/05

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I. EXECUTIVE SUMMARY

The Director of the Ohio Environmental Protection Agency (OEPA) on December 31, 2002 issued the City of Seven Hills Final Findings and Orders, (DFF&O). The DFF&O indicated that the City must remove the septic discharges that flow into the West Creek Watershed. A summary is as follows:

- 1. Not later than 6 months (6/30/03) from the effective date of the Orders, the City shall submit a General Plan to Ohio EPA for review and acceptance, describing the alternatives for the abatement of pollution resulting from discharging septic systems in the West Creek watershed.**
- 2. Within 30 days of receipt of any written comments from Ohio EPA regarding the General Plan, City shall make any requested changes or modifications and/or submit any additional information to Ohio EPA.**
- 3. City shall implement its General Plan, as accepted by Ohio EPA and eliminate un-permitted discharges as expeditiously as practicable, but not later than the schedule contained in these Orders:**
 - a. Within 18 months (6/30/04) from the effective date of these Orders, the City shall submit a complete Permit to Install (PTI) application, approvable detail plans, and an antidegradation addendum to Ohio EPA for eliminating the aforementioned un-permitted discharges.**
 - b. Within 48 months (12/31/06) from the effective date of these Orders, the City shall complete construction in accordance with its approved PTI and eliminate all un-permitted discharges.**
- 4. Within 7 days of completing the requirements in Order 3, the City shall submit to Ohio EPA written notification of the completion of each obligation.**
- 5. City has expressed concern that compliance with the schedule contained within Order No. 3 may be delayed as a result of problems stemming from easement acquisition, contract bidding, or tying-in by landowners to the wastewater collection system. Upon request by the City, the Director may, at his sole discretion, extend in writing the time periods contained in Order No. 3.**

The City was informed on October 9, 2003 that the master plan submitted on 9/15/03 did not meet the requirements of a general plan and a general plan shall be submitted within 30 days.

The implementation of the projects is broken into three distinct phases.

The three phases are summarized as follows:

PHASE 1

- Project 1 Sprague/McCreary/ Elmhurst. (23 properties in study area - construction complete)**
- Project 2 Portions of Broadview, Hillside, Cherry Lane, Nemet, Twilight, Broadview @ Gettysburg. (108 properties, five of which are vacant - engineering substantially complete)**
- Project 3 South Glenella. (18 properties, one of which is vacant - engineering substantially complete)**

At the conclusion of Phase 1 – 70% of the septic tank outfalls within the basin will be eliminated.

PHASE 2

- Project 1 Skyview (26 properties) & 6475 Broadview**
- Project 2 6625, 6581, 6591, 6577, 6565, 6563, & 6561 Broadview (2-options: A or B)**

At the conclusion of phase 2 – 87% of the septic tank outfalls within the basin will be eliminated.

PHASE 3

- Option 1 (27 Broadview Rd. properties outleting into Parma @ Rustic Trail)**
- Option 2, Project 1A 7 Broadview Rd. properties outleting into Senic Lane**
- Option 2, Project 1B 6 Broadview Rd. properties outleting into Mapleview**
- Option 2, Project 1C 14 Broadview Rd. properties outleting into Parkhaven**

At the conclusion of phase 3 – 100% of the septic tank outfalls within the basin will be eliminated.

The estimated costs of phase 1 projects are \$2,247,886.00. The projects identified within phases (2) and (3) are represented in the general plan are preliminary in nature. The estimated cost is presented in ranges as high and low. The cost ranges are presented for comparison and decision purposes.

When detailed engineering plans have been developed an engineer's estimate of probable cost can be developed. The detailed estimates for the phase 1 projects have been developed with a contingency to cover the next 18 months. If project implementation exceeds that

The Phase 2 and 3 projects, preliminary or conceptual plans have been developed as a part of the plan. A concept plan and the cost ranges have been based on similar project experiences within the City over the last 15 years. However, the conceptual plan is not a detailed plan and localized subsurface information and under ground utilities have not been inventoried. It has been assumed that all projects will be partially financed with property assessments and the assessment proceedings will be expedited in accordance with the plans implementation schedule.

The Phase 2, project cost ranges are as follows:

Project (1)	\$640,150 - \$819,200	Skyview into Firethorn
Project (2A)	\$283,500 - \$334,250	Broadview into Panorama
Project (2B)	\$270,400 - \$377,975	Broadview into St. Maron

The Phase 3, project cost ranges are as follows:

Option 1 – (Tributary to Parma @ Rustic Trail)

Total \$775,400 - \$938,875

Option 2 – (Directing the flow into the existing system at 3 different Locations).

Project cost ranges are as follows:

Project (1A):	\$245,300 - \$307,350	@ Scenic Lane
Project (1B):	\$217,875 - \$270,375	@ Mapleview
Project (1C):	\$369,575 - \$450,075	@ Parkhaven

Total \$832,750 - \$1,027,800

It has been assumed that all projects will be partially financed with property assessments and the assessment proceedings will be expedited in accordance with the plans and implementation schedule.

It must be noted that the property within the drainage basin along Broadview Rd. was assessed in the 1970's for trunk sewer benefits in accordance with the Sprague/Keystone sewer project agreements. Some of these parcels may not be able to utilize the trunk sewer because an outlet into the sewer through Parma west of Broadview Rd. may not exist and may not become available in the future.

The alternate gravity sanitary sewer extensions will require acquisition of easements, preparation of detail plans, identification of subsurface conditions, location of existing underground utilities, determination of costs, calculation of assessments prior to proceeding with the construction.

Furthermore, some of the projects will require district boundaries to be amended and hydraulic investigations undertaken to determine the downstream impacts of the additional flow on the existing system. The cost for these items has not been determined.

It has been assumed that any downstream deficiencies in the existing sanitary sewers are not capacity related but are a result of clear water entering the system. The City is currently proceeding with a program to identify and reduce or eliminate all clear water entries into the existing system, including but not limited to smoke testing.

II. BACKGROUND

Sanitary sewerage generated within the City of Seven Hills are collected in sanitary sewer systems and conveyed to other municipal systems that ultimately is treated at the NEORSD Southerly Sewage Treatment Plant. For areas where sanitary sewer collection systems do not exist, sewage is partially treated in septic tanks that for the most part discharge to municipal storm sewer systems that drain into that eventually flow into the Cuyahoga River.

All new construction over the last 35 years has been accomplished with sewage being collected and conveyed via sanitary sewer systems.

III. PURPOSE

The purpose of this plan which will be called "The West Creek Watershed General Plan for the Reduction of Septic Tank Outfalls" is to determine methods to collect and convey sanitary sewage to a municipal treatment facility. The sewage being discussed is presently partially treated by septic tanks. The partially treated sewage is discharged to outfalls that discharge to storm sewers off lot that eventually end up in the West Creek.

IV. WEST CREEK WATERSHED

The West Creek Watershed or tributary area within Seven Hills comprises of 2,176 acres or 3.4 sq. miles or 69 percent of the City. Drawing 1/19B indicates the watershed boundary. Only a small portion of the watershed is not serviced with sanitary sewers and is presently serviced with septic tanks.

The watershed boundary as indicated on drawing 1/19B has been determined in the following manner:

- a. The available aerial topography of the area was evaluated and a gross determination was indicated as to where the surface water runoff drained from the surface topography. Working from the main stream of the West Creek and moving upward in most cases, it became evident of the extent of the potential area that grossly drained to West Creek. Then by moving to each creek or stream in the drainage basin following from the upstream end to the downstream point of discharge it becomes evident what drainage basin the stream or creek is a part of.

Then each area or lot is further examined by the existing topographic contours where it drains. It is then determined which drainage basins the parcel belongs to.

- b. Then the existing storm sewer plans were studied within the boundaries of the drainage basin and where storm sewers cross from one drainage basin to another the storm sewer general plans and detail drawings are further studied to determine which areas drain to which basin. This is a function of the storm sewer design itself. City Ordinances over the past 30 years have required all new dwellings to have roof drains connected to storm sewers. Most homes also have footing drains and yard drains connected to the storm sewers. Unless it was known that a dwelling or group of dwellings was not connected to a storm sewer it was assumed that the roof drains were connected to the storm sewer. Some storm sewers have been designed such that the surface area that they serve are in one drainage area according to the aerial topography, however, the storm sewer drains across the boundary of the drainage basin to a stream or creek or other drainage course and discharges into another drainage basin. Once it is determined which areas are connected to storm sewers which do not drain to the West Creek drainage basin, then the areas remaining can be determined to drain to the West Creek drainage basin without much change of error.
- c. In addition some available Health Dept. records were studied to determine the direction of flow of the existing septic systems. If the septic system drains out the back of the property, the discharge may go to one drainage basin. And if the septic system drainage out the front or to the storm sewer, it may drain to another drainage basin.

While there are still possibilities of private storm sewers or drain lines which cross from one drainage basin to another drainage basin, most private storm sewers will be on a single property and only properties immediately adjacent to the drainage basin boundary will be in question as to possibly draining to another drainage basin. The aerial topography will normally provide the correct answer as to where the property actually flows. Some old individual septic systems may be connected to old drain lines that are not indicated on Health Dept or City records. Only detailed field testing can identify further where these isolated cases may actually discharge. Many of these old field tiles have been encountered while constructing City projects. In addition with the present ongoing work the City is undertaking as a result of the EPA phase II storm water program, these isolated cases should be further defined.

- d. Proceeding north from the southern City boundary at Sprague Rd. along Broadview Rd. to Orchardview Ave. the main West Creek drainage area drains to storm sewer collection systems that flows through the K-Mark parking lot and Valleywood Park and then crosses Broadview Rd. into the City of Parma.

- e. **The area north of Orchardview Ave. along Broadview Rd. in the West Creek Drainage basin cross Broadview Rd. at a number of culvert crossings into the City of Parma. A number of improvement plans are available that identify the culvert pipes.**

V. EXISTING SANITARY SEWER COLLECTION SYSTEM

Drawing 2/19B is the sanitary sewer plan depicts the existing sanitary sewer system. The City owns and operates its sanitary sewer system that is within public right-of-ways and easements.

The City's entire sanitary sewer system is a gravity collection system. There are no pump stations or treatment plants within the system. The City believes that the most long term cost effective alternative is a gravity system. Therefore, the City has determined that any extensions or modifications to the sanitary system should remain a gravity system unless extensive studies would indicate differently.

VI. PAST PLANNING

The City has developed a plan for extensions to the sanitary sewer system to provide sanitary sewer collection for most of the West Creek drainage area.

In the 1970's the construction of the Sprague/Keystone trunk sewer that is within the City of Parma took place. The trunk sewer was proposed to service parcels tributary within Seven Hills. Those Seven Hills parcels were assessed for a portion of the costs. The assessed parcels included those within the West Creek drainage area. The proposed projects outlined within this study were within the trunk sewer assessment area. Since sanitary sewer outlets are not proposed that provide for some properties to be serviced into the trunk sewer, alternative outlets have been identified.

Some of these outlets that are identified in this report will need further study to determine if there will be any adverse downstream impacts.

In addition, the downstream system has clear water entering the sanitary system. The cost estimates presented in the plan have values noted as "other costs" to eliminate the clear water entries. This will be accomplished by sealing manholes, grouting pipe joints and removing any direct clear water connections from the sanitary sewer system.

VII. PLAN TO REDUCE SEPTIC TANK OUTFALLS

The number of septic tanks that currently exist within the West Creek drainage area is approximately 204, less the homes connected under Phase 1, Project 1. Presently the drainage area is divided into three (3) phases of proposed projects. The projects are depicted on drawings 3/19B through 19A/19B.

The projects have been phased in the implementation schedule from the standpoint of readiness to proceed.

Following is the identification of each phase and each project.

The PHASE 1 projects are represented on drawings 3/19B through 12/19B.

Project 1

The project is represented on the following drawings:

East Sprague 3/19B

McCreary 4/19B

Elmhurst 5/19B

The project consists of 40 existing single family dwellings and one building lot on portions of East Sprague and McCreary Rds. Twenty three (23) of the forty (40) dwellings are within the study area. Project construction was completed in 2004 and the septic tank elimination is nearly complete.

The project consists of 4,167 l.f. of gravity sanitary sewer pipe within the roadway right-of-ways of E. Sprague, McCreary & Elmhurst. The location of the pipe is on the south side of E. Sprague and the Seven Hills properties are serviced via long connections to the main. A small portion of the project outlets into an existing manhole in E. Sprague Rd. with the remainder out letting into an existing manhole in Elmhurst Dr.

Project 2

The project is represented on the following drawings:

6/19B, 7/19B, 9/19B, 10/19B, 11/19B, 12/19B

The project will provide gravity sanitary sewer collection service to 103 existing dwellings and 5 vacant lots on portions of Broadview Rd., Hillside, Summitview, Cherry Lane, Nemet & Twilight. All of the dwellings are located within the study area. The outlet is located in the City of Parma along Gettysburg Dr. The project consists of connecting into the existing Parma system to the east toward Broadview Rd. a re-crossing of Broadview Rd. from the west to the east. It also includes 7,104 l.f. of pipe within the roadway right-of-ways of Gettysburg, Broadview, Cherry Lane, Hillside, Summitview, Nemet & Twilight; some of the sewer line is within easements along the Broadview Rd. parcels that front on Broadview Rd.

Project 3

The project is represented on drawing 8/19B.

The project will provide gravity sanitary sewer collection service to 17 existing single family dwellings plus one (1) vacant lot at the south end of Glenella Dr. All the dwellings are within the study area and are presently serviced via septic systems. An outlet manhole exists at the north end of the project limits that will drain sewage into the existing system at Karen Dr. The project consists of 875 l.f. of pipe located within the roadway right-of-ways of Glenella Dr.

The PHASE 2 projects are represented on drawings 13/19B, 14/19B, 15/19B, 16A/19B, 16B/19B & 16C/19B

Project 1

The project is represented on the following drawings:

Skyview, drawing 13/19B

Skyview spur, drawing 14/19B serving 6475 Broadview Rd.

The project will provide gravity sanitary sewer collection service to 26 existing single family dwellings on Skyview Dr. and one dwelling @ 6475 Broadview Rd. All dwellings are within the study area.

The project consists of 2,515 l.f. of pipe. Easements are necessary to provide access into an existing manhole in Firethorn Dr. A study is underway where it was determined that nearly 80 homes potentially contain cross-connections into the sanitary sewers along Ridgewood, Tanglewood and Crossview. Shortly, the homeowners will be notified and directed to correct the problems after dye-testing is performed. Also, problems were observed in the City's collection system as well.

Project 2

Options A and B, are identified, one of the two options will be required to be selected from the information presented.

The projects are represented on the following drawings: 15A/19B, 16A/19B & 16B/19B.

Serving Broadview addresses; 6625, 6581, 6591, 6577, 6565, 6563 & 6561.

Options A & B will provide gravity sanitary sewer collection service to 7 existing single family dwellings.

Option A is a sewer alignment along the Broadview frontage in easements parallel to the Broadview ROW and outletting into the existing Panorama system.

Option B is a sewer alignment from the rear of the dwellings in easements out letting into the existing St. Maron subdivision system.

Option (A) consists of 1,015 l.f. of pipe with service proposed from the front yards and option (B) consists of 1,185 l.f. of pipe with service proposed from the rear yards.

The PHASE 3 projects are represented on drawings 17A/19B, 18A/19B, 18B/19B & 19A/19B.

One project is identified with two options with different outlets. The outlet will be required to be selected for the information presented.

Option (1) outlets into Parma @ Rustic Trail

Option (2) is broken down into (3) separate segments. All three segments outlet at different locations @ Scenic Lane, Mapleview & East Parkhaven into the existing City system.

Further studies will be necessary to determine if any deficiencies exist within the three downstream systems to handle this added anticipated sewage flow and to eliminate any clear water entering the downstream system.

Option 1, Project 1

The project is represented on drawings 17B/19B, 18B/19B & 19B/19B.

The project will service 27 dwellings on Broadview Rd. including (6767, 6751, 6725, 6711, 6699, 6689, 6655, 6843, 6825, 6807, 6799, 6791, 6779, 6981, 6969, 6961, 6955, 6949, 6943, 6935, 6917, 6911, 6905, 6899, 6895, 6891 & 6879) out letting into Parma @ Rustic Trail.

The project will provide gravity sanitary sewer collections service and consist of 2,932 l.f. of sewer pipe and a bore under Broadview Rd. @ Rustic Trail into Parma.

Option 2, Project 1A

The project is represented on drawing 17A/19B.

The project will provide gravity sanitary sewer collection service 7 dwellings on Broadview Rd. including (6767, 6751, 6725, 6711, 6699, 6689 & 6655). The proposed alignment is through the rear of the dwellings in easements and out lets into the existing system @ Scenic Lane.

The project consists of 1,195 l.f. of sewer pipe.

Further studies will be necessary to determine if any deficiencies exist within the three downstream systems to handle this added anticipated sewage flow and to eliminate any clear water entering the downstream system.

Option 2, Project 1B

The project is represented on drawing 18A/19B.

The project will provide gravity sanitary sewer service to 6 existing single family dwellings on Broadview Rd. (6843, 6825, 6807, 6799, 6791 & 6779). The proposed alignment is through the rear of properties in easements and outlets into the existing system @ Mapleview.

The project consists of 750 l.f. of pipe.

Further studies will be necessary to determine if any deficiencies exist within the three downstream systems to handle this added anticipated sewage flow and to eliminate any clear water entering the downstream system.

Option 2, Project 1C

The project is represented on drawing 19A/19B.

The project will provide gravity sanitary sewer collection service to 14 existing single family dwellings on Broadview Rd. including (6981, 6969, 6961, 6955, 6949, 6943, 6935, 6917, 6911, 6905, 6899, 6895, 6891 & 6879). The proposed alignment of the sewer line is proposed alignment is through the rear of the properties in easements and out lets into the existing system @ Parkhaven Dr.

The project consists of 910 l.f. of pipe.

Further studies will be necessary to determine if any deficiencies exist within the three downstream systems to handle this added anticipated sewage flow and to eliminate any clear water entering the downstream system.

The estimate project costs are based on past project experiences over the last 15 years in the City and published cost indicators for Northeastern Ohio. The construction costs include a contingency to cover 18 months of potential inflation. It is recommended if project implementation exceeds that period that the project costs be upgraded using a construction cost index such as ENR.

VIII. COST ESTIMATES
For Selected Alternatives

03/20/05

PROJECT #2

**PORTIONS OF BROADVIEW, HILLSIDE,
SUMMITVIEW, CHERRY LANE, NEMET & TWILIGHT**

Status:

Detailed plans, estimated costs & assessment roles prepared.

Drawings 6/19B, 7/19B, 9/19B, 10/19B, 11/19B & 12/19B

ESTIMATED PROJECT COSTS

The estimated project cost are based on past project experiences over the last 15 years in the City and published cost indicators for Northeastern Ohio. The construction costs include a contingency to cover 18 months of potential escalation. It is recommended if project implementation exceeds that period that the project cost be upgraded using a construction cost index such as ENR.

Construction

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	7,104	122/l.f.	866,688.
2.	manholes	ea.	23	4000 ea.	92,000.
3.	connections				
	lg.	ea.	46	2500 ea.	115,000.
	sht.	ea.	65	1200 ea.	78,000.
4.	conn. exist.	l.s.	2	1500 ea.	3,000.
5.	BV bore	l.s.	1	99,200	99,200.
	Subtotal				1,253,888.

03/20/05

**PROJECT #3
GLENELLA SOUTH**

Status: detailed plans, construction cost estimates & assessments prepared.

Drawing 8/19B

ESTIMATED PROJECT COSTS

The estimated project cost are based on past project experiences over the last 15 years in the City and published cost indicators for Northeastern Ohio. The construction costs include a contingency to cover 18 months of potential escalation. It is recommended if project implementation exceeds that period that the project cost be upgraded using a construction cost index such as ENR.

Construction

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	875	285/l.f.	249,375.
2.	manholes	ea.	4	4000 ea.	16,000.
3.	connections				
	lg.	ea.	7	2500 ea.	17,500.
	sht.	ea.	10	500 ea.	5,000.
4.	conn. exist.	l.s.		1500.	1,500.
	Subtotal				193,143.

Project #3 continued:

Non-Construction

1. preliminary engineering	7,100.
2. preparation of plans, estimates of cost assessment roles	8,100.
3. inventory of underground utilities	10,000.
4. construction staking	4,300.
5. inspection & construction administration	7,200.
6. legal, bond counsel & administration	13,900.
7. printing bonds	500.
8. bond registrar agents	4,500.
9. interest on note	11,300.
Subtotal	66,900.
TOTAL	260,043.

03/20/05

PHASE 2

PROJECT #1

SKYVIEW & 6475 BROADVIEW

(No Outlet into Parma has developed, a gravity outlet into the existing internal system @ Firethorne will need to be created).

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

Status: preliminary general plans prepared

Drawings 13/19B & 14/19B

Project Cost Estimates

This project is based on preliminary or concept plans. The cost ranges have been based on similar project experiences within the City over the last 15 years. The concept plan is not a detailed plan and localized subsurface information and underground utilities have not been inventoried. In addition the cost ranges do not contain contingencies for future escalation. As detailed engineering plans are developed definitive cost estimates should be prepared for each project.

The other cost category includes an estimated cost to reduce the amount of clear water that is anticipated to presently be entering the downstream system. The estimate is based on sealing manholes and grout sealing pipe joints. This is necessary due to the fact that additional sewage flow will be entering the downstream system.

Estimated Project Cost Ranges:

Low Range

Construction costs

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	2,515	125/l.f.	314,375.
2.	manholes	ea.	11	4000 ea.	44,000.
3.	connections				
	lg.	ea.	14	1500 ea.	21,000.

	sht.	ea.	12	500 ea.	6,000.
4.	conn. exist.	l.s.		1500 ea.	1,500.
5.	easements	ea.	7	500 ea.	3,500.
	Sub-Total				390,375.

Phase 2 project #1 continued:

Non-Construction costs @ 25% of construction costs

Sub-total 97,600.

TOTAL 487,975.

High range

Construction costs

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	2,515	175/l.f.	440,125.
2.	manholes	ea.	11	4000 ea.	44,000.
3.	connections				
	lg.	ea.	14	1500 ea.	21,000.
	sht.	Ea.	12	500 ea.	6,000.
4.	conn. exist.	l.s.		1500 ea.	1,500.
5.	easements	ea.	7	3000 ea.	21,000.
	Sub-Total				533,625.

Non-construction costs @ 25% of construction costs

Sub-total 133,400

TOTAL 667,025

Other Costs

downstream capacity analysis 5,000.

downstream system inflow reduction

Firethorne to Crossview @ Rockside

28 mh's & 7,000 l.f. pipe

seal mh's & grout joints

eliminate all clean water connections.

Subtotal 147,175.

Total 152,175.

Projected Estimated Project Cost Range \$640,150 – \$819,200

03/20/05

Phase 2

PROJECT #2

Broadview Rd. (addresses 6625, 6581, 6591, 6577, 6565, 6563, 6561)

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

No outlet into Parma has developed utilize 2 optional outlets have been identified (A) into Panorama or (B) into St. Maron subdivision under construction

Status: preliminary general plans have been prepared

Drawings 15/19B, 16A/19B, 16B/19B & 16C/19B

Project Cost Estimates

This project is based on preliminary or concept plans. The cost ranges have been based on similar project experiences within the City over the last 15 years. The concept plan is not a detailed plan and localized subsurface information and underground utilities have not been inventoried. In addition the cost ranges do not contain contingencies for future escalation. As detailed engineering plans are developed definitive cost estimates should be prepared for each project.

The other cost category includes an estimated cost to reduce the amount of clear water that is anticipated to presently be entering the downstream system. The estimate is based on sealing manholes and grout sealing pipe joints. This is necessary due to the fact that additional sewage flow will be entering the downstream system.

Phase 2, project 2 continued:

Estimated Project Cost Ranges

Option A Drawings 16B/19B

Low Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8' pipe	l.f.	1015	135/l.f.	137,025.
2.	manholes	ea.	5	4000 ea.	20,000.
3.	connections				
	sht.	ea.	7	500 ea.	3,500.
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	8	500 ea.	4,000.
			Subtotal		166,025.

Non-Construction cost @ 25% of construction costs

Subtotal 41,500

TOTAL 207,525.

High Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	1015	175/l.f.	177,625.
2.	manholes	ea.	5	4000 ea.	20,000.
3.	connections				
	sht.	ea.	7	500 ea.	3,500.
4.	conn. exist.	l.s.		1500 ea.	1,500.
5.	easements	ea.	8	500 ea.	4,000.
			Subtotal		206,625.

Non-construction cost @ 25% of construction costs

Subtotal 51,650.

TOTAL 258,275.

Phase 2, project 2 continued:

Other Costs

Downstream capacity analysis 2,500.

downstream system

Enter Panorama to Firethronc inflow reduction

15 mh's & 3,350 l.f. pipe

seal mh's & grout joints

eliminate all clean water connections.

subtotal 73,475.

Total 75,975.

TOTAL PROJECT COST RANGE 283,500 - 334,250

03/28/05

Phase 2 Project 2

Option B

Description:

Gravity system providing service to the rear of Broadview properties into the St. Maron subdivision.

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

Status: preliminary general plans have been prepared.

Drawings 15/19B & 16A/19B

Project Cost Estimates

This project is based on preliminary or concept plans. The cost ranges have been based on similar project experiences within the City over the last 15 years. The concept plan is not a detailed plan and localized subsurface information and underground utilities have not been inventoried. In addition the cost ranges do not contain contingencies for future escalation. As detailed engineering plans are developed definitive cost estimates should be prepared for each project.

The other cost category includes an estimated cost to reduce the amount of clear water that is anticipated to presently be entering the downstream system. The estimate is based on sealing manholes and grout sealing pipe joints. This is necessary due to the fact that additional sewage flow will be entering the downstream system.

Estimated Project Cost Ranges:

Low Range

Construction costs

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	1,185	120/l.f.	137,025.
2.	manholes	ea.	5	4000 ea.	20,000.
3.	connections				
	lg.	ea.	0		
	sht.	ea.	7	500 ea.	3,500.
4.	conn. to exist.	l.s.		1500.	1,500.
5.	easements	ea.	9	1500. ea.	13,500.
			Subtotal		155,525.

Phase 2, project 2 continued:

Non-construction costs @ 25% of construction costs	
Subtotal	38,900.
TOTAL	194,425.

High Range

Construction costs

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	1,185	160/l.f.	189,600.
2.	manholes	ea.	5	4000 ea.	20,000.
3.	connections				
	lg.	ea.	0		
	sht.	ea.	7	500 ea.	3,500.
4.	conn. to exist.	l.s.		1500.	1,500.
5.	easements	ea.	9	3000 ea.	27,000.
			Subtotal		241,600.

Phase 2 Project 2 Option B continued:

Non-construction costs @ 25% of construction costs	
Subtotal	60,400.
TOTAL	302,000.

Other Costs

Downstream capacity analysis	2,500.
other downstream of St. Marons sub.	
Enter Panorama to Firethron	
15 mh's & 3,350 l.f. pipe	
seal mh's & grout joints	
eliminate all clean water connections.	
subtotal	73,975.
Total	75,975.

PROJECTED ESTIMATED COST RANGE \$270,400 - \$377,975.

03/20/05

PHASE 3

Project 1

Option 1

Status: preliminary general plans have been prepared

Drawing 17B/19B, 18B/19B & 19B/19B

Reviewing the City of Parma preliminary plan an outlet at Rustic Trail is available to service the following Broadview Rd. addresses. (6767, 6751, 6725, 6711, 6699, 6689, 6655, 6843, 6825, 6807, 6799, 6791, 6779, 6981, 6969, 6961, 6955, 6949, 6943, 6935, 6917, 6911, 6905, 6899, 6895, 6891, 6879)

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

Low Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	2,932	135/l.f.	395,820.
2.	manholes	ea.	9	4000 ea.	36,000.
3.	connections				
	lg. ea.	0			
	sht. ea.	27		500 ea.	13,500.
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	27	500 ea.	13,500.
6.	BV bore @ Rustic Trail	l.f.	250	400/l.f.	100,000.
7.	pavement	s.f.	4000	15/s.f.	60,000.
				Subtotal	620,320.

Non-construction costs @ 25% of construction costs

Subtotal 155,080.

TOTAL 775,400.

Phase 3 project 1 option 1 continued:

High Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	2,932	175/l.f.	513,100.
2.	manholes	ea.	9	4000 ea.	36,000.
3.	connections				
	lg.	ea.	0		
	sht.	ea.	27	500 ea.	13,500.
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	27	1000 ea.	27,000.
6.	BV bore @ Rustic Trail	l.f.	250	400/l.f.	100,000.
7.	pavement	s.f.	4000	15/s.f.	60,000.
			Subtotal		751,100.

Non-construction cost @ 25% of construction cost

Subtotal 187,775.

TOTAL 938,875.

PROJECTED ESTIMATED COST RANGE \$775,400- \$938,875.

03/20/05

Phase 3 project 1A

Drawing 17A/19B

Broadview addresses (6767, 6751, 6725, 6711, 6699, 6689 & 6655). Rear yard service & outlet into existing system @ Scenic Lane.

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

Project Cost Estimates

This project is based on preliminary or concept plans. The cost ranges have been based on similar project experiences within the City over the last 15 years. The concept plan is not a detailed plan and localized subsurface information and underground utilities have not been inventoried. In addition the cost ranges do not contain contingencies for future escalation. As detailed engineering plans are developed definitive cost estimates should be prepared for each project.

The other cost category includes an estimated cost to reduce the amount of clear water that is anticipated to presently be entering the downstream system. The estimate is based on sealing manholes and grout sealing pipe joints. This is necessary due to the fact that additional sewage flow will be entering the downstream system.

Low Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	1195	120/l.f.	143,000.
2.	manholes	ea.	3	4000 ea.	12,000.
3.	connections				
	lg.	ea.	7	1500 ea.	10,500.
	sht.	ea.	0		
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	7	1000 ea.	7,000.
			Subtotal		174,400.

Phase 3, project 1A continued:

Non-construction cost @ 25% of construction costs		
	Subtotal	43,600.
	Total	218,000.

High Range

Construction cost					
Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	1195	160/l.f.	191,200.
2.	manholes	ea.	3	4000 ea.	12,000.
3.	connections				
	lg.	ea.	7	1500 ea.	10,500.
	sht.	ea.	0		
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	7	3000 ea.	21,000.
			Subtotal		236,200.

Non-construction cost @ 25% of construction costs		
	Subtotal	59,050.
	Total	277,050.

Other Costs

Downstream capacity analysis	1,200.
Inflow reduction downstream of Scenic Lane new - Calvin to Chestnut	
13mh's & 1,000 l.f. pipe	
seal mh's & grout joints	
eliminate all clean water connections.	
subtotal	29,100.
Total	30,300.

PROJECTED ESTIMATED COST RANGE . \$245,300 - \$307,350.

03/28/05

Project 1B

Drawing 18A/19B

Broadview addresses (6843, 6825, 6807, 6799, 6791 & 6779). Rear yard service & outlet into existing system @ Mapleview.

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

Project Cost Estimates

Project Cost Estimates

This project is based on preliminary or concept plans. The cost ranges have been based on similar project experiences within the City over the last 15 years. The concept plan is not a detailed plan and localized subsurface information and underground utilities have not been inventoried. In addition the cost ranges do not contain contingencies for future escalation. As detailed engineering plans are developed definitive cost estimates should be prepared for each project.

The other cost category includes an estimated cost to reduce the amount of clear water that is anticipated to presently be entering the downstream system. The estimate is based on sealing manholes and grout sealing pipe joints. This is necessary due to the fact that additional sewage flow will be entering the downstream system.

Estimated Project Cost Ranges:

Low Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	750	120/l.f.	90,000.
2.	manholes	ea.	3	4000 ea.	12,000.
3.	connections				
	lg.	ea.	6	1500 ea.	9,000.
	sht.	ea.	0		
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	6	1000 ea.	6,000.
			Subtotal		118,500.

Phase 3, project 1B continued:

Non-construction @ 25% of construction cost
Subtotal **29,625.**

TOTAL **148,125**

High Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	750	160/l.f.	120,000.
2.	manholes	ea.	3	4000 ea.	12,000.
3.	connections				
	lg.	ea.	6	1500 ea.	9,000.
	sht.	ea.	0		
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	6	3000 ea.	18,000.
			Subtotal		160,500.

Non-construction cost 25% of construction cost
Subtotal **40,125.**

TOTAL **200,625.**

Other Costs

Downstream capacity analysis **2,500.**
downstream to Calvin

12mh's & 3,150 l.f. pipe
seal mh's & grout joints
eliminate all clean water connections.
subtotal **67,250.**

Total **69,750.**

PROJECTED ESTIMATED COST RANGE \$217,875. - \$270,375.

03/20/05

Phase 3

Project 1C, Drawing 19A/19B, Broadview addresses (6981, 6969, 6961, 6955, 6949, 6943, 6935, 6917, 6911, 6905, 6899, 6895, 6891, 6879).

All of these properties were previously assessed for the trunk sewer in Parma (Sprague/Keystone).

Project Cost Estimates

Project Cost Estimates

This project is based on preliminary or concept plans. The cost ranges have been based on similar project experiences within the City over the last 15 years. The concept plan is not a detailed plan and localized subsurface information and underground utilities have not been inventoried. In addition the cost ranges do not contain contingencies for future escalation. As detailed engineering plans are developed definitive cost estimates should be prepared for each project.

The other cost category includes an estimated cost to reduce the amount of clear water that is anticipated to presently be entering the downstream system. The estimate is based on sealing manholes and grout sealing pipe joints. This is necessary due to the fact that additional sewage flow will be entering the downstream system.

Estimated Project Cost Ranges:

Low Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	910	120/l.f.	109,200.
2.	manholes	ea.	4	4000 ea.	16,000.
3.	connections				
	lg.	ea.	14	1500 ea.	21,000.
	sht.	ea.	0		
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	14	1000 ea.	14,000.
			Subtotal		161,700.

Non-construction cost @ 25% of construction cost

Subtotal	40,425.
TOTAL	202,125.

Phase 3, project 1C continued:

High Range

Construction cost

Item	description	unit	quantity	price	amount
1.	8" pipe	l.f.	910	160/l.f.	145,600.
2.	manholes	ea.	4	4000 ea.	16,000.
3.	connections				
	lg.	ea.	14	1500 ea.	21,000.
	sht.	ea.	0		
4.	conn. exist.	l.s.		1500	1,500.
5.	easements	ea.	14	3000 ea.	42,000.

Phase 3, project 1C continued:

Subtotal 226,100.

Non-construction cost @ 25% of construction cost

Subtotal 56,525.

TOTAL 282,625.

Other Costs

Downstream capacity analysis 4,500.

**Inflow reduction downstream Parkhaven
via Parkgate Oval to Chestnut**

35 mh's & 7,500 l.f. pipe

seal mh's & grout joints

eliminate all clean water connections.

subtotal 162,950.

Total 167,450.

TOTAL PROJECT COST RANGE \$369,575.- \$450,075.

TOTAL PROJECTS COST RANGE 1A, 1B, & 1C \$832,750. - \$1,027,800.

SUMMARY OF COSTS

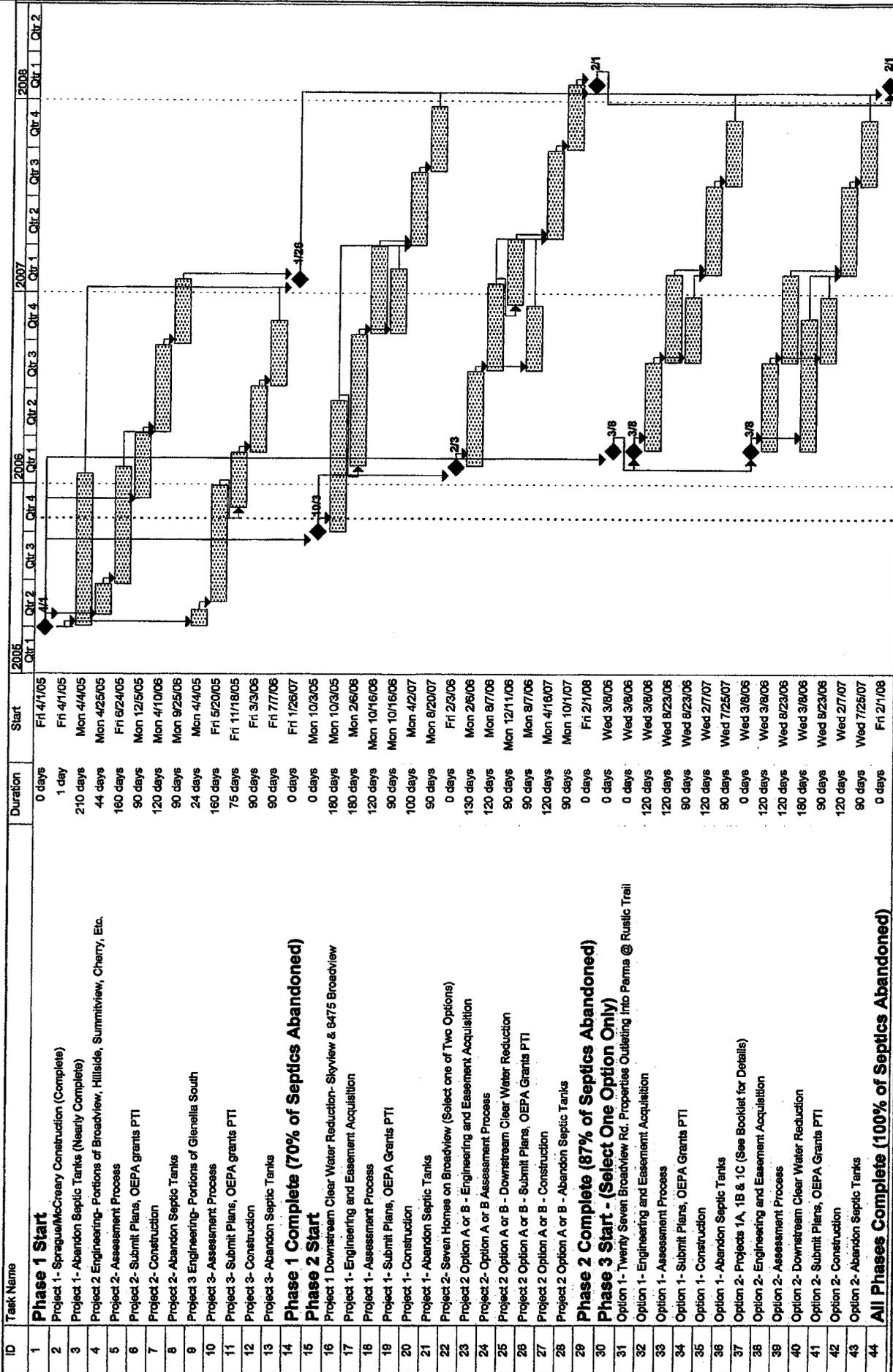
Phase 1	Total	City Share
Project #1	\$356,350.	\$46,048.15
Project #2	\$1,531,493.	\$159,638.80
Project #3	\$260,043.	\$5,106.12
Phase 2		
Project #1	\$640,150. - \$819,200.	(152,175.) a + *
Project #2		
Option A	\$283,500. - \$334,250.	(75,975.) a + *
Project #2		
Option B	\$270,400. - \$337,975.	(75,975.) a + *
Phase 3		
1 Option 1	\$775,400. - \$938,875.	*
1 Option 2		
1A	\$245,300. - \$307,350.	(30,300.) a + *
1B	\$217,875. - \$270,375.	(69,750.) a + *
1C	\$369,575. - \$450,075.	(167,450.) a + *

a = estimated amount to remove clear water entries

*** 2% plus intersections**

IX. SCHEDULE

IX

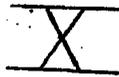


ID	Task Name	Duration	Start
1	Phase 1 Start	0 days	Fri 4/1/05
2	Project 1- Sprague/McCreary Construction (Complete)	1 day	Fri 4/1/05
3	Project 1- Abandon Septic Tanks (Nearly Complete)	210 days	Mon 4/4/05
4	Project 2- Engineering- Portions of Broadview, Hillside, Summitview, Cherry, Etc.	44 days	Mon 4/25/05
5	Project 2- Assessment Process	180 days	Fri 9/24/05
6	Project 2- Submit Plans, OEPA grants PTI	90 days	Mon 12/5/05
7	Project 2- Construction	120 days	Mon 4/10/06
8	Project 2- Abandon Septic Tanks	90 days	Mon 9/25/06
9	Project 3- Engineering- Portions of Glenella South	24 days	Mon 4/4/05
10	Project 3- Assessment Process	160 days	Fri 5/20/05
11	Project 3- Submit Plans, OEPA grants PTI	75 days	Fri 11/18/05
12	Project 3- Construction	90 days	Fri 3/3/06
13	Project 3- Abandon Septic Tanks	90 days	Fri 7/7/06
14	Phase 1 Complete (70% of Septics Abandoned)	0 days	Fri 1/26/07
15	Phase 2 Start	0 days	Mon 10/3/05
16	Project 1- Downstream Clear Water Reduction- Skyview & 8475 Broadview	180 days	Mon 10/3/05
17	Project 1- Engineering and Easement Acquisition	180 days	Mon 2/6/06
18	Project 1- Assessment Process	120 days	Mon 10/16/06
19	Project 1- Submit Plans, OEPA Grants PTI	90 days	Mon 10/16/06
20	Project 1- Construction	100 days	Mon 4/2/07
21	Project 1- Abandon Septic Tanks	90 days	Mon 8/20/07
22	Project 2- Seven Homes on Broadview (Select one of Two Options)	0 days	Fri 2/3/05
23	Project 2- Option A or B - Engineering and Easement Acquisition	130 days	Mon 2/6/06
24	Project 2- Option A or B - Assessment Process	120 days	Mon 8/7/06
25	Project 2- Option A or B - Downstream Clear Water Reduction	90 days	Mon 12/11/06
26	Project 2- Option A or B - Submit Plans, OEPA Grants PTI	90 days	Mon 8/7/06
27	Project 2- Option A or B - Construction	120 days	Mon 4/16/07
28	Project 2- Option A or B - Abandon Septic Tanks	90 days	Mon 10/1/07
29	Phase 2 Complete (87% of Septics Abandoned)	0 days	Fri 2/1/08
30	Phase 3 Start - (Select One Option Only)	0 days	Wed 3/8/06
31	Option 1- Twenty Seven Broadview Rd. Properties Outlying into Pama @ Rustic Trail	0 days	Wed 3/8/06
32	Option 1- Engineering and Easement Acquisition	120 days	Wed 3/8/06
33	Option 1- Assessment Process	120 days	Wed 8/23/06
34	Option 1- Submit Plans, OEPA Grants PTI	90 days	Wed 8/23/06
35	Option 1- Construction	120 days	Wed 2/7/07
36	Option 1- Abandon Septic Tanks	90 days	Wed 7/25/07
37	Option 2- Projects 1A, 1B & 1C (See Booklet for Details)	0 days	Wed 3/8/06
38	Option 2- Engineering and Easement Acquisition	120 days	Wed 3/8/06
39	Option 2- Assessment Process	120 days	Wed 8/23/06
40	Option 2- Downstream Clear Water Reduction	180 days	Wed 3/8/06
41	Option 2- Submit Plans, OEPA Grants PTI	90 days	Wed 8/23/06
42	Option 2- Construction	120 days	Wed 2/7/07
43	Option 2- Abandon Septic Tanks	90 days	Wed 7/25/07
44	All Phases Complete (100% of Septics Abandoned)	0 days	Fri 2/1/08

Project: West Creek General Plan
 Date: Thu 10/27/05

Legend:
 ■ External Tasks
 ◆ External Milestones
 ■ Progress
 ■ Milestone
 ■ Summary
 ■ Project Summary
 ■ Deadline

Page 1



TYPICAL SANITARY SEWER ASSESSMENT IMPLEMENTATION TASKS

Task	Performer	Approver
1. Authorize dialogue with Parma to solidify entry @ Rustic Trial	LD	C
2. Authorize evaluation of downstream conditions		C
3. Evaluate downstream conditions	E	
4. Acceptance of downstream conditions & recommendations & fund improvements		C
5. Authorize preparation of detail plans, specifications & estimates of cost & tentative assessments		C
6. Prepare detail plans, specifications & estimates of cost	E	
7. Authorization of preparation of easement documents		C
8. Amend existing sanitary sewer district boundary	LD	C
9. Prepare easement documents	E	
10. Acquire easements	LD/E	
11. Prepare tentative assessment role	E	
12. Acceptance of tentative assessments		C
13. Adopt resolution of necessity		C
14. Serve assessment notices to benefiting properties	CC	C
15. Assessment of objection filing process	LD	
16. Assembly of assessment equalization board		C
17. Passage of the Ordinance to Proceed		C
18. Construction financing arrangements	FD	
19. Advertise for construction bids	CC	
20. Award construction contract		C
21. Commence construction		
22. Complete construction		
23. Serve notice to connect to property owners	E	
24. Passage of assessing ordinance	C	
25. Notice of assessing ordinance	LD/CC	
26. Serve notice of final assessment to property owner	CC	
27. Cash payment period	FD	
28. Permanent financing	FD/LD	
29. Certification of assessments to County Auditor	FD	
30. Preparation of Intergovernmental agreements	LD	
31. Acceptance of Intergovernmental agreements		C

LD= Law Director
C = Council
FD = Finance Director
CC= Council Clerk
E=Engineer

XI. APPENDIX



City of Seven Hills Ohio

7325 SUMMITVIEW DRIVE • SEVEN HILLS, OHIO 44131 • PHONE 216/524-4421

MEMO

DATE: September 13, 2005

TO: Carol Sekerak, Clerk of Council

FROM: Stewart Lovece, City Engineer

RE: Updated West Creek Sanitary Sewer Assessment List

Please be advised that as of today, September 13, 2005 all 126 property owners have been served by either certified mail or via the police department for the proposed West Creek Sanitary Sewer Project. To summarize, this project includes sewerage properties located on portions of Glenella Drive, Hillside Road, Twilight Drive, Summitview Drive, Nemet Drive, Cherry Lane and Broadview Road.

The next step in the assessment proceedings is to proceed with the equalization board hearings.

Should you have any questions or comments, please do not hesitate to contact me.

CC: Mayor, Service Director, Law Director, Council



City of Seven Hills Ohio

7325 SUMMITVIEW DRIVE • SEVEN HILLS, OHIO 44131 • PHONE 216/524-4421

MEMO

DATE: September 7, 2005

TO: Carol Sekerak, Clerk of Council

FROM: Stewart Lovece, City Engineer *S.L.*

RE: Updated West Creek Sanitary Sewer Assessment List

Attached, please find an updated West Creek Sanitary Sewer Assessment List. Please provide a copy to the Sewer, Sanitation, Public Health and Water Committee for their use. Currently, only one (1) property remains to be served in conjunction with the assessment proceedings.

Should you have any questions or comments, please do not hesitate to contact me.

CC: Mayor, Service Director

West Creek Sanitary Sewer Preliminary Assessment

PPN	Address	Owner	Assessment Amount	Cert. Mail Sent On	Received by Owner	Objection Filed?
552-05-005	7175 Broadview Road	James J. & Lynn M. Reingoiz	\$ 14,834.20	6/29/2005	6/30/2005	
552-05-006	7151 Broadview Road	Hurricane Development LLC	\$ 12,083.71	6/29/2005	8/10/2005	
552-05-021	7185 Broadview Road	Republic Construction Consultants	\$ 12,965.94	6/29/2005	8/10/2005	
552-05-078	7161 Broadview Road	David James & Elisabeth Lastafka	\$ 20,802.24	6/29/2005	9/1/2005	
552-05-081	7137 Broadview Road	Jeremy Shedlock & Angela Basham	\$ 15,041.78	6/29/2005	8/1/2005	
552-05-082	7143 Broadview Road	The Rita F. Peterson, Trust	\$ 15,041.78	6/29/2005	7/2/2005	
552-07-001	7109 Broadview Road	John R. & Karla Nousek	\$ 15,557.63	6/29/2005	7/25/2005	
552-07-002	7095 Broadview Road	Emily A. Duff	\$ 22,402.96	6/29/2005	9/1/2005	
552-07-003	7081 Broadview Road	Mario R. & Antonia Carnevale	\$ 16,755.91	6/29/2005	7/8/2005	7/13/2005
552-07-005	7057 Broadview Road	Charles R. Reynolds	\$ 13,796.28	6/29/2005	8/15/2005	
552-07-006	7049 Broadview Road	Laurabeth Duncan	\$ 16,391.08	6/29/2005	7/1/2005	
552-07-007	7001 Broadview Road	James R. Bistricky	\$ 19,876.42	6/29/2005	9/1/2005	9/12/2005
552-07-008	7029 Broadview Road	Edwin R. & Ruby L. Froehlich	\$ 12,239.40	6/29/2005	7/14/2005	
552-07-009	7019 Broadview Road	Brian & Joanne Pekala	\$ 12,239.40	6/29/2005	7/5/2005	7/18/2005
552-07-010	7009 Broadview Road	Karen Sara	\$ 12,239.40	6/29/2005	8/10/2005	
552-07-013	7071 Broadview Road	Mario R. & Antonia Carnevale	\$ 16,775.91	6/29/2005	7/8/2005	7/13/2005
552-07-099	7099 Broadview Road	Victoria Camardo, Et. Al. (7105)	\$ 19,289.20	6/29/2005	7/12/2005	
552-05-025	369 Cherry Lane	Mario D. Petitti	\$ 12,239.40	6/29/2005	7/7/2005	
552-05-026	114 Cherry Lane	Anne M. & Steve S. Kordas Jr.	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-027	138 Cherry Lane	Linda L. Russe	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-028	164 Cherry Lane	Anthony G. Gallagher	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-029	188 Cherry Lane	Kip Botirius	\$ 12,239.40	6/29/2005	8/1/2005	
552-05-030	214 Cherry Lane	Thomas C. Magyar, Sr.	\$ 12,239.40	6/29/2005	7/5/2005	
552-05-031	291 Cherry Lane	Michael G. Mural, Et. Al.	\$ 14,522.82	6/29/2005	6/30/2005	
552-05-034	238 Cherry Lane	John M. & Cheryl Supp Chmura	\$ 12,239.40	6/29/2005	7/1/2005	
552-05-035	264 Cherry Lane	Ava M. LaRocca	\$ 12,239.40	6/29/2005	9/6/2005	

PPN	Address	Owner	Assessment Amount	Cert. Mail Sent On	Received by Owner	Objection Filed?
552-05-036	288 Cherry Lane	Momcilo & Ana Grujicic	\$ 12,239.40	6/29/2005	7/7/2005	
552-05-037	314 Cherry Lane	Miguel C. Alvarez	\$ 12,239.40	6/29/2005	8/13/2005	
552-05-038	338 Cherry Lane	Craig P. & Dawn E. Allar	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-039	364 Cherry Lane	Thomas R. & Kim Y. Matousek	\$ 12,239.40	6/29/2005	7/5/2005	
552-05-040	388 Cherry Lane	Salvatore Filippelli	\$ 12,239.40	6/29/2005	7/5/2005	
552-05-041	414 Cherry Lane	Robert M. & Mary E. Eidam	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-042	438 Cherry Lane	Dale Rodeheaver	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-043	464 Cherry Lane	Wladyslaw B. & Irena Przepiorka	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-047	213 Cherry Lane	Ilona M. Balassy	\$ 12,239.40	6/29/2005	8/2/2005	
552-05-048	237 Cherry Lane	Elizabeth Lacina	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-049	263 Cherry Lane	Ronald P. & Melissa A. Kristanko	\$ 12,239.40	6/29/2005	7/5/2005	
552-05-050	317 Cherry Lane	Bill & Denise Bidak	\$ 12,239.40	6/29/2005	7/1/2005	
552-05-051	345 Cherry Lane	Milosav & Gordana Novakovic	\$ 12,239.40	6/29/2005	7/1/2005	
552-05-052	395 Cherry Lane	Craig A. Kermode	\$ 12,239.40	6/29/2005	7/30/2005	
552-05-053	419 Cherry Lane	Ferenc & Eteika Boda	\$ 12,239.40	6/29/2005	7/1/2005	
552-05-054	445 Cherry Lane	Ernestine Leporati	\$ 12,239.40	6/29/2005	8/9/2005	
552-05-055	469 Cherry Lane	James J. Lekan	\$ 12,239.40	6/29/2005	8/1/2005	
552-05-019	Cherry Lane (Vacant)	Louis & Petronilla Biasiotta	\$ 14,834.20	6/29/2005	9/12/2005	
552-05-021	Cherry Lane (Vacant)	Republic Construction Consultants	\$ 14,834.20	6/29/2005	9/6/2005	
552-05-068	622 Nemet Drive	Agostino & Anna M. Cuntretra	\$ 12,239.40	6/29/2005	7/1/2005	
552-05-069	578 Nemet Drive	Linda Moore	\$ 12,239.40	6/29/2005	7/1/2005	
552-05-070	534 Nemet Drive	Ann J. Camaglia	\$ 12,239.40	6/29/2005	8/1/2005	
552-05-071	490 Nemet Drive	Mary Dell'Aquila	\$ 12,239.40	6/29/2005	7/5/2005	
552-05-072	446 Nemet Drive	Joseph B. & Mary A. Rasch	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-073	402 Nemet Drive	Bradley Dingess	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-074	358 Nemet Drive	Aloysius P. & Martha Piersa	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-075	314 Nemet Drive	Jeffrey Nemet	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-076	270 Nemet Drive	Dan & Emilia M. Paul	\$ 12,239.40	6/29/2005	7/2/2005	

Address	Owner	Assessment Amount	Cert. Mail Sent On	Received by Owner	Objectio Filed?
552-05-077	226 Nemet Drive Bonnie Papson	\$ 12,239.40	6/29/2005	7/2/2005	
552-05-079	182 Nemet Drive Paul & Nina Gerda	\$ 12,758.36	6/29/2005	7/5/2005	
552-05-080	138 Nemet Drive Alfred S. & Frances Z. Helmick	\$ 12,758.36	6/29/2005	7/2/2005	
552-07-086	593 Nemet Drive John & Linda Bodnar	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-087	549 Nemet Drive William S. Billik & Elizabeth A. Newman	\$ 12,239.40	6/29/2005	8/8/2005	
552-07-088	505 Nemet Drive Stanislawa Wielgus	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-089	461 Nemet Drive Ronald E. & Rebecca L. Zanath	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-090	417 Nemet Drive Marjan & Kosa Banjac	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-091	373 Nemet Drive Marjan & Kosa Banjac	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-092	329 Nemet Drive Eva Malov	\$ 12,239.40	6/29/2005	7/7/2005	
552-07-093	285 Nemet Drive Witold Lada	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-094	241 Nemet Drive Raymond J. & Elaine A. Wilkens	\$ 12,239.40	6/29/2005	7/2/2005	7/5/2005
552-07-095	197 Nemet Drive Joan H. Endzwick, Trustee	\$ 12,239.40	6/29/2005	7/2/2005	
552-07-098	153 Nemet Drive Andrew Obyrtos, Trustee	\$ 12,239.40	6/29/2005	7/7/2005	
552-05-007	85 Hillside Road Christine Sipko	\$ 14,834.20	6/29/2005	7/5/2005	
552-05-008	119 Hillside Road Lucille Tamulewicz	\$ 14,834.20	6/29/2005	7/2/2005	
552-05-009	151 Hillside Road Joseph J. & Maria G. Ferrante	\$ 14,834.20	6/29/2005	7/2/2005	
552-05-010	185 Hillside Road George Glagola Jr. & Helen Glagola, Co-trs.	\$ 14,834.20	6/29/2005	7/2/2005	7/12/2005
552-05-011	217 Hillside Road Loretta A. Sowers	\$ 14,834.20	6/29/2005	7/2/2005	
552-05-012	285 Hillside Road Ronald R. & Cynthia A. Gollas	\$ 14,834.20	6/29/2005	8/2/2005	
552-05-013	351 Hillside Road Braden C. & Karen R. Spiker	\$ 14,834.20	6/29/2005	7/1/2005	
552-05-014	419 Hillside Road Redd & Francine M. Harroff	\$ 14,834.20	6/29/2005	7/5/2005	
552-05-015	453 Hillside Road August Satanik	\$ 14,834.20	6/29/2005	7/30/2005	
552-05-016	485 Hillside Road Robert W. & Margaret A. Lott	\$ 14,834.20	6/29/2005	7/2/2005	
552-05-017	473 Hillside Road Anthony C. & Barbara J. Hosta	\$ 14,834.20	6/29/2005	6/30/2005	
552-05-018	478 Hillside Road Joseph E. Gentile, Jr. & Maria A. Magpoc	\$ 14,834.20	6/29/2005	7/1/2005	
552-05-022	317 Hillside Road Karen L. Savage	\$ 14,834.20	6/29/2005	7/1/2005	
552-05-023	336 Hillside Road Kenneth A. & Carol Sroka	\$ 14,834.20	6/29/2005	7/5/2005	

PPN	Address	Owner	Assessment Amount	Cert. Mail Sent On	Received by Owner	Objection Filed?
552-05-024	385 Hillside Road	Louis P. & Lisa M. Simonyi	\$ 14,834.20	6/29/2005	7/18/2005	
552-06-001	665 Hillside Road	Mark E. & Gretchen E. Dziczkowski	\$ 14,834.20	6/29/2005	7/5/2005	
552-06-002	755 Hillside Road	Lidia Sopka	\$ 14,834.20	6/29/2005	7/7/2005	
552-13-011	162 Hillside Road	Helen Anna Penko	\$ 14,834.20	6/29/2005	7/1/2005	
552-13-012	375 Hillside Road	James & Elizabeth Steiger	\$ 14,834.20	6/29/2005	7/1/2005	
552-13-013	345 Hillside Road	Joseph G. & Mabel L. Schebek	\$ 14,834.20	6/29/2005	7/1/2005	7/1/2005
552-13-014	311 Hillside Road	Williard Reynolds	\$ 14,834.20	6/29/2005	7/5/2005	
552-13-015	296 Hillside Road	Thomas, Gino & Donna Jean Iacobucci	\$ 14,834.20	6/29/2005	8/1/2005	
552-13-016	330 Hillside Road	Julia Jurkiw	\$ 14,834.20	6/29/2005	7/7/2005	
552-13-017	370 Hillside Road	Louis & Mary Fusile	\$ 19,246.40	6/29/2005	7/2/2005	7/1/2005
552-13-018	432 Hillside Road	Jacques & Susan J. Arsenault	\$ 16,438.82	6/29/2005	7/1/2005	
552-13-019	468 Hillside Road	Stanley J. & Susan R. Gall	\$ 14,834.20	6/29/2005	7/1/2005	
552-13-020	500 Hillside Road	Steve S. & Florence M. Kordas	\$ 14,834.20	6/29/2005	7/7/2005	
552-13-021	590 Hillside Road	Kenneth F. Cavanaugh	\$ 14,834.20	6/29/2005	7/2/2005	
552-13-024	98 Hillside Road	Back Street Development Corp.	\$ 14,834.20	7/1/2005	7/7/2005	
552-13-025	Hillside Road (Vacant)	North Coast Community Homes, Inc.	\$ 13,796.28	6/29/2005	6/30/2005	
552-14-001	682 Hillside Road	Ann A. Kimak	\$ 14,834.20	6/29/2005	7/1/2005	
552-14-002	772 Hillside Road	Olga Futryk	\$ 14,834.20	6/29/2005	7/2/2005	
552-13-029	7279 Summitview Drive	Joseph & Rosette Bouchaya	\$ 27,290.28	6/29/2005	7/5/2005	7/10/2005
552-13-030	Summitview Drive (Vacant)	Joseph & Rosette Bouchaya	\$ 21,061.72	6/29/2005	7/5/2005	7/10/2005
552-13-027	Hillside Road (Vacant)	Louis & Mary Fusile	\$ 14,834.20	6/29/2005	7/1/2005	7/1/2005
552-07-004	220 Twilight Drive	David G. & M. H. Harrism	\$ 15,263.90	6/29/2005	7/1/2005	
552-07-012	144 Twilight Drive	Sandra L. Bittner	\$ 16,882.02	6/29/2005	7/5/2005	
552-07-048	197 Twilight Drive	Alan & N. Petronak	\$ 20,965.19	6/29/2005	7/1/2005	
552-07-049	221 Twilight Drive	Helen M. & V.E. Lazor	\$ 20,965.19	6/29/2005	7/1/2005	
552-07-075	182 Twilight Drive	Donna Majewski	\$ 18,938.14	6/29/2005	8/2/2005	8/4/2005

Deadline: 9/26/05

Glenella Drive Sanitary Sewer Preliminary Assessment

PPN	Address	Owner	Assessment Amount	Cert. Mail Sent On	Received by Owner	Objection Filed?
551-36-001	6821 Glenella Drive	Thomas A. & Joan C. Perchinske	\$ 14,157.00	6/29/2005	6/30/2005	7/13/2005
551-36-002	6812 Glenella Drive	Joanne R. Jencson	\$ 14,157.00	6/29/2005	6/30/2005	x
551-36-003	6862 Glenella Drive	Roger Raba	\$ 14,157.00	6/29/2005	7/9/2005	x
551-36-004	6861 Glenella Drive	Scott C. Rouse & Shelby L. Boilanger	\$ 14,157.00	6/29/2005	8/25/2005	x
551-36-005	6852 Glenella Drive	Michael & Audrey M. Sedor	\$ 14,157.00	6/29/2005	7/1/2005	x
551-36-006	6842 Glenella Drive	Mary R. Perko	\$ 14,157.00	6/29/2005	7/2/2005	x
551-36-007	6872 Glenella Drive	Stephie R. Roubal	\$ 14,157.00	6/29/2005	7/1/2005	x
551-36-009	6901 Glenella Drive	Ralph W. Zaun & June C. Zaun, Co-Trs.	\$ 14,157.00	6/29/2005	6/30/2005	x
551-36-010	6851 Glenella Drive	Richard A. & Rita K. Prokopius	\$ 14,157.00	6/29/2005	7/1/2005	x
551-36-011	6881 Glenella Drive (Vacant)	Helen Aubele	\$ 14,157.00	6/29/2005	6/30/2005	x
551-36-012	6891 Glenella Drive	Helen Aubele	\$ 14,157.00	6/29/2005	6/30/2005	7/5/2005
551-36-013	6882 Glenella Drive	Frank Nagy & Arline M. Nagy, Trs.	\$ 14,157.00	6/29/2005	6/30/2005	x
551-36-014	6871 Glenella Drive	Anthony J. Canitia	\$ 14,157.00	6/29/2005	7/1/2005	x
551-36-016	6892 Glenella Drive	Sandra & Awad Ilias	\$ 14,157.00	6/29/2005	7/1/2005	x
551-36-019	6832 Glenella Drive	John H. & Carol J. Gullick	\$ 14,157.00	6/29/2005	7/1/2005	7/7/2005
551-36-021	6811 Glenella Drive	Johathan R. Thomas & Kara M. Anderson	\$ 14,157.00	6/29/2005	8/1/2005	x
551-36-025	6822 Glenella Drive	Milena & Jan G. Bartik	\$ 14,157.00	6/29/2005	7/7/2005	7/15/2005
551-36-026	6902 Glenella Drive	Van Ty & Manda P. Quach	\$ 14,157.00	7/28/2005	8/2/2005	x

Deadline: 9/9/05



City of Seven Hills Ohio

7325 SUMMITVIEW DRIVE • SEVEN HILLS, OHIO 44131 • PHONE 216/524-4421

MEMO

DATE: October 6, 2005

TO: Gerald A. Trafis, Sewers, Sanitation, Public Health and Water Committee Chairman

FROM: Stewart Lovece, City Engineer *S.L.*

RE: Sanitary Smoke Testing *1/16*

Pursuant to the Sewer Committee Meeting of October 4, 2005, the following is a brief summary of the smoke testing conducted in the sanitary sewers along Ridgewood Drive, Tanglewood Drive and Crossview Road (see attached) and other sewer issues:

- Approximately 80 of 250 homes tested were observed to have cross-connections where storm water can and will enter the sanitary sewers, especially during a rain event. Despite testing during dry weather conditions, a large amount of ground water was observed in the sanitary sewers as well.
- The cross-connections consisted mainly of connections to downspouts, footer tiles, broken pipe, uncapped or broken cleanout covers and yard drains.
- Along Crossview Road, smoke was observed exiting fissures in the ground and catchbasins which can be contributed to broken or cracked sewer mains and/or other cross-connections within the City's Right-of-Way. Heavy flows were also observed in this line, despite the dry weather. This sewer will require televising to identify specific cross-connections and damaged pipe, although the heavy flows will make this more difficult to accomplish.
- Cross-connections discovered on private property are generally the responsibility of the homeowners to correct and those problems discovered on City property are obviously ours to fix.
- Heavy flows were also observed being discharged from the Bayberry Drive area, which warrants smoke testing on Bayberry, Primrose, Firethorn, Bittersweet, Waxberry, Driftwood and Bonroi Drives.
- In my opinion, these problems are severe and represent the major cause of sanitary sewer backup that has persisted in this neighborhood for many years. These problems must also be rectified before the proposed sewers from Skyview Drive are connected into this circuit (via Firethorn Drive) as part of the West Creek Watershed Sanitary Sewer Project. The cross-connections located on private property should be corrected pursuant to SHCO 733.12.

The following areas require smoke testing due to the high probability of cross-connections:

STREET	APPROX. LENGTH
Bonroi	1900'
Bayberry	2000'
Primrose	900'
Firethorn	900'
Bittersweet	850'
Waxberry	500'
Driftwood	400'
Cresthill	1300'
E. Hill	400'
Hickory Lane	1400'
N. Cricket Lane	1100'
Chestnut	6200'
Simich	2000'
Marveen	700'
TOTAL	20,550'

Total Cost = 20,550' x \$0.30/FT + 15% contingency = \$7,089.75.

Therefore, I am requesting **\$7,500.00** appropriated to perform smoke testing on these streets. This can be funded with the unspent money from the previously authorized PO # 52513 or \$12,400 less \$4,000 previously spent or \$8,400.

Should you have any questions or comments, please do not hesitate to contact me.

*approved by Council
10/11/05*

C: Mayor, Service Director, Council Members, Mike Vano Sewer Department

**City of Seven Hills
Smoke Test Results
List of Violations**

Smoke Test Date	Address	Street	Comments
9/30/2005	5983	Crossview Road	Clean Out
9/30/2005	5993	Crossview Road	Clean Out
9/30/2005	6024	Crossview Road	Storm manhole
9/30/2005	6048	Crossview Road	Open storm drain and storm manhole
9/30/2005	6086	Crossview Road	Downspout, clean out
9/30/2005	6100	Crossview Road	Clean Out
9/30/2005	6115	Crossview Road	Clean Out
9/30/2005	6125	Crossview Road	Clean Out
9/30/2005	6135	Crossview Road	Clean out, downspout
9/30/2005	6140	Crossview Road	Downspout
9/30/2005	6154	Crossview Road	Downspout
9/30/2005	6155	Crossview Road	Clean out, foundation
9/30/2005	6180	Crossview Road	Downspout
9/30/2005	6186	Crossview Road	Clean Out
9/30/2005	6210	Crossview Road	Clean out, storm sewer
9/30/2005	6254	Crossview Road	Front sidewalk
9/30/2005	6276	Crossview Road	Downspout - foundation inside basement, pipe under sidewalk
9/30/2005	6295	Crossview Road	Downspout, clean out
9/30/2005	6352	Crossview Road	Foundation, downspout
9/30/2005	6368	Crossview Road	Cleanout, foundation
9/30/2005	6374	Crossview Road	Front yard
9/30/2005	6392	Crossview Road	Foundation
9/30/2005	6422	Crossview Road	Driveway
9/28/2005	6423	Crossview Road	Clean out, foundation
9/28/2005	6464	Crossview Road	Downspout and foundation
9/28/2005	6482	Crossview Road	Downspout
9/28/2005	6499	Crossview Road	Foundation
9/28/2005	6521	Crossview Road	Clean out and foundation
9/28/2005	6562	Crossview Road	Front patio drain
9/28/2005	6588	Crossview Road	Clean out and foundation
9/28/2005	6596	Crossview Road	Clean Out
9/28/2005	6606	Crossview Road	Downspout and foundation
9/28/2005	6617	Crossview Road	Downspout
9/30/2005	6411	Crossview Road	Downspout, foundation
9/27/2005	72	East Ridgewood Drive	Downspouts
9/27/2005	96	East Ridgewood Drive	Downspouts
9/27/2005	146	East Ridgewood Drive	Downspouts
9/27/2005	196	East Ridgewood Drive	Downspouts
9/27/2005	216	East Ridgewood Drive	Clean Out
9/27/2005	236	East Ridgewood Drive	Clean Out
9/27/2005	237	East Ridgewood Drive	Clean Out
9/27/2005	351	East Ridgewood Drive	Foundation at side of yard
9/27/2005	371	East Ridgewood Drive	Clean Out
9/27/2005	400	East Ridgewood Drive	Clean out in front yard
9/27/2005	426	East Ridgewood Drive	Clean out in front yard
9/27/2005	427	East Ridgewood Drive	Clean Out
9/27/2005	438	East Ridgewood Drive	Downspout in back yard

Smoke Test Date	Address	Street	Comments
9/27/2005	441	East Ridgewood Drive	Clean Out
9/27/2005	581	East Ridgewood Drive	Clean out in front yard
9/27/2005	932	East Ridgewood Drive	Downspout in front and back yard, storm sewer in front of 932
9/27/2005	1200	East Ridgewood Drive	Downspout
9/27/2005	1380	East Ridgewood Drive	Front downspout of backyard shed
9/27/2005	1470	East Ridgewood Drive	Downspout in back of house
9/27/2005	1536	East Ridgewood Drive	Left side of foundation
9/27/2005	1616	East Ridgewood Drive	Left side of foundation
9/27/2005	1625	East Ridgewood Drive	Cleanout in front yard
9/27/2005	1769	East Ridgewood Drive	Downspout in front and back of house
9/27/2005	2109	East Ridgewood Drive	Clean Out
9/27/2005	2454	East Ridgewood Drive	Foundation in back of house
9/27/2005	2710	East Ridgewood Drive	Cleanout, pipe on back porch
9/28/2005	6409	Tanglewood Lane	Downspout
9/28/2005	6437	Tanglewood Lane	Downspout
9/28/2005	6445	Tanglewood Lane	Clean Out
9/28/2005	6446	Tanglewood Lane	Clean Out
9/28/2005	6466	Tanglewood Lane	Downspout
9/28/2005	6494	Tanglewood Lane	Downspout
9/28/2005	6502	Tanglewood Lane	Downspout, foundation
9/28/2005	6508	Tanglewood Lane	Downspout, foundation
9/28/2005	6511	Tanglewood Lane	Foundation, right side
9/28/2005	6522	Tanglewood Lane	Downspout
9/28/2005	6526	Tanglewood Lane	Clean Out
9/28/2005	6530	Tanglewood Lane	Foundation, left side
9/28/2005	6531	Tanglewood Lane	Foundation
9/28/2005	6534	Tanglewood Lane	Downspout
9/28/2005	6545	Tanglewood Lane	Clean Out
9/28/2005	6553	Tanglewood Lane	Clean Out
9/28/2005	6617	Tanglewood Lane	Downspout

WEST CREEK WATERSHED

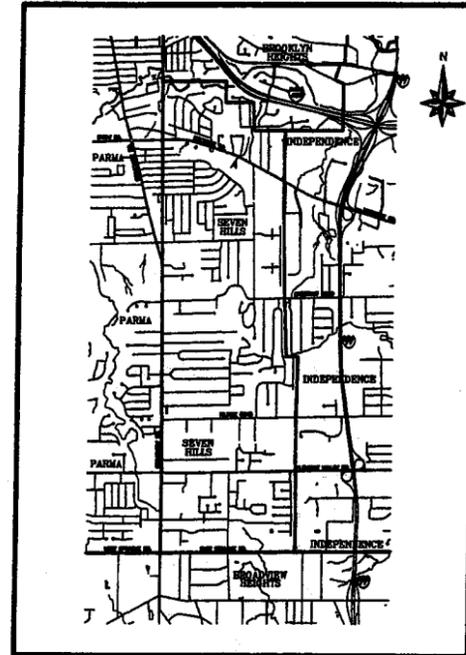
GENERAL PLAN FOR THE
REDUCTION OF SEPTIC TANK OUTFALLS

FOR
THE CITY OF SEVEN HILLS
AUGUST, 2004
REVISED FEBRUARY, 2005

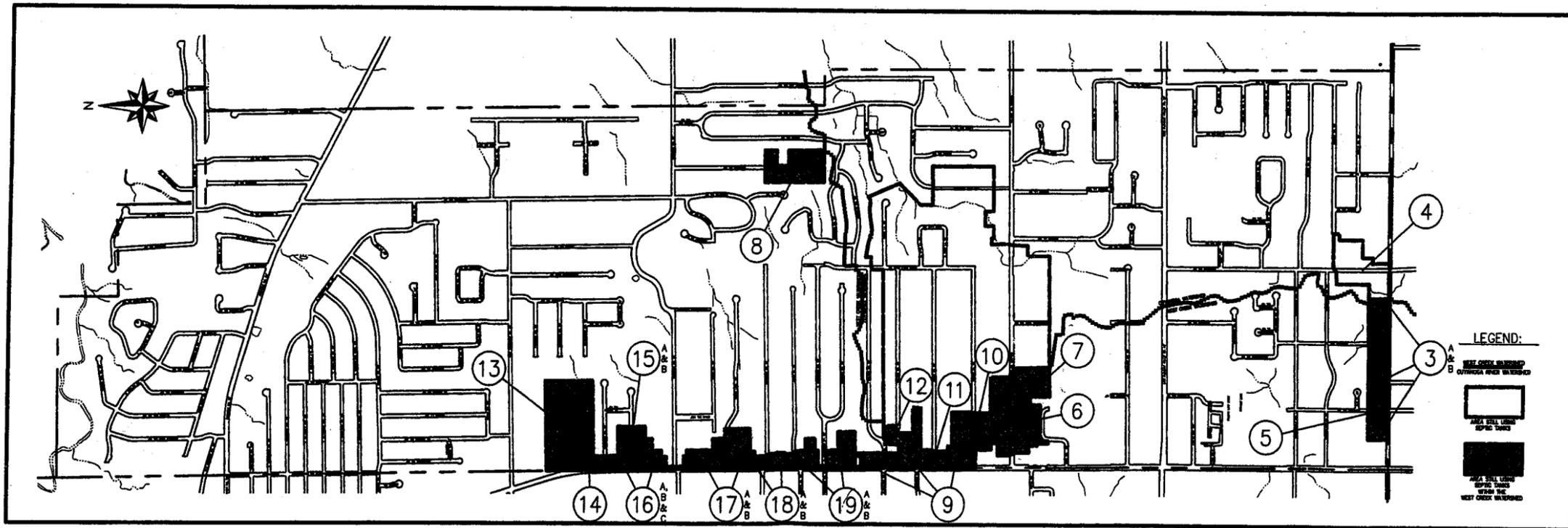
INDEX OF DRAWINGS

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- 3B EAST SPRAGUE
- 4 McCREARY
- 5 ELMHURST
- 6 HILLSIDE WEST
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- 8 GLENELLA SOUTH
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- 15B BROADVIEW FRONTAGE TO PANORAMA
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- 19A REAR YARD ALIGNMENTS AT EAST PARKHAVEN
- 19B BROADVIEW FRONTAGE ALIGNMENT AT EAST PARKHAVEN

LAWRENCE W. FULTON, PE DATE



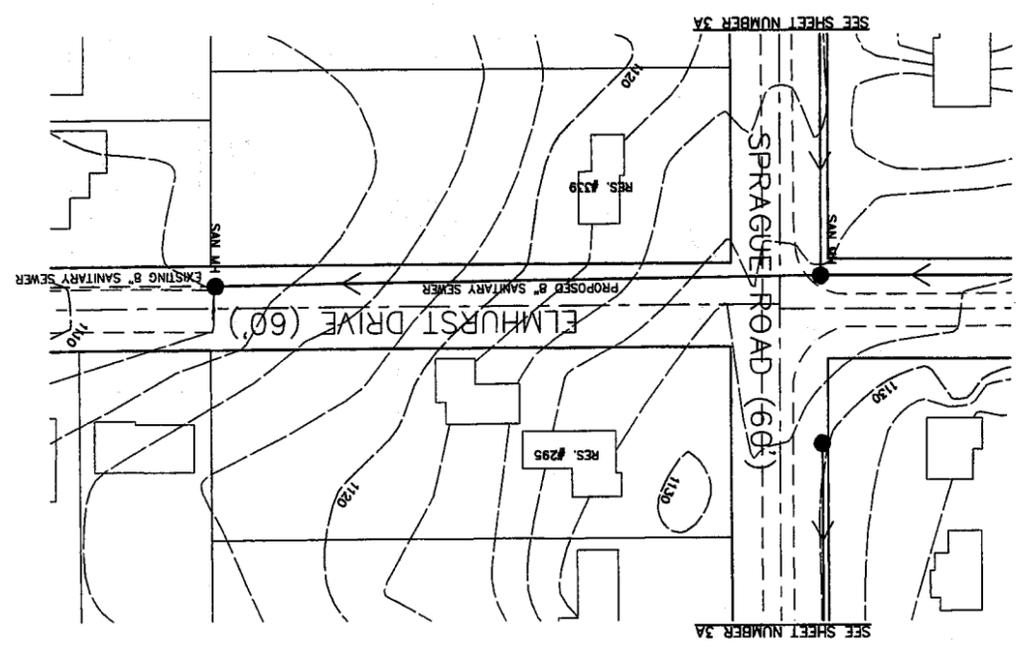
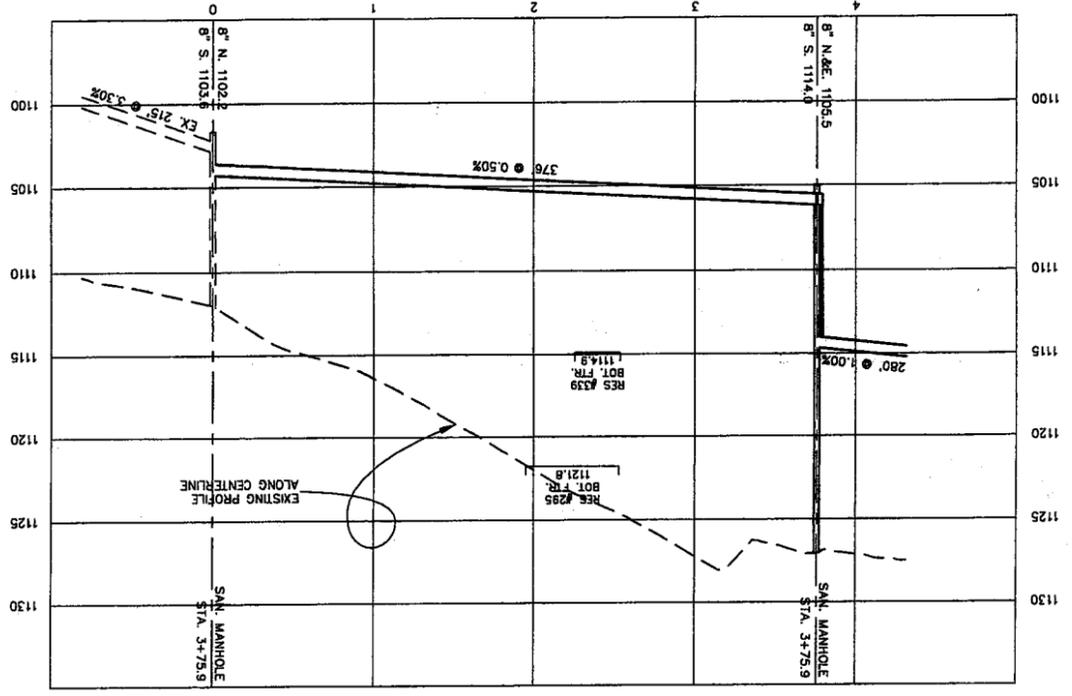
VICINITY MAP
SCALE: 1" = 4000'



PROJECT LOCATIONS
SCALE: 1" = 1000'

FULTECH CONSULTING ENGINEERS, INC.

9885 Rockside Road, Suite 130
Valley View, Ohio 44125
(216) 524-9098



**SANITARY SEWER
 CITY OF SEVEN HILLS**

**WEST CREEK WATERSHED - GENERAL PLAN
 FOR THE REDUCTION OF SEPTIC TANK OUTFALLS**

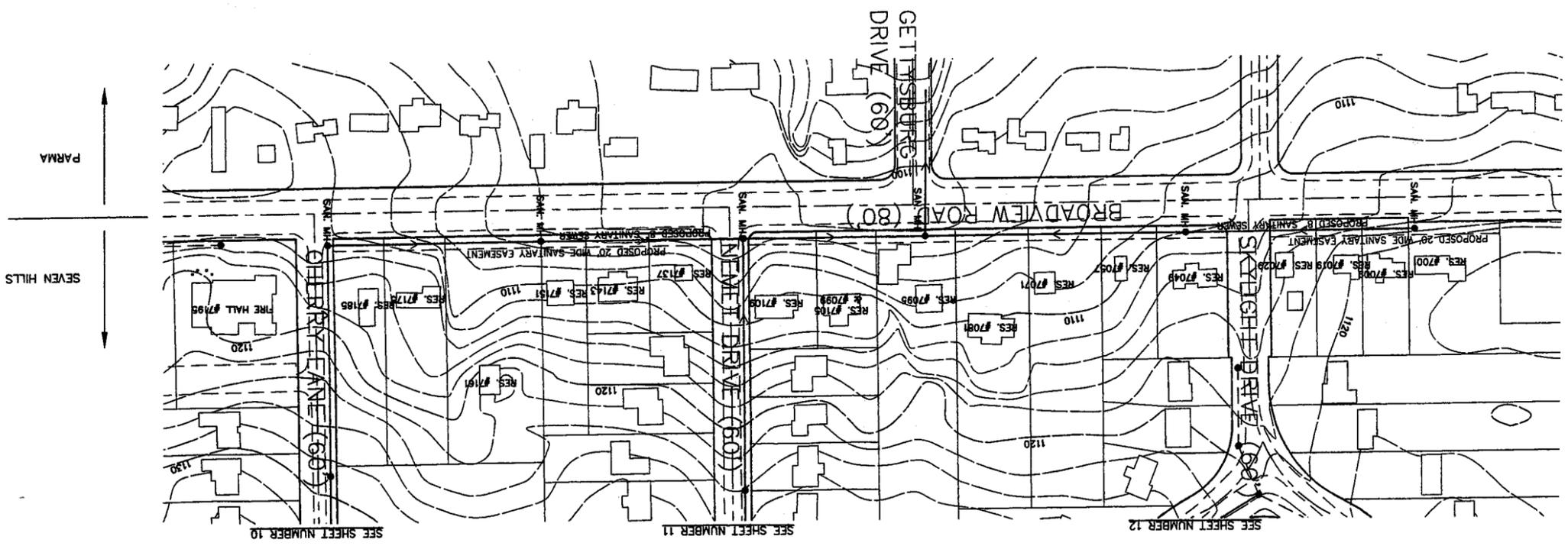
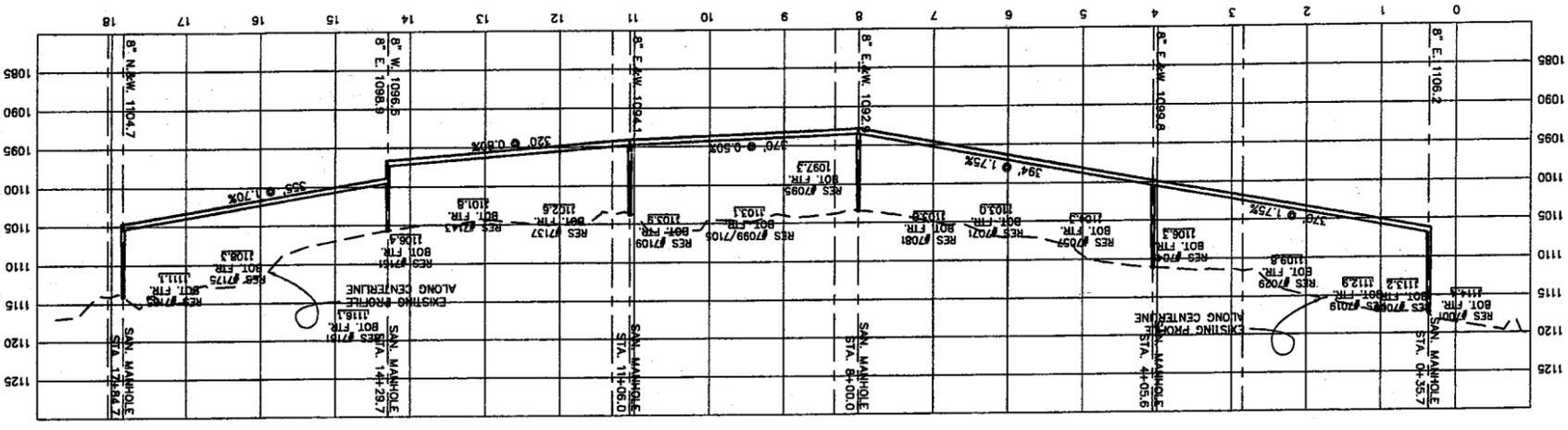
PRELIMINARY
 PLAN AND PROFILE
 ELMHURST DRIVE

FULTECH CONSULTING ENGINEERS, INC.
 9885 Rockside Road, Suite 130
 Valley View, Ohio 44125
 (216) 524-9096

PROJECT NUMBER 2148
 SHEET 5 OF 19
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REV. NO.	DATE	REVISIONS	DRAWN BY

SCALE: HOR. 1"=50' VER. 1"=5'
 DATE: AUGUST, 2004
 DRAWN BY: RJA/AB
 CHECKED BY: LWP



PARMA ← → SEVEN HILLS

**SANITARY SEWER
CITY OF SEVEN HILLS**

**WEST CREEK WATERSHED - GENERAL PLAN
FOR THE REDUCTION OF SEPTIC TANK OUTFALLS**

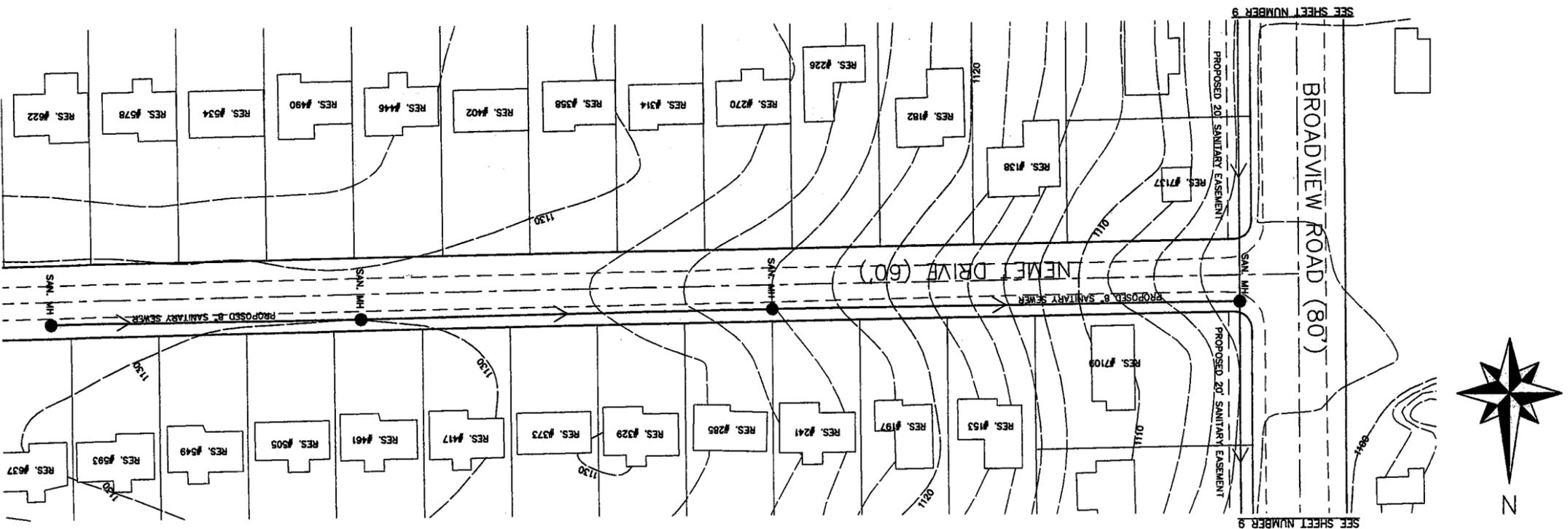
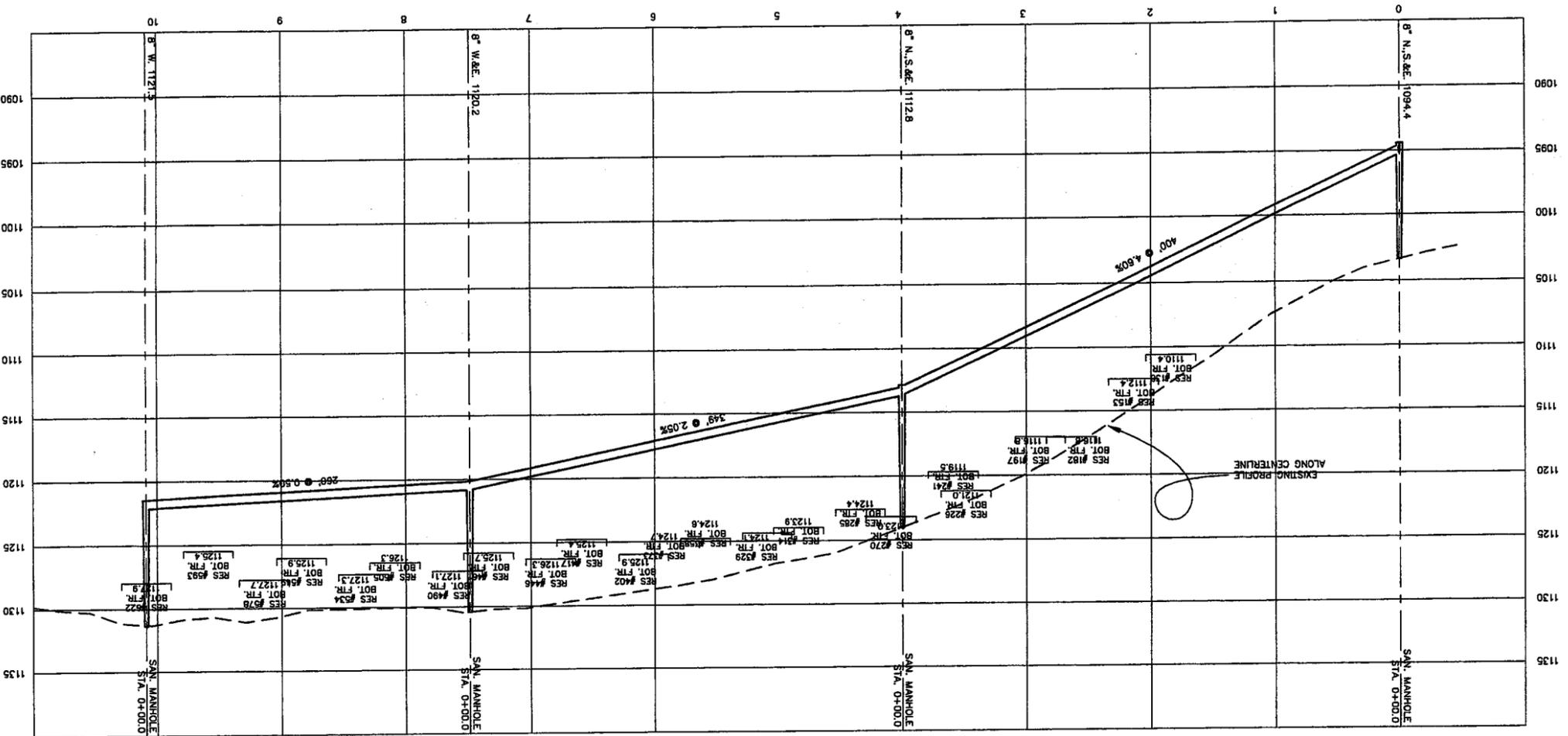
PRELIMINARY
PLAN AND PROFILE
BROADVIEW ROAD

FULTECH CONSULTING ENGINEERS, INC.

9885 Rockside Road, Suite 130
Valley View, Ohio 44125
(216) 524-9098

REV. NO.	DATE	REVISIONS	DRAWN BY

SCALE: HOR: 1"=100' VER: 1"=10'
DATE: AUGUST, 2004
DRAWN BY: R.H./JB
CHECKED BY: LWF



**SANITARY SEWER
CITY OF SEVEN HILLS**

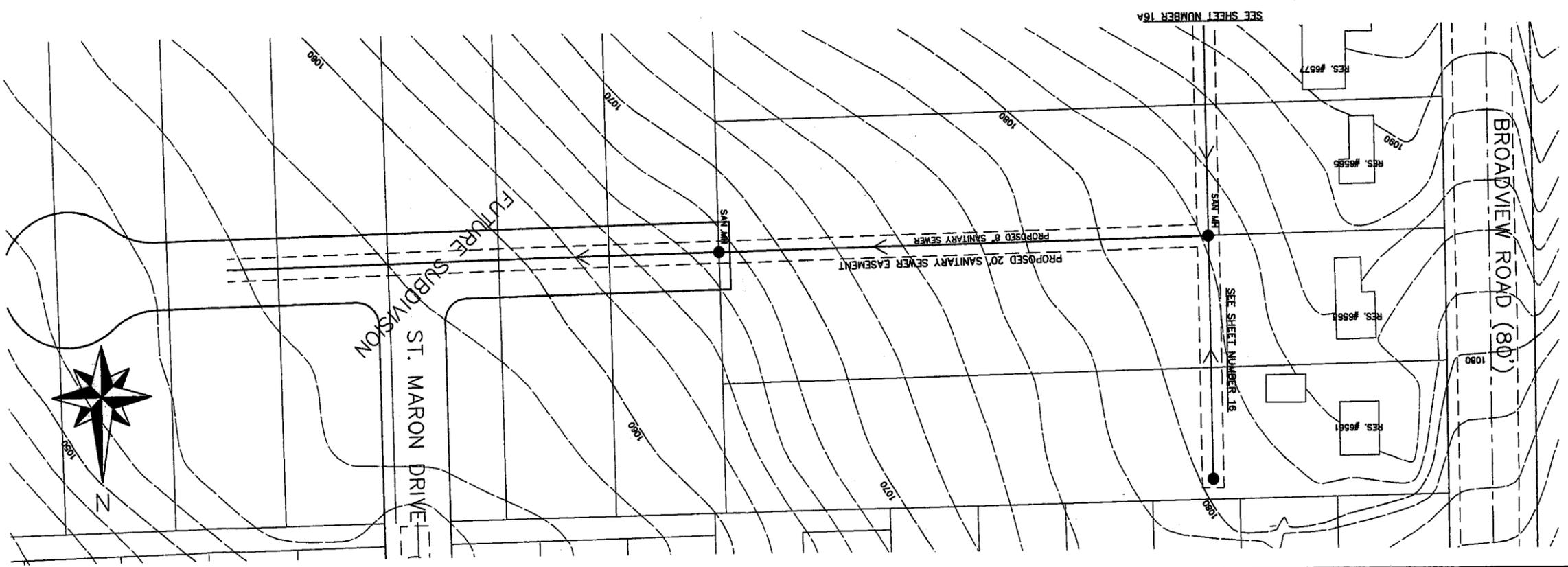
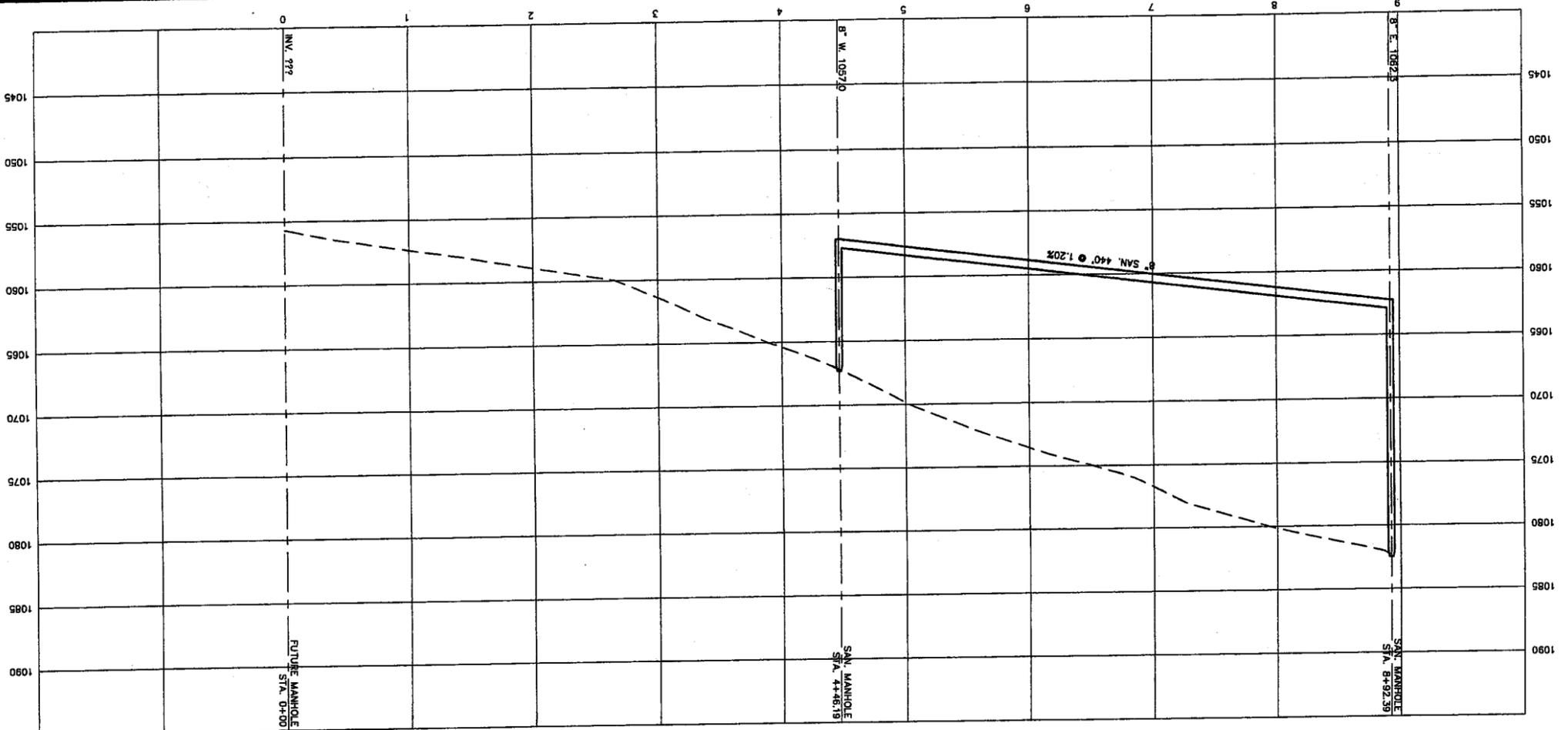
**WEST CREEK WATERSHED - GENERAL PLAN
FOR THE REDUCTION OF SEPTIC TANK OUTFALLS**

PRELIMINARY
PLAN AND PROFILE
NEMET DRIVE

FULTECH CONSULTING ENGINEERS, INC.
9885 Rockside Road, Suite 130
Valley View, Ohio 44125
(216) 524-9098

REV. NO.	DATE	REVISIONS	DRAWN BY

SCALE: HOR. 1"=50'; VER. 1"=5'
DATE: AUGUST, 2004
DRAWN BY: R.H./J.B.
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SANITARY SEWER
CITY OF SEVEN HILLS

WEST CREEK WATERSHED - GENERAL PLAN
FOR THE REDUCTION OF SEPTIC TANK OUTFALLS

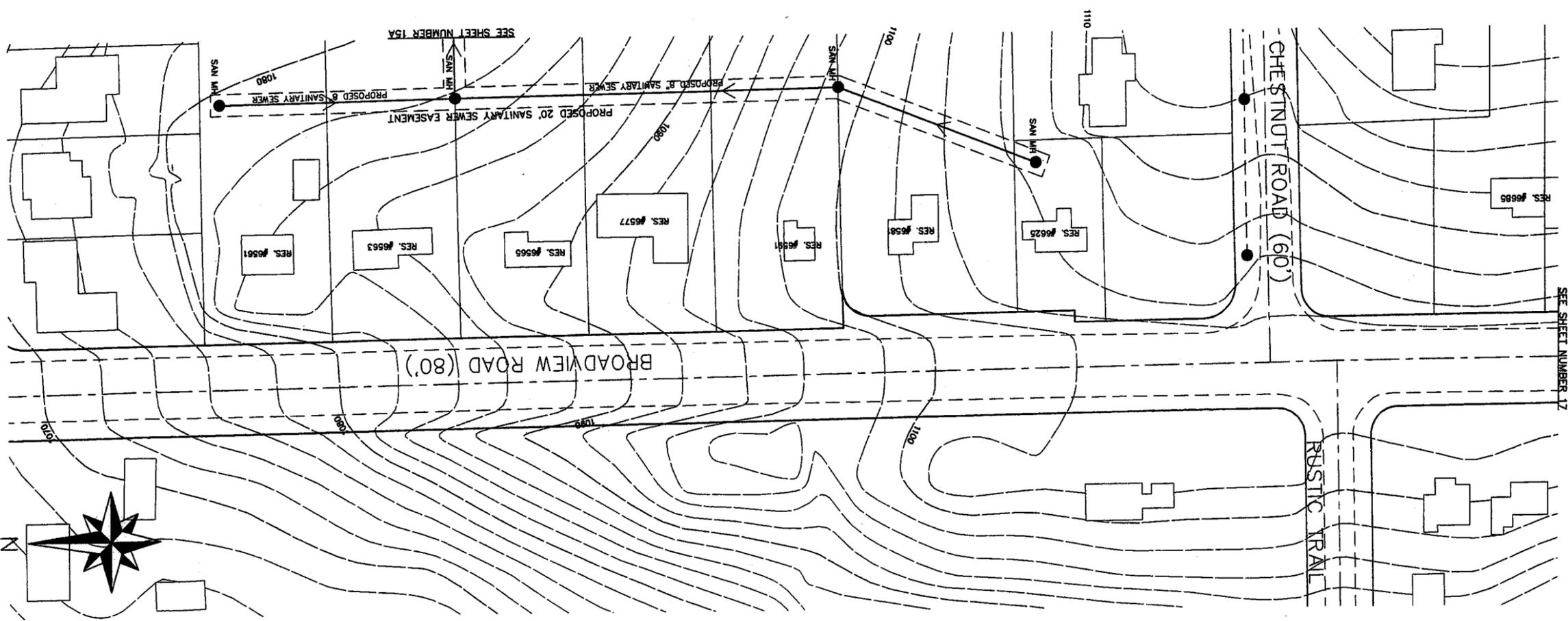
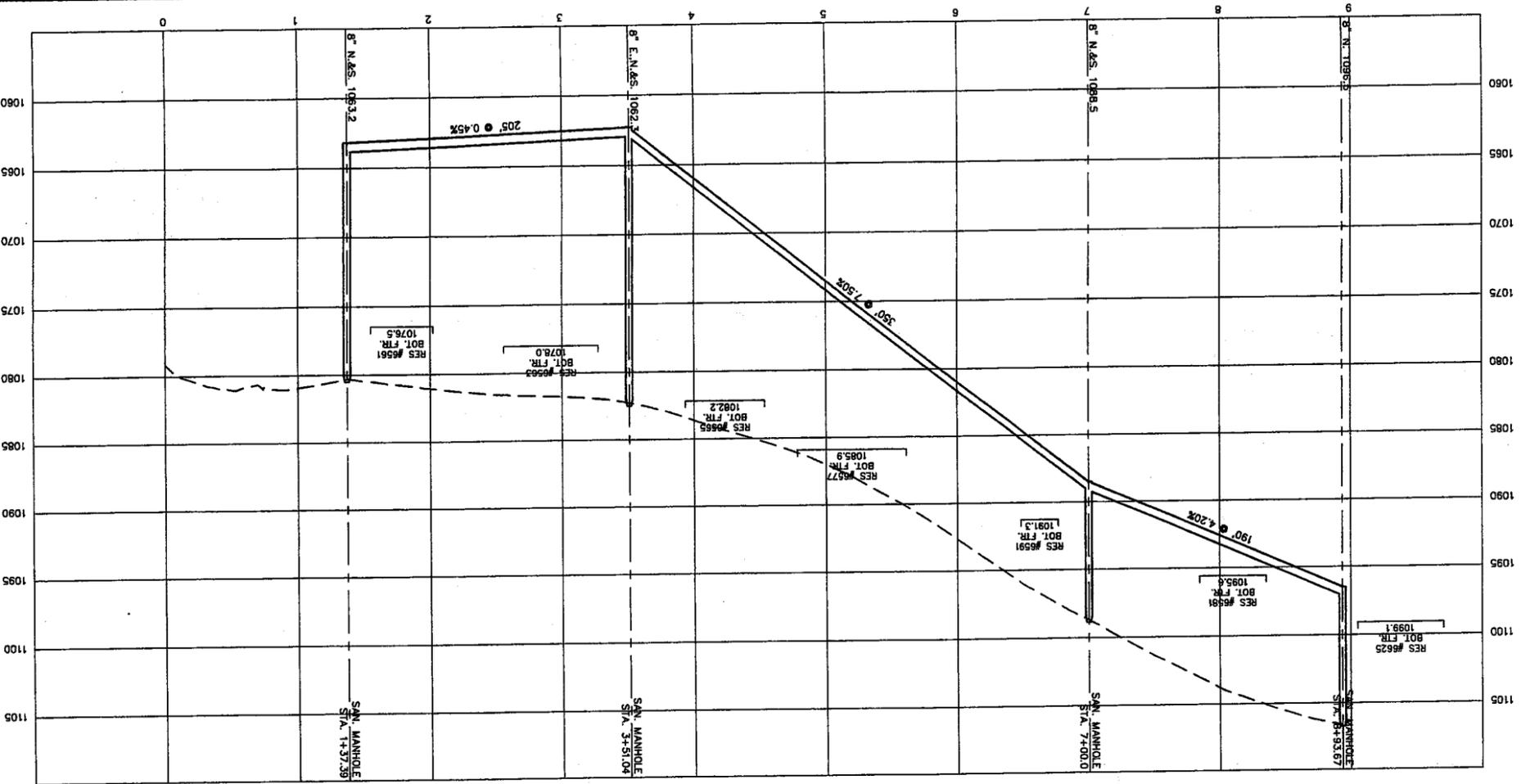
PROJECT NUMBER 2148
SHEET 15A OF 19

PRELIMINARY
PLAN AND PROFILE
ST. MARON DRIVE
ALT A - REAR YARD ALIGNMENT

FULTECH CONSULTING ENGINEERS, INC.
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Valley View, Ohio 44125
(216) 524-8098

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SANITARY SEWER
CITY OF SEVEN HILLS

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FOR THE REDUCTION OF SEPTIC TANK OUTFALLS

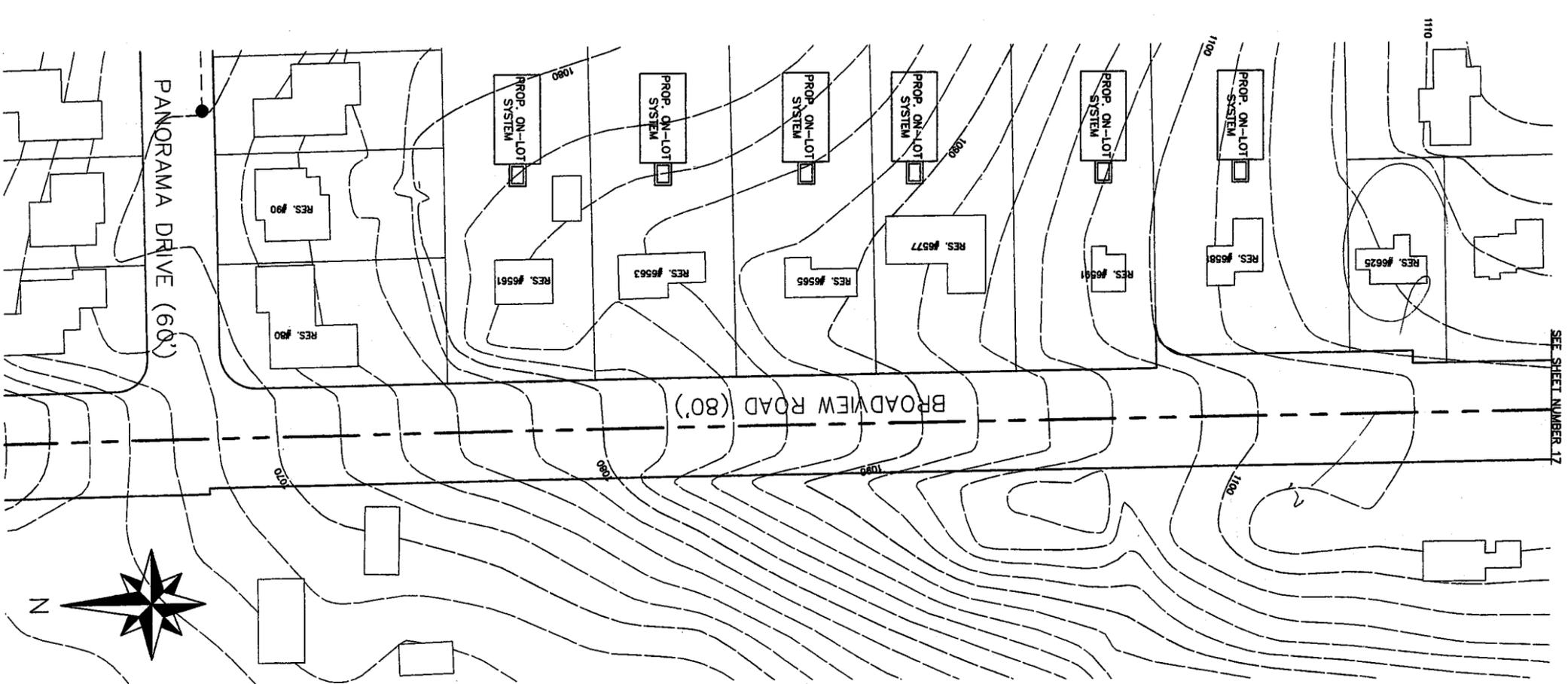
PRELIMINARY
PLAN AND PROFILE
ST. MARON DRIVE SPUR
ALT. A - REAR YARD ALIGNMENT

FULTECH CONSULTING ENGINEERS, INC.
9865 Rockside Road, Suite 130
Valley View, Ohio 44125
(216) 524-9098

SHEET 16A OF 19
PROJECT NUMBER 2148

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SCALE: HOR. 1"=50'; VER. 1"=5'
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CHECKED BY: L.W.F.



**SANITARY SEWER
CITY OF SEVEN HILLS**

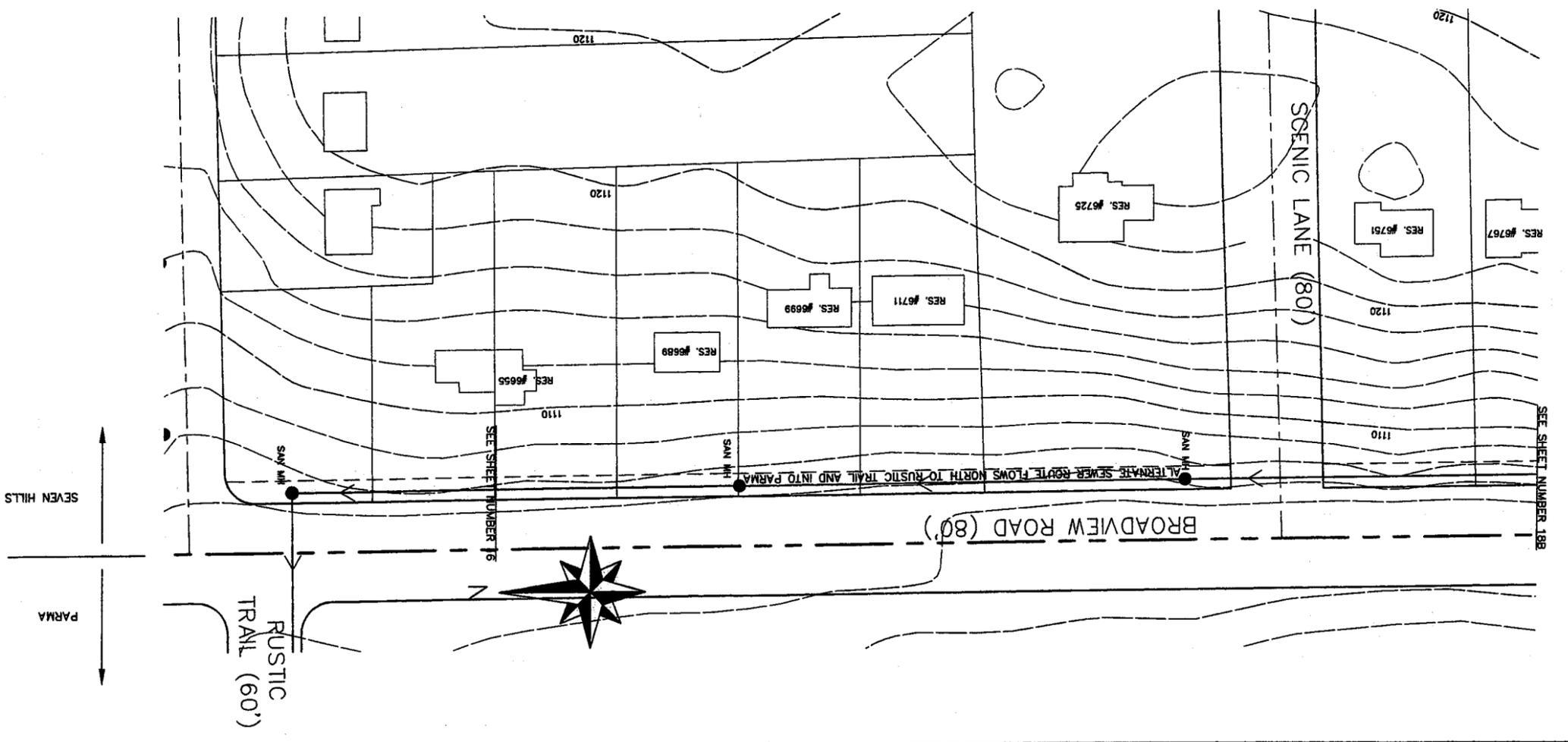
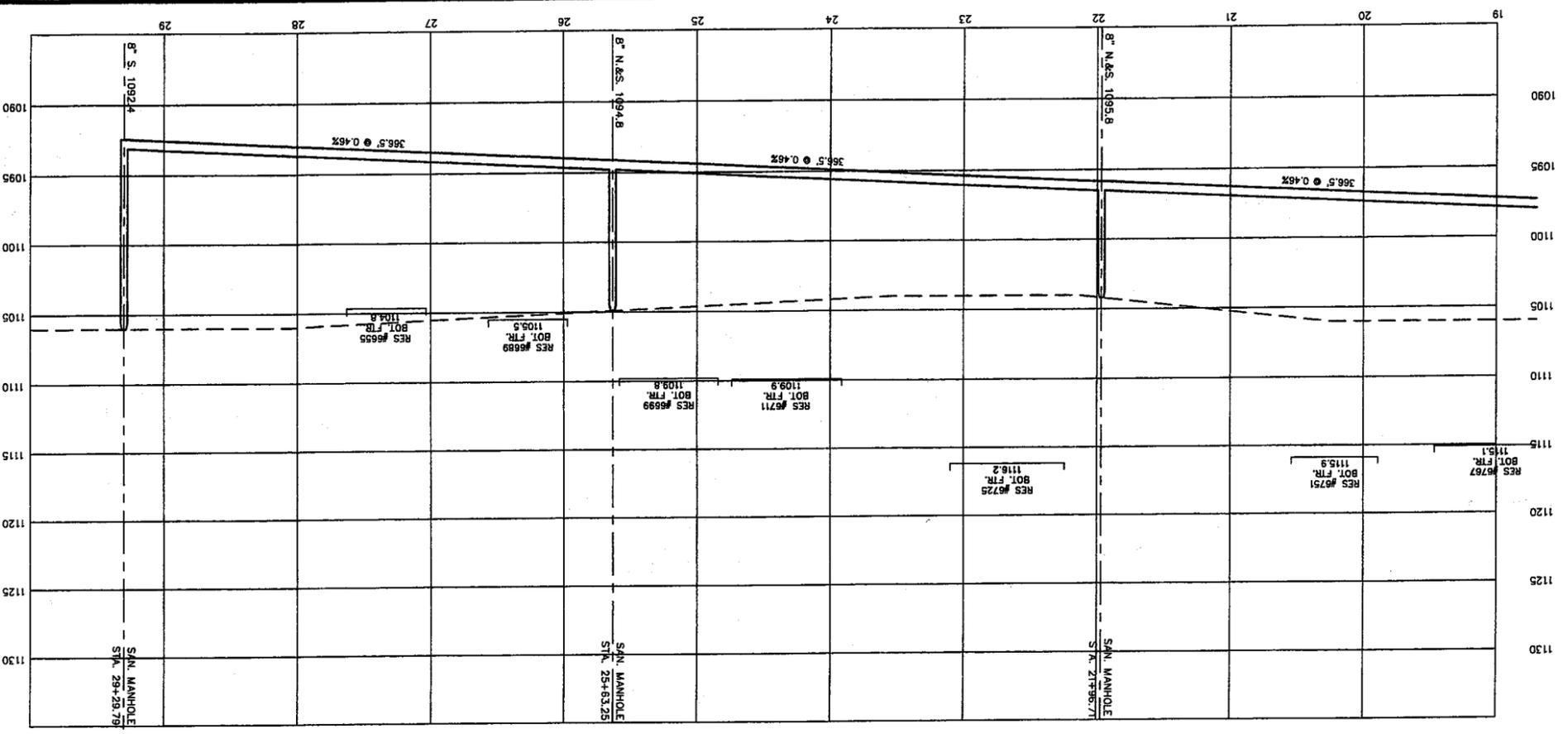
**WEST CREEK WATERSHED - GENERAL PLAN
FOR THE REDUCTION OF SEPTIC TANK OUTFALLS**

PROJECT NUMBER 2148
SHEET 16C OF 19
PRELIMINARY
PLAN AND PROFILE
ST. MARON DRIVE SPUR
ALT C - HEALTH DEPT STD. ON-LOT SYSTEMS

FULTECH CONSULTING ENGINEERS, INC.
8885 Rockside Road, Suite 130
Valley View, Ohio 44125
(216) 524-9096

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DATE: AUGUST, 2004
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CHECKED BY: LWF



SANITARY SEWER
CITY OF SEVEN HILLS

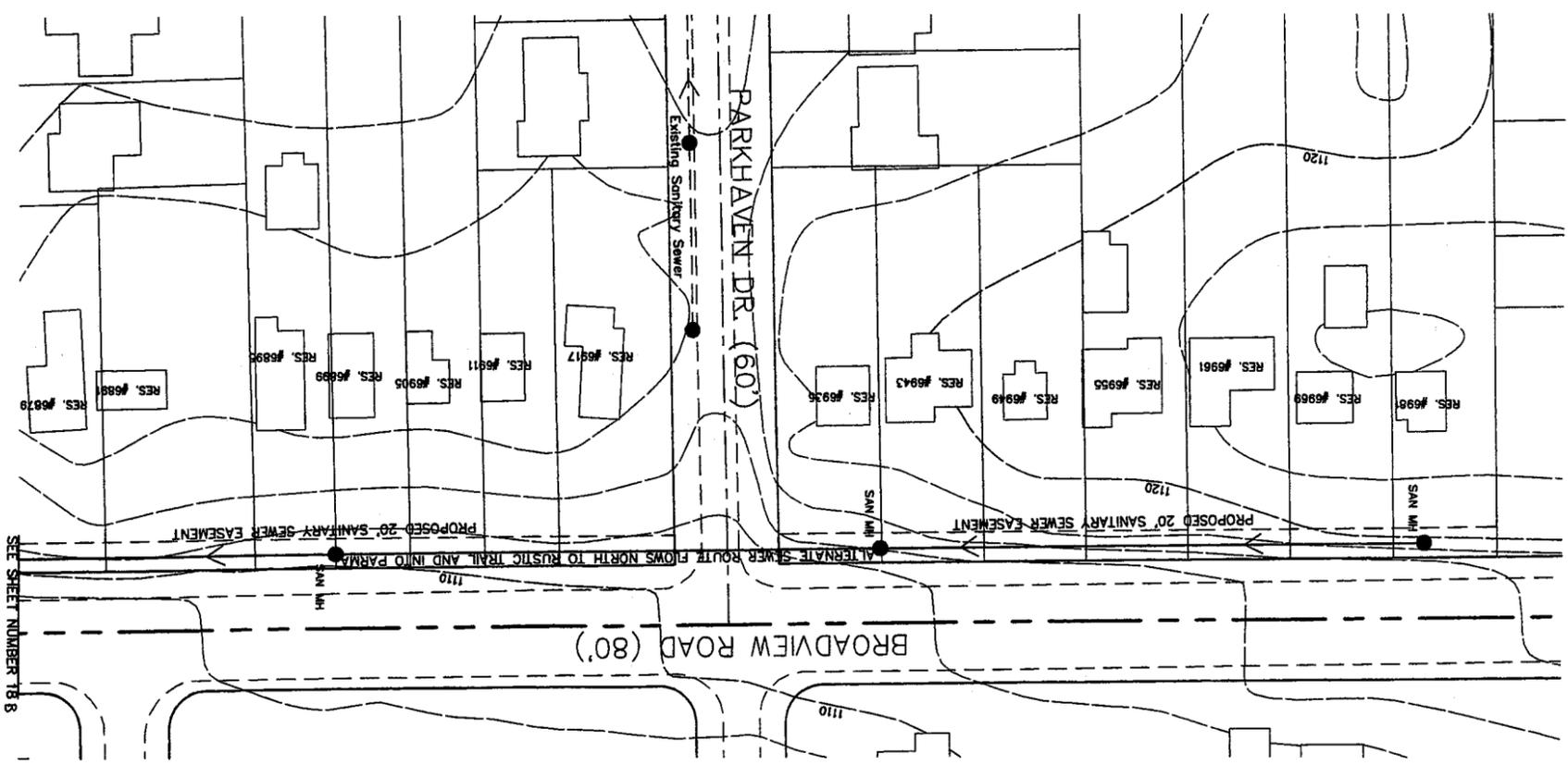
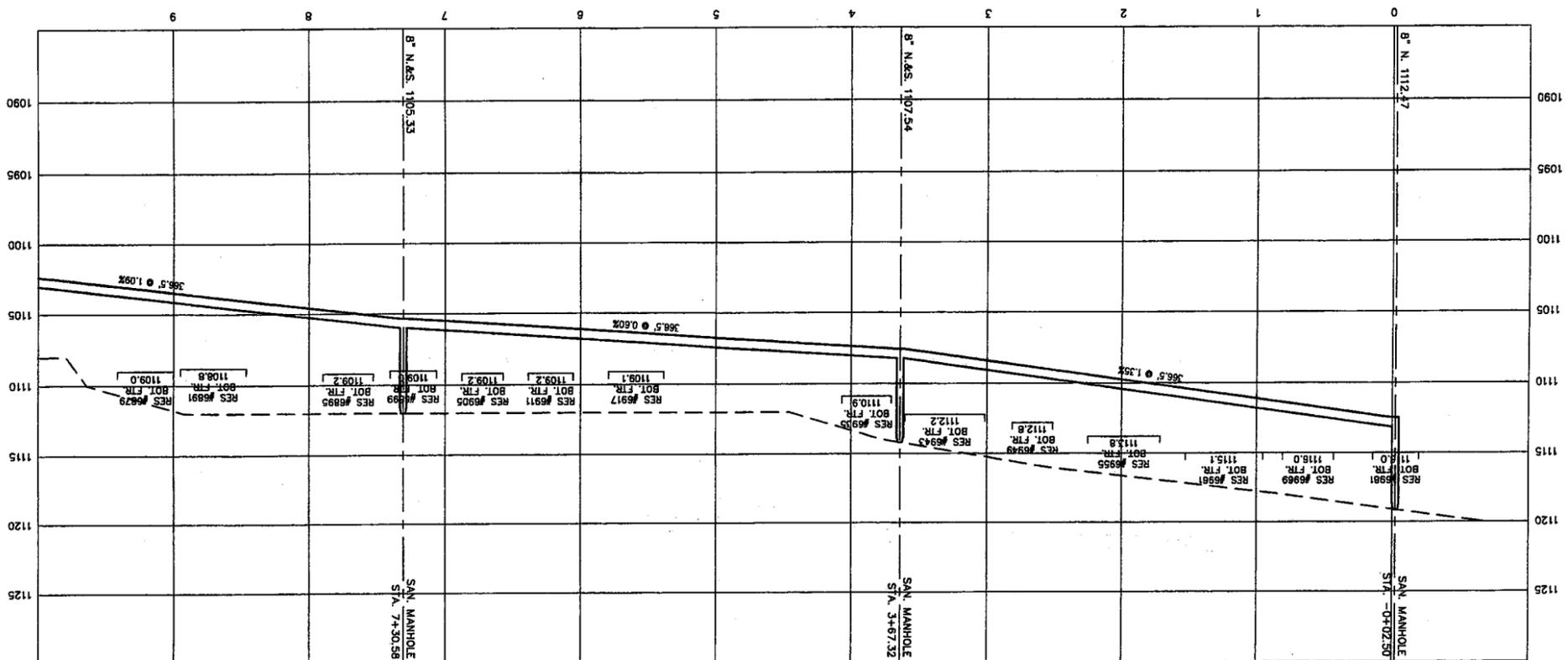
PRELIMINARY PLAN AND PROFILE
 SCENIC LANE AND SCENIC LANE SPUR
 ALT B - ALIGNMENT BROADVIEW FRONTAGE
 OUTLET TO PARMA @ MAZEPA TRAIL

WEST CREEK WATERSHED - GENERAL PLAN
FOR THE REDUCTION OF SEPTIC TANKS OUTFALLS

FULTECH CONSULTING ENGINEERS, INC.
 9885 Rockside Road, Suite 130
 Valley View, Ohio 44125
 (216) 524-9098

REV. NO.	DATE	REVISIONS	DRAWN BY

SCALE: HOR. 1"=50' VER. 1"=5'
 DATE: AUGUST, 2004
 DRAWN BY: R.H.
 CHECKED BY:



**SANITARY SEWER
 CITY OF SEVEN HILLS**

**WEST CREEK WATERSHED - GENERAL PLAN
 FOR THE REDUCTION OF SEPTIC TANK OUTFALLS**

PRELIMINARY PLAN AND PROFILE
 BROADVIEW ROAD @
 EAST PARKHAVEN DRIVE SPUR
 ALT A - BROADVIEW FRONTAGE OUTLET
 TO PARMA @ RUSTIC TRAIL

FULTECH CONSULTING ENGINEERS, INC.
 9885 Rockside Road, Suite 130
 Valley View, Ohio 44125
 (216) 524-9098

REV. NO.	DATE	REVISIONS	DRAWN BY

SCALE: HOR. 1"=50'; VER. 1"=5'
 DATE: AUGUST, 2004
 DRAWN BY: RLJ.
 CHECKED BY: LWF.

WEST CREEK WATERSHED

GENERAL PLAN FOR THE
REDUCTION OF SEPTIC TANK OUTFALLS

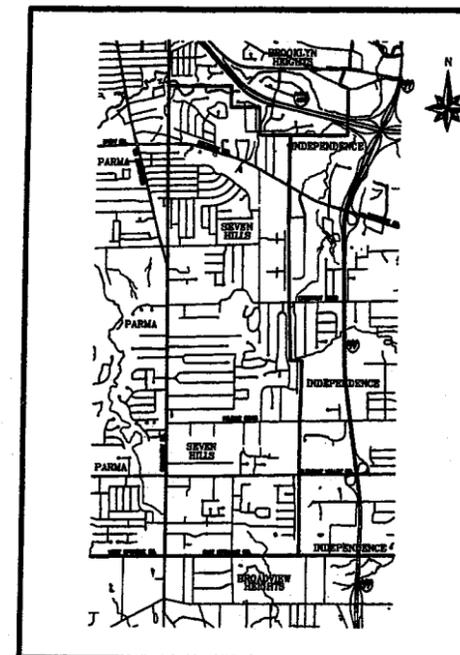
FOR
THE CITY OF SEVEN HILLS
AUGUST, 2004

REVISED FEBRUARY, 2005

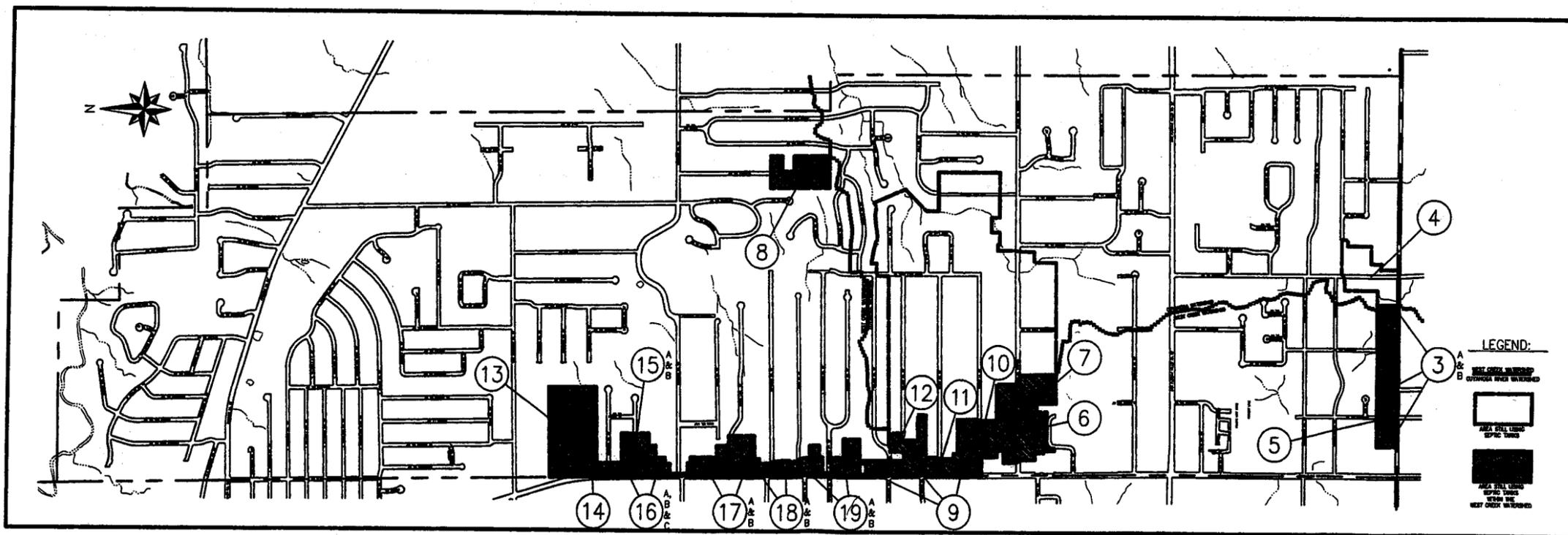
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- 3B EAST SPRAGUE
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- 5 ELMHURST
- 6 HILLSIDE WEST
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- 19A REAR YARD ALIGNMENTS AT EAST PARKHAVEN
- 19B BROADVIEW FRONTAGE ALIGNMENT AT EAST PARKHAVEN

LAWRENCE W. FULTON, PE DATE



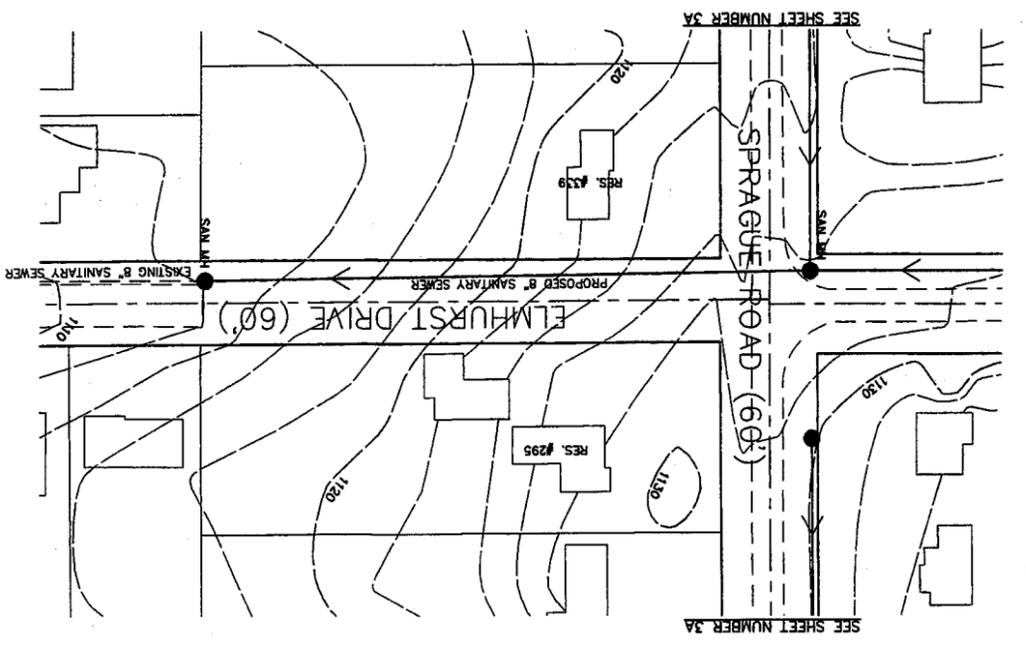
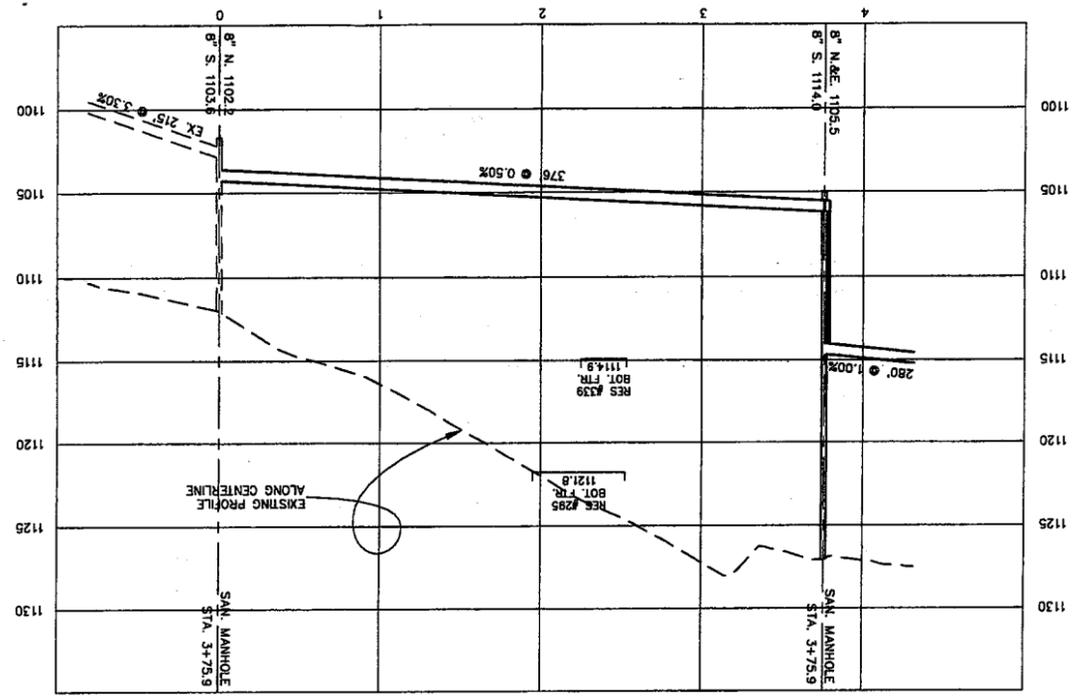
VICINITY MAP
SCALE: 1" = 4000'



PROJECT LOCATIONS
SCALE: 1" = 1000'

FULTECH CONSULTING ENGINEERS, INC.

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SANITARY SEWER
CITY OF SEVEN HILLS

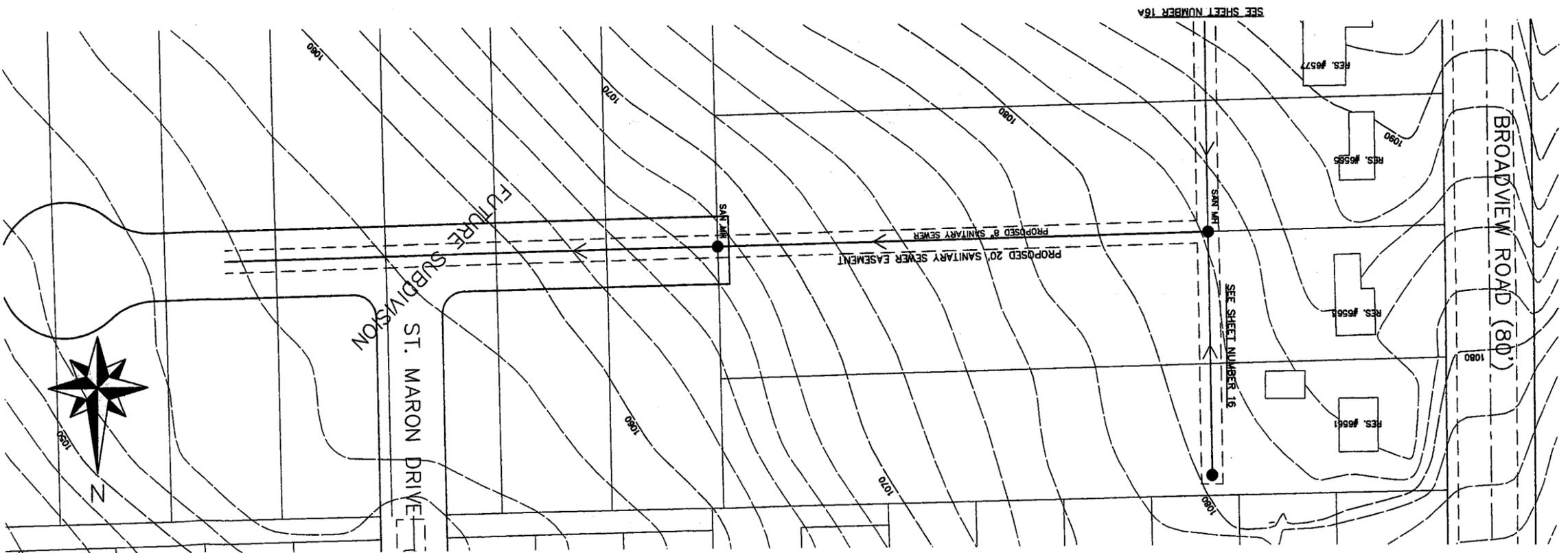
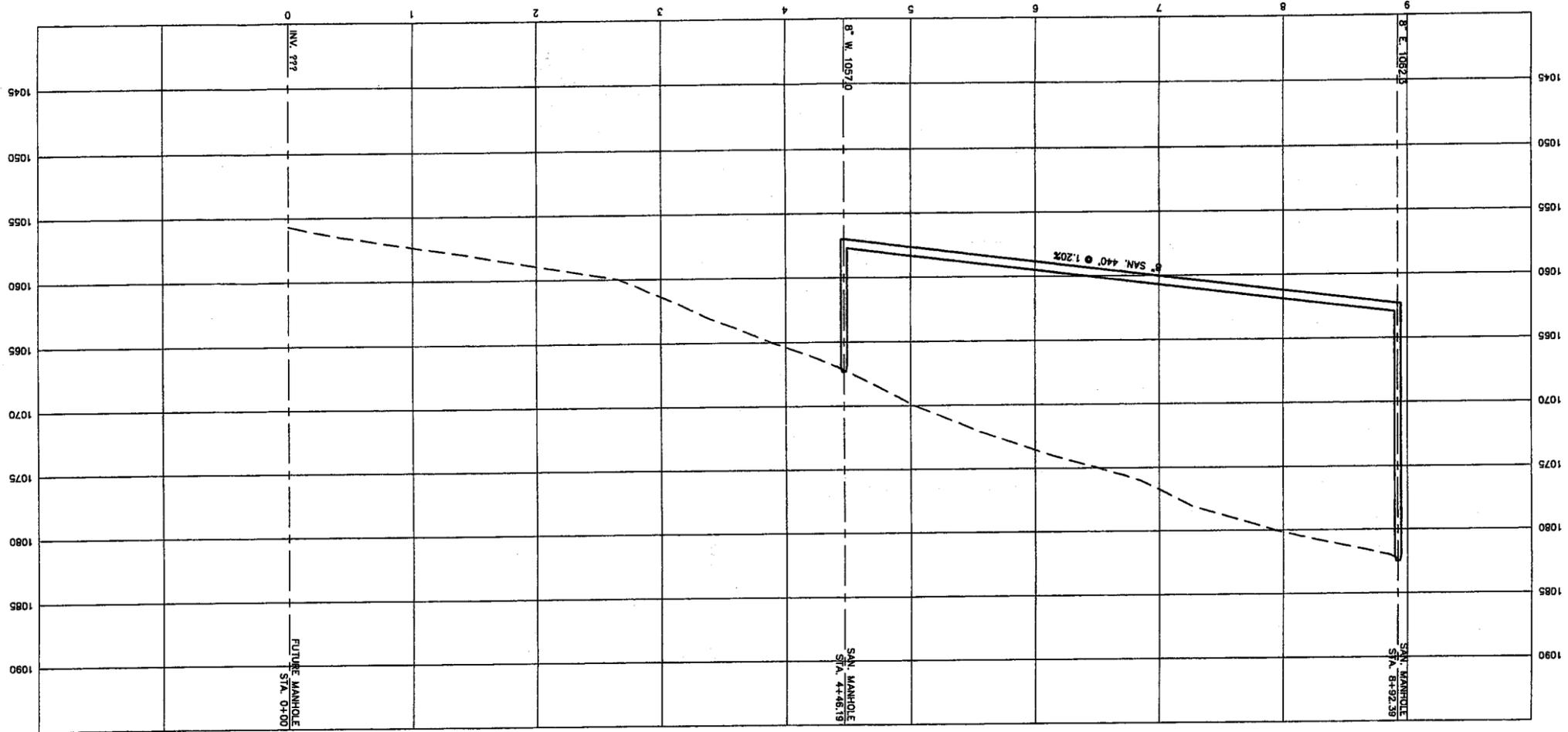
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PLAN AND PROFILE
ELMHURST DRIVE

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Valley View, Ohio 44125
(216) 524-8098

REV. NO.	DATE	REVISIONS	DRAWN BY

PROJECT NUMBER 2148
SHEET 5 OF 19
DATE: AUGUST, 2004
SCALE: HOR. 1"=50', VER. 1"=5'
DRAWN BY: RH/AB
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SANITARY SEWER
CITY OF SEVEN HILLS

WEST CREEK WATERSHED - GENERAL PLAN
FOR THE REDUCTION OF SEPTIC TANK OUTFALLS

PROJECT NUMBER 2148
SHEET 15A OF 19

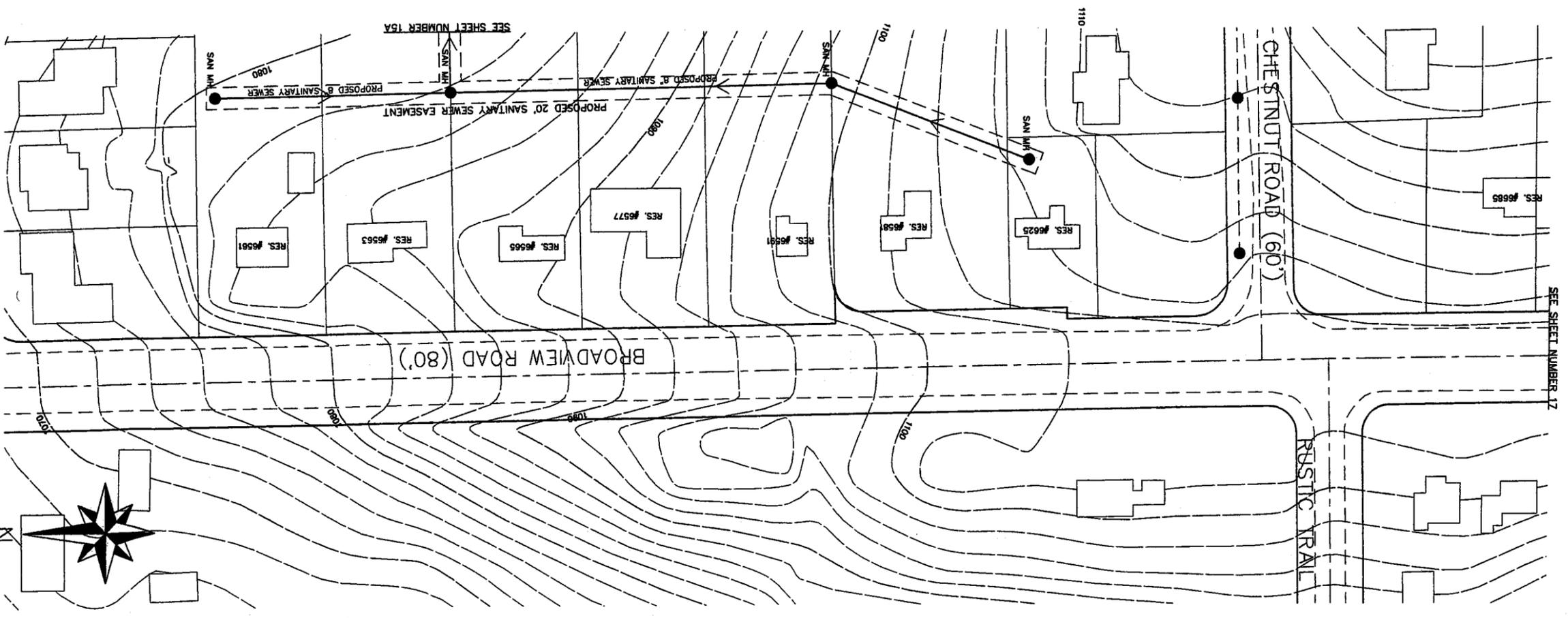
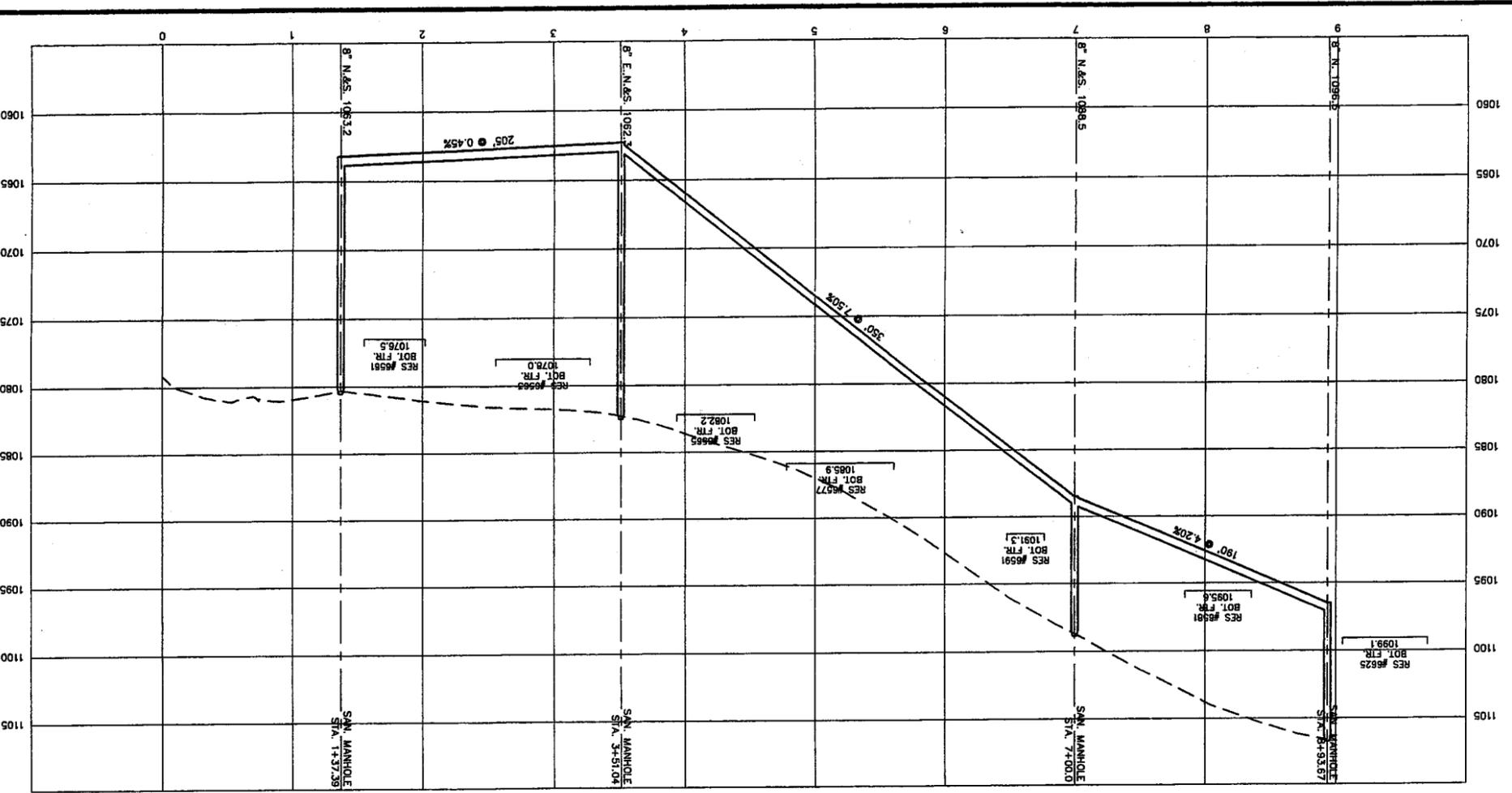
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 CITY OF SEVEN HILLS**

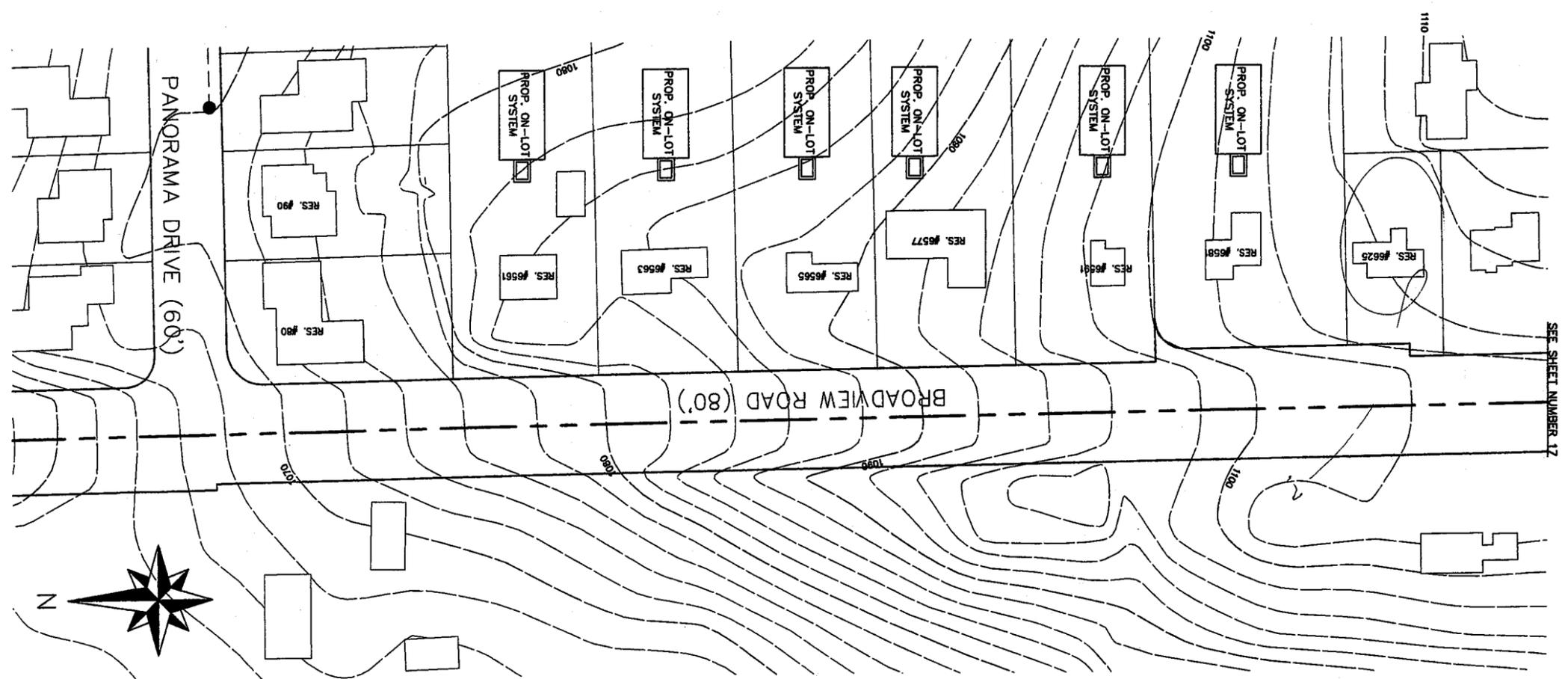
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 ST. MARON DRIVE SPUR
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ST. MARON DRIVE SPUR
ALT C - HEALTH DEPT STD. ON-LOT SYSTEMS

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9885 Rockside Road, Suite 130
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SHEET 16C OF 19

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SCALE: HOR. 1"=50' VER. 1"=5'
DATE: AUGUST, 2004
DRAWN BY: R.H.
CHECKED BY: L.W.F.



September 15, 2008

Mr. Mark Papke
City of Seven Hills
7325 Summitview Drive
Seven Hills, OH 44131

Re: Proposed Sanitary Sewer Installation on Broadview Road and Skyview Drive:

Dear Mr. Papke:

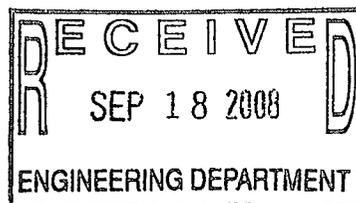
The above referenced area has sixty (60) homes that are serviced by household sewage treatment systems (HSTS). The homes have the potential to release between 12,000 to 24,000 gallons of untreated or partially treated sewage to the environment on a daily basis. The large majority of these systems are designed to discharge sewage effluent off of the property due to small lot size and poor soil conditions. Eighty-two percent (82%) of the homes in the above referenced area utilize HSTS that were installed prior to 1977. Evaluations of these systems have shown 8 with a failure rate.

These sewage systems have been identified as "illicit discharges" by the USEPA under their Phase II Storm Water Program. Under this program, the City of Seven Hills is required to eliminate these discharges in a timely fashion.

The Cuyahoga County Board of Health urges the City of Seven Hills to make every effort possible to provide sanitary sewers in this area and we strongly support the city's efforts to obtain financial assistance for this project. Included in this letter is information regarding the HSTS and water quality sampling results in the area of the proposed sewer project. Please contact me at 216-201-2001 ext. 1225 if you have any questions regarding this matter or if I can provide any further assistance.

Sincerely,

Laura Travers, R.S.
Program Manager
Environmental Health Services



Serving the cities, villages and townships of Cuyahoga County since 1919

DISTRICT LIST FOR Seven Hills --A-- BROADVIEW ONLY

SepticID	ST Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS10666	SCHILLERO	6475 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	5/11/2004	10/18/2002		
HSTS10667	MECHIR	6561 BROADVIEW RD	1 -- 500	FILTER BED -- 50	--	STORM SEWER	6/21/2007	10/18/2002		
HSTS10668	ADKINS	6563 BROADVIEW RD	1 -- 750	UNKNOWN -- UNKNOWN	--	STORM SEWER	11/11/2006	10/18/2002	8/27/2004	EVALUATION- FAIL
HSTS10669	YUNIS	6565 BROADVIEW RD	1 -- 500	FILTER BED -- 100	--	STORM SEWER	4/7/1997	10/18/2002		
HSTS10670	NORTHCOAST CO	6577 BROADVIEW RD	1 -- 1000	AERATION -- 500 MULTI-FL	--	STORM SEWER	5/28/2008		3/27/2008	EVALUATION- PASS
HSTS10671	STEPHAN	6581 BROADVIEW RD	1 -- 500	AERATION -- 500 UNKNOWN	--	STORM SEWER	3/22/1999	10/18/2002		
HSTS10672	NOVAK	6591 BROADVIEW RD	1 -- 1000	UNKNOWN -- UNKNOWN	--	STORM SEWER	8/22/2001	10/18/2002		
HSTS10673	KORAN	6625 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	6/26/2006	10/18/2002		
HSTS10674	PSARRAS	6655 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	3/29/2001	10/18/2002	4/27/2005	EVALUATION- PASS
HSTS10675	ALSHABANI	6689 BROADVIEW RD	1 -- 500	FILTER BED -- 50	--	STORM SEWER	12/6/2004	10/18/2002		
HSTS10676	NOUSEK	6699 BROADVIEW RD	1 -- 1000	FILTER BED -- 50	--	STORM SEWER	10/29/2002	10/18/2002		
HSTS10677	MOENNICH	6711 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	1/10/2008	10/18/2002		
HSTS10678	COTRAU	6725 BROADVIEW RD	1 -- 1750	FILTER BED -- 125	--	STORM SEWER	7/13/2004		6/7/1996	EVALUATION- FAIL
HSTS10679	RICZO	6751 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	6/1/2004	10/18/2002		
HSTS10680	PERKO	6767 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	10/22/2003	10/18/2002		
HSTS10681	RISPO BLDG CO	6779 BROADVIEW RD	1 -- 3000	FILTER BED -- 1440	--	STORM SEWER		10/18/2002		
HSTS10682	QUARRICK	6791 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	7/13/2004	10/18/2002		
HSTS10683	RISPO BUILDING C	6799 BROADVIEW RD	1 -- 1000	FILTER BED -- 180	--	STORM SEWER	10/24/2005	10/18/2002		
HSTS10684	SMITH	6807 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	10/12/2002	10/18/2002		

SepticID	ST	Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS10685	D	ONY	6825 BROADVIEW RD	-- UNKNO	UNKNOWN -- UNKNOWN	--	STORM SEWER	7/23/1999	10/18/2002		
HSTS10686		LOBAS	6843 BROADVIEW RD	I -- 1000	FILTER BED -- 100	--	STORM SEWER	9/12/2002	10/18/2002		
HSTS17567		IANNI	6879 BROADVIEW RD	-- 750	--	--		4/23/2008		5/12/2006	EVALUATION- FAIL
HSTS10687		SUHODOLSKY	6891 BROADVIEW RD	I -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	4/29/2002	10/18/2002		
HSTS10688		ANGELONE	6895 BROADVIEW RD	I -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	8/31/1985	10/18/2002		
HSTS10689		SMITH	6899 BROADVIEW RD	I -- 1500	FILTER BED -- 360	--	STORM SEWER	10/6/2003	10/18/2002		
HSTS10690		LIGHT	6905 BROADVIEW RD	I -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	11/1/2002	10/18/2002		
HSTS10691		SCHILLING	6911 BROADVIEW RD	I -- 1000	UNKNOWN -- UNKNOWN	--	STORM SEWER	6/20/2005	11/20/2002		
HSTS10692		GOOD	6935 BROADVIEW RD	I -- 750	FILTER BED -- 50	--	STORM SEWER	3/13/2002	11/20/2002		
HSTS10693		CZENKNER	6943 BROADVIEW RD	I -- 1000	FILTER BED -- 180	--	STORM SEWER	9/11/2002	11/20/2002		
HSTS10694		SITKOWSKI	6949 BROADVIEW RD	I -- 500	FILTER BED -- 300	--	STORM SEWER	4/17/1999	11/20/2002		
HSTS10695		ZEBROWSKI	6955 BROADVIEW RD	I -- 1000	UNKNOWN -- UNKNOWN	--	STORM SEWER	10/1/2000	11/20/2002		
HSTS10696		KLUMP	6961 BROADVIEW RD	I -- 2000	FILTER BED -- 960	--	STORM SEWER	6/1/2005	11/20/2002		
HSTS10697		KLINE	6969 BROADVIEW RD	I -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	8/13/2003	11/20/2002		
HSTS10698		KALEMBA	6981 BROADVIEW RD	I -- 1000	UNKNOWN -- UNKNOWN	--	STORM SEWER	9/26/2001	11/20/2002		

DISTRICT LIST FOR Seven Hills --A-- SKYVIEW ONLY

SepticID	ST Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS11044	GREGORY	131 SKYVIEW DR	1 -- 1000	AERATION -- 500 UNKNOWN	-- RAVINE/HILLSID	1992	11/9/2004	2/26/2003	1/21/2005	EVALUATION-PASS
HSTS11045	FISHER	132 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1954	2/12/2003	2/26/2003	10/7/2004	EVALUATION-FAIL
HSTS11046	MELENA	165 SKYVIEW DR	1 -- 500	UNKNOWN -- UNKNOWN	-- STORM SEWER	1953	3/27/2003	2/26/2003	12/10/2004	EVALUATION-FAIL
HSTS11047	JURCA	166 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1956	3/11/2003	2/26/2003		
HSTS11048	KILE	197 SKYVIEW DR	1 -- 1500	FILTER BED -- 360	-- CREEK/STREAM/	1988	7/8/1999	2/26/2003		
HSTS11049	NOWLIN	198 SKYVIEW DR	1 -- 1000	AERATION -- 500 WHITEW	-- STORM SEWER	2004	6/25/2003	2/26/2003	1/24/2007	EVALUATION-PASS
HSTS11050	BOULTER	231 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1954	6/27/2003	2/26/2003		
HSTS11051	ACKER	232 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1954	8/5/2004	2/26/2003	1/21/2005	EVALUATION-PASS
HSTS11052	ZURANSKI	265 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- RAVINE/HILLSID	1954	5/9/2006	3/6/2003	12/16/2004	EVALUATION-FAIL
HSTS11053	NEAL	266 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1954	7/20/2006	3/6/2003		
HSTS11054	MASON	29 SKYVIEW DR	1 -- 2000	FILTER BED -- 720	-- STORM SEWER	1988	11/9/2004	3/6/2003		
HSTS11055	POLAK	297 SKYVIEW DR	1 -- 1000	FILTER BED -- 270	-- STORM SEWER	1955	5/2/2002	3/6/2003		
HSTS11056	ZIVKOV	298 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1957	10/16/2000	3/6/2003		
HSTS11057	BLAGOJEVICH	30 SKYVIEW DR	1 -- 500	FILTER BED -- 150	-- DITCH	1953	4/27/1998	3/6/2003		
HSTS11058	BASSAK	328 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1956	5/2/2000	3/6/2003		
HSTS11059	SIDOR	352 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- UNKNOWN	1954	8/15/2005	3/6/2003		
HSTS11060	POLLARING	361 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1955	4/12/2006	3/6/2003	12/7/2004	EVALUATION-FAIL
HSTS11061	HOLBROOK	374 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- RAVINE/HILLSID	1955	4/21/2003	3/26/2003		
HSTS11062	KOTALIK	399 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1959	4/11/2006	3/26/2003	4/24/2006	EVALUATION-FAIL

SepticID	ST Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS11063	B IER	400 SKYVIEW DR	1 -- 1000	AERATION -- UNKNOWN	-- RAVINE/HILLSID	1991	9/4/2008	3/26/2003	1/19/2006	EVALUATION-PASS
HSTS11064	DURKIN	411 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- UNKNOWN	1959	4/12/2006	3/26/2003		
HSTS11065	DOROSY	412 SKYVIEW DR	1 -- 1000	FILTER BED -- 270	-- STORM SEWER	1969	5/11/2006	3/26/2003		
HSTS11066	DURKIN	65 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- RAVINE/HILLSID	1954	4/12/2006	4/1/2003		
HSTS11067	FEDORCHUK	66 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1958	6/8/2006	4/1/2003		
HSTS11068	BOVA	97 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1958	9/23/2003	4/1/2003	2/3/2006	EVALUATION-PASS
HSTS11069	KOVACH	98 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER	1955	5/16/2003	3/26/2003	11/16/2005	EVALUATION-PASS



September 15, 2008

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7325 Summitview Drive
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Dear Mr. Papke:

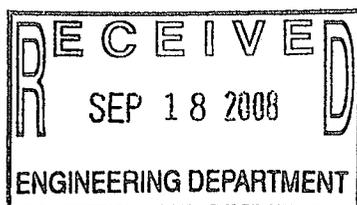
The above referenced area has sixty (60) homes that are serviced by household sewage treatment systems (HSTS). The homes have the potential to release between 12,000 to 24,000 gallons of untreated or partially treated sewage to the environment on a daily basis. The large majority of these systems are designed to discharge sewage effluent off of the property due to small lot size and poor soil conditions. Eighty-two percent (82%) of the homes in the above referenced area utilize HSTS that were installed prior to 1977. Evaluations of these systems have shown 8 with a failure rate.

These sewage systems have been identified as "illicit discharges" by the USEPA under their Phase II Storm Water Program. Under this program, the City of Seven Hills is required to eliminate these discharges in a timely fashion.

The Cuyahoga County Board of Health urges the City of Seven Hills to make every effort possible to provide sanitary sewers in this area and we strongly support the city's efforts to obtain financial assistance for this project. Included in this letter is information regarding the HSTS and water quality sampling results in the area of the proposed sewer project. Please contact me at 216-201-2001 ext. 1225 if you have any questions regarding this matter or if I can provide any further assistance.

Sincerely,

Laura Travers, R.S.
Program Manager
Environmental Health Services



Serving the cities, villages and townships of Cuyahoga County since 1919

DISTRICT LIST FOR Seven Hills --A-- BROADVIEW ONLY

SepticID	ST Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS10666	SCHILLERO	6475 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	5/11/2004	10/18/2002		
HSTS10667	MECHIR	6561 BROADVIEW RD	1 -- 500	FILTER BED -- 50	--	STORM SEWER	6/21/2007	10/18/2002		
HSTS10668	ADKINS	6563 BROADVIEW RD	1 -- 750	UNKNOWN -- UNKNOWN	--	STORM SEWER	11/11/2006	10/18/2002	8/27/2004	EVALUATION- FAIL
HSTS10669	YUNIS	6565 BROADVIEW RD	1 -- 500	FILTER BED -- 100	--	STORM SEWER	4/7/1997	10/18/2002		
HSTS10670	NORTHCOAST CO	6577 BROADVIEW RD	1 -- 1000	AERATION -- 500 MULTI-FL	--	STORM SEWER	5/28/2008	10/18/2002	3/27/2008	EVALUATION- PASS
HSTS10671	STEPHAN	6581 BROADVIEW RD	1 -- 500	AERATION -- 500 UNKNOWN	--	STORM SEWER	3/22/1999	10/18/2002		
HSTS10672	NOVAK	6591 BROADVIEW RD	1 -- 1000	UNKNOWN -- UNKNOWN	--	STORM SEWER	8/22/2001	10/18/2002		
HSTS10673	KORAN	6625 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	6/26/2006	10/18/2002		
HSTS10674	PSARRAS	6655 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	3/29/2001	10/18/2002	4/27/2005	EVALUATION- PASS
HSTS10675	ALSHABANI	6689 BROADVIEW RD	1 -- 500	FILTER BED -- 50	--	STORM SEWER	12/6/2004	10/18/2002		
HSTS10676	NOUSEK	6699 BROADVIEW RD	1 -- 1000	FILTER BED -- 50	--	STORM SEWER	10/29/2002	10/18/2002		
HSTS10677	MOENNICH	6711 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	1/10/2008	10/18/2002		
HSTS10678	COTRAU	6725 BROADVIEW RD	1 -- 1750	FILTER BED -- 125	--	STORM SEWER	7/13/2004	10/18/2002	6/7/1996	EVALUATION- FAIL
HSTS10679	RICZO	6751 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	6/1/2004	10/18/2002		
HSTS10680	PERKO	6767 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	10/22/2003	10/18/2002		
HSTS10681	RISPO BLDG CO	6779 BROADVIEW RD	1 -- 3000	FILTER BED -- 1440	--	STORM SEWER	7/13/2004	10/18/2002		
HSTS10682	QUARRICK	6791 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	10/12/2002	10/18/2002		
HSTS10683	RISPO BUILDING C	6799 BROADVIEW RD	1 -- 1000	FILTER BED -- 180	--	STORM SEWER	10/24/2005	10/18/2002		
HSTS10684	SMITH	6807 BROADVIEW RD	1 -- 500	UNKNOWN -- UNKNOWN	--	STORM SEWER	10/12/2002	10/18/2002		

SepticID	ST Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS10685	D JNY	6825 BROADVIEW RD	-- UNKNO	UNKNO	-- UNKNOW	--	7/23/1999	10/18/2002		
HSTS10686	LOBAS	6843 BROADVIEW RD	I -- 1000	FILTER BED -- 100	--	1953	9/12/2002	10/18/2002		
HSTS17567	IANNI	6879 BROADVIEW RD	-- 750	--	--		4/23/2008		5/12/2006	EVALUATION- FAIL
HSTS10687	SUHODOLSKY	6891 BROADVIEW RD	I -- 500	UNKNO	-- UNKNOW	--	4/29/2002	10/18/2002		
HSTS10688	ANGELONE	6895 BROADVIEW RD	I -- 500	UNKNO	-- UNKNOW	--	8/31/1985	10/18/2002		
HSTS10689	SMITH	6899 BROADVIEW RD	I -- 1500	FILTER BED -- 360	--	1996	10/6/2003	10/18/2002		
HSTS10690	LIGHT	6905 BROADVIEW RD	I -- 500	UNKNO	-- UNKNOW	--	11/1/2002	10/18/2002		
HSTS10691	SCHILLING	6911 BROADVIEW RD	I -- 1000	UNKNO	-- UNKNOW	--	6/20/2005	11/20/2002		
HSTS10692	GOOD	6935 BROADVIEW RD	I -- 750	FILTER BED -- 50	--	1947	3/13/2002	11/20/2002		
HSTS10693	CZENKNER	6943 BROADVIEW RD	I -- 1000	FILTER BED -- 180	--	1964	9/1/2002	11/20/2002		
HSTS10694	SITKOWSKI	6949 BROADVIEW RD	I -- 500	FILTER BED -- 300	--	1993	4/17/1999	11/20/2002		
HSTS10695	ZEBROWSKI	6955 BROADVIEW RD	I -- 1000	UNKNO	-- UNKNOW	--	10/1/2000	11/20/2002		
HSTS10696	KLUMP	6961 BROADVIEW RD	I -- 2000	FILTER BED -- 960	--	1988	6/1/2005	11/20/2002		
HSTS10697	KLINE	6969 BROADVIEW RD	I -- 500	UNKNO	-- UNKNOW	--	8/13/2003	11/20/2002		
HSTS10698	KALEMBA	6981 BROADVIEW RD	I -- 1000	UNKNO	-- UNKNOW	--	9/26/2001	11/20/2002		

DISTRICT LIST FOR Seven Hills --A-- SKYVIEW ONLY

SepticID	ST Owner	SystemAddress	Primary	Secondary	Soil Absorption/D	Final	Cleaning Date	Assessment	InspDate	InspType
HSTS11044	GREGORY	131 SKYVIEW DR	1 -- 1000	AERATION -- 500	UNKNOWN	-- RAVINE/HILLSID	11/9/2004	2/26/2003	1/21/2005	EVALUATION- PASS
HSTS11045	FISHER	132 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	2/12/2003	2/26/2003	10/7/2004	EVALUATION- FAIL
HSTS11046	MELENA	165 SKYVIEW DR	1 -- 500	UNKNOWN -- UNKNOWN	--	-- STORM SEWER	3/27/2003	2/26/2003	12/10/2004	EVALUATION- FAIL
HSTS11047	JURCA	166 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	3/1/2003	2/26/2003		
HSTS11048	KILE	197 SKYVIEW DR	1 -- 1500	FILTER BED -- 360	--	-- CREEK/STREAM/	7/8/1999	2/26/2003		
HSTS11049	NOWLIN	198 SKYVIEW DR	1 -- 1000	AERATION -- 500	WHITEW	-- STORM SEWER	6/25/2003	2/26/2003	1/24/2007	EVALUATION- PASS
HSTS11050	BOULTER	231 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	6/27/2003	2/26/2003		
HSTS11051	ACKER	232 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	8/5/2004	2/26/2003	1/21/2005	EVALUATION- PASS
HSTS11052	ZURANSKI	265 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- RAVINE/HILLSID	5/9/2006	3/6/2003	12/16/2004	EVALUATION- FAIL
HSTS11053	NEAL	266 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	7/20/2006	3/6/2003		
HSTS11054	MASON	29 SKYVIEW DR	1 -- 2000	FILTER BED -- 720	--	-- STORM SEWER	11/9/2004	3/6/2003		
HSTS11055	POLAK	297 SKYVIEW DR	1 -- 1000	FILTER BED -- 270	--	-- STORM SEWER	5/2/2002	3/6/2003		
HSTS11056	ZIVKOV	298 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	10/16/2000	3/6/2003		
HSTS11057	BLAGOJEVICH	30 SKYVIEW DR	1 -- 500	FILTER BED -- 150	--	-- DITCH	4/27/1998	3/6/2003		
HSTS11058	BASSAK	328 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	5/2/2000	3/6/2003		
HSTS11059	SIDOR	352 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- UNKNOWN	8/15/2005	3/6/2003		
HSTS11060	POLLARING	361 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	4/12/2006	3/6/2003	12/7/2004	EVALUATION- FAIL
HSTS11061	HOLBROOK	374 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- RAVINE/HILLSID	4/21/2003	3/26/2003		
HSTS11062	KOTALIK	399 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	--	-- STORM SEWER	4/11/2006	3/26/2003	4/24/2006	EVALUATION- FAIL

SepticID	SF Owner	SystemAddress	Primary	Secondary	Soil Absorption/D Final	Cleaning Date Assessment	InspDate	InspType
HSTS11063	B IER	400 SKYVIEW DR	1 -- 1000	AERATION -- UNKNOW	-- RAVINE/HILLSID 1991	9/4/2008	3/26/2003	1/19/2006 EVALUATION PASS
HSTS11064	DURKIN	411 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- UNKNOWN 1959	4/12/2006	3/26/2003	
HSTS11065	DOROSY	412 SKYVIEW DR	1 -- 1000	FILTER BED -- 270	-- STORM SEWER 1969	3/11/2006	3/26/2003	
HSTS11066	DURKIN	65 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- RAVINE/HILLSID 1954	4/12/2006	4/1/2003	
HSTS11067	FEDORCHUK	66 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER 1958	6/8/2006	4/1/2003	
HSTS11068	BOVA	97 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER 1958	9/23/2003	4/1/2003	2/3/2006 EVALUATION PASS
HSTS11069	KOVACH	98 SKYVIEW DR	1 -- 1000	FILTER BED -- 180	-- STORM SEWER 1955	5/16/2003	3/26/2003	11/16/2005 EVALUATION PASS

City of Seven Hills - West Creek Watershed Sanitary Sewer Phases 2 and 3

Task		Nov 2010	Dec 2010	Jan 2011	Feb 2011	Mar 2011	Apr 2011	May 2011	Jun 2011	Jul 2011	Aug 2011	Sep 2011	Oct 2011	Nov 2011	Dec 2011	Jan 2012	Feb 2012	Mar 2012	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	
Evaluation of Downstream Conditions (I&I)	Complete																														
Improvements to downstream conditions (I&I)	Complete																														
Preparation of plans, specifications and cost estimate	Complete																														
Preparation of easement documents	Complete																														
Justification of remaining easement	Complete																														
Preparation of tentative assessment role																															
Acceptance of PS&E and assessments																															
Adoption of resolution of necessity																															
Serve tentative assessment notices to benefiting properties																															
Assessment Equalization Board Hearings																															
QBS for Construction Administration Contract																															
Passage of Ordinance to proceed																															
Request to bid from OPWC																															
Advertisement for construction bids																															
Award Construction Contract																															
Award Construction Administration Contract																															
Construction Phase																															
Public Meeting for Property Owners for Connection Requirments/Finance Programs																															
Serve notice to connect to property owners																															
Passage of assessing Ordinance																															
Notice of assessing Ordinance																															
Issuance of final assessment																															
Cash payment period																															
Permanent Financing																															
Certification of assessments to County Auditor																															

**West Creek Watershed
Sanitary Sewer Improvements
Phase II and III
Summary of Environmental Issues**

Project Description - Phase II

Phase II improvements will provide sanitary sewer service to 33 residential dwellings and 1 vacant parcel in the City of Seven Hills, on Broadview Road (north of Chestnut Drive) and Skyview Drive. The sanitary sewer in Broadview Road will be installed in easements along the west side of the parcels, parallel and adjacent to the Broadview Road right-of-way. This alignment consists of approximately 1,050 lineal feet of sewer that will flow north then east and connect to an existing sanitary sewer on Panorama Drive. The parcels abutting Skyview Drive will be serviced by sanitary sewer approximately 2,100 lineal feet long that begins near the west end of Skyview Drive and flows east, then north to the cul-de-sac. From this point, the sewer turns east again passing through two East Ridgewood Drive parcels and will connect to an existing sewer at westerly terminus of Firethorn Drive.

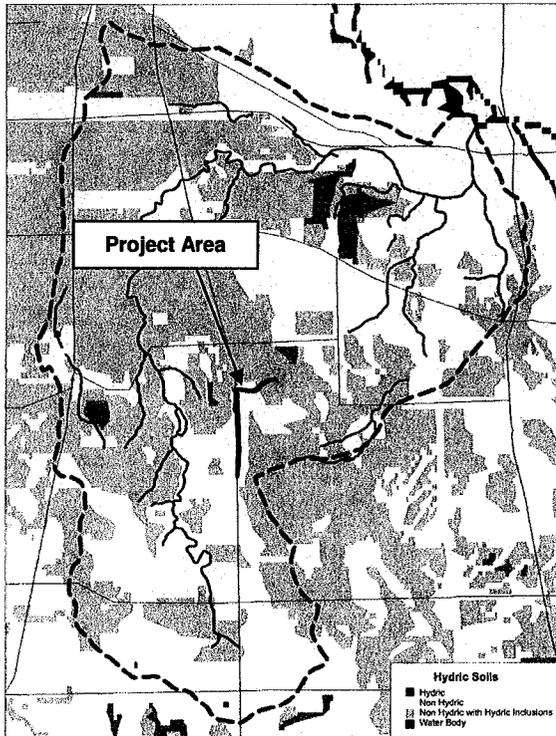


Figure 1 ↑

Project Description - Phase III

Sanitary sewers for the Phase III improvements will provide service to 26 residential dwellings and 1 vacant parcel abutting Broadview Road, in the City of Seven Hills, from the first parcel north of the cemetery (located just south of at East Parkhaven Drive), running within easements parallel to Broadview Road, north and connecting to Phase II at Chestnut Road.

See Figure 1 for the approximate location of the project location within the West Creek watershed.



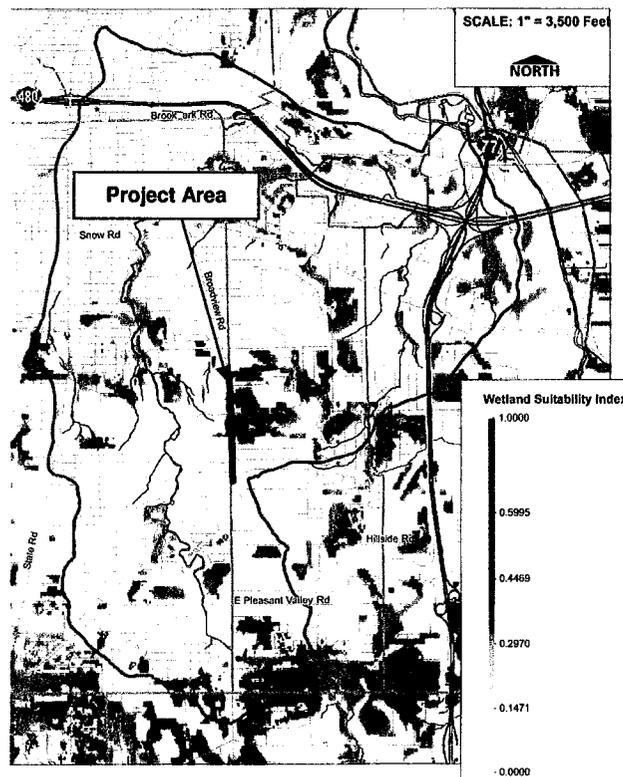
SOURCE: USDA, Soil Survey of Cuyahoga County, Ohio, List of Hydric Soils and Supplemental List of Non-Hydric Soil Map Units with Hydric Components/Inclusions, March, 1999

Figure 6 ↑

Wetlands

The project area contains no hydric soils (Figure 6) and the wetland potential is concentrated primarily in already developed residential areas (Figure 7).

Figure 7 ⇨



SOURCE: Ohio EPA, Cuyahoga Wetland Demonstration Project, 1998

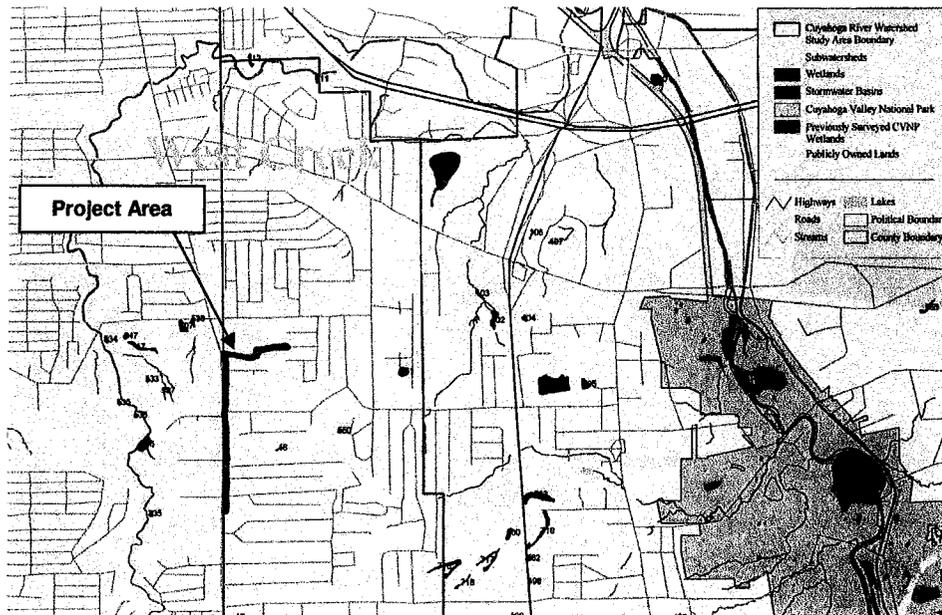


Figure 8 is a screen capture from the Cuyahoga County GIS indicating there are no wetlands in the project area.

Figure 8 ↑

Sources:

Figures 1 through 7: *The West Creek Valley Management Plan*, Cuyahoga County Planning Commission, (Cleveland, 2001)

Figure 8: Cuyahoga County GIS

City of Seven Hills
 West Creek Watershed
 Sanitary Sewer Improvements
 Phases II and III

Opinion of Construction Cost	\$1,683,470
Surveying/Engineering/Bidding	\$187,500
Construction Inspection/Testing	\$145,000
Land Acquisition	\$162,000
Legal/Permits/Advertising	\$66,085
Capitalized Interest (3.25% of constr. cost)	\$54,713
WPCLF Application Fee (0.35% of elig. project cost)	\$5,892
Contingency	\$168,347
Total Project Cost	\$2,473,007
Less OPWC Grant	\$603,100
Less Local Share (2%)	\$49,460
Less Intersections	\$155,659
Less capped assessments (3 properties)	\$58,740
Assessible Project Cost	\$1,606,048

Assessible Frontage (private property only)	5,630.4
Assessible Frontage (incl. intersections)	6,008.6
Front Foot Assessment	\$285.25

= Assessible project cost less local share and intersections

Total Property Owner Assessment	\$1,664,788.02
--	-----------------------

Total Revenue	\$2,473,007 from grants, city share (2%), intersections, and property owners.
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**WEST LAKE WATERSHED
SANITARY SEWER IMPROVEMENTS
PHASE II & III
ASSESSMENT CHECKLIST
Revised 5/18/10**

House Number	Owner's Name	Parcel Number	Assessible Frontage Based on Auditor's Legal Frontage	Non-assessible Frontage Based on Auditor's Legal Frontage	Tentative Preliminary Assessment	Current Market Value	Maximum Assessment 33%	Maximum Assessment Exceeded?
90	Norman Kaczmarek	551-21-060		88.5				
80	Linda A. Dubrovicz	551-21-061		93.3				
Panorama Drive								
Broadview Road								
6561	Thomas E. Mechir	551-21-008	116.3		\$33,174.09	\$152,000	\$50,160	
6563	Everett E. Adkins	551-21-007	116.3		\$33,174.09	\$160,100	\$52,833	
6565	Alphonso Yunis	551-21-006	116.3		\$33,174.09	\$162,900	\$53,757	
6577	North Coast Comm. Homes Inc.	551-21-005	116.3		\$33,174.09	exempt		
6591	David A. Novak	551-21-004	116.3		\$33,174.09	\$124,400	\$41,052	
6581	Gary R. Stephan	551-21-003	160.0		\$45,639.33	\$139,000	\$45,870	
6625	James Koran	551-21-002	80.9		\$23,076.39	\$125,000	\$41,250	
6633	Ronald E. & Kathy N. Smolenski	551-21-001		113.2				
6645	James Fadel	551-29-001		106.8				
6655	James G. Psarras	551-29-002	200.0		\$57,049.16	\$179,600	\$59,268	
6689	Angela Alshabani	551-29-004	100.0		\$28,524.58	\$153,200	\$50,556	
6699	Larry Nousek	551-29-005	100.0		\$28,524.58	\$152,500	\$50,325	
6711	William H. Moennich	551-29-006	100.0		\$28,524.58	\$189,200	\$62,436	
6725	Aurel Cotrau	551-29-007	202.5		\$57,762.28	\$225,700	\$74,481	
6751	John J. Rizzo Jr.	551-29-009	125.0		\$35,655.73	\$214,800	\$70,884	
6767	Annamari I. Ewald Perko	551-29-044	112.5		\$32,090.15	\$202,900	\$66,957	
6779	The Voice of the Christian Church	551-29-010	112.5		\$32,090.15	\$329,000	\$108,570	
6791	Fannie Mae	551-29-042	80.0		\$22,819.67	\$118,000	\$38,940	
6799	Jela Beljin	551-29-046	80.0		\$22,819.67	\$152,400	\$50,292	
6807	Raymond G. Smith	551-29-011	90.8		\$25,900.32	\$127,100	\$41,943	
6825	Edward J. Dragony	551-31-001	123.5		\$35,227.86	\$116,500	\$38,445	
6843	Belinda M. Lobas	551-31-002	134.8		\$38,451.14	\$119,600	\$39,468	
No Address	Daisy Investment Co.	551-31-026	127.1		\$5,775.00	\$17,500	\$5,775	Y, cap at \$5,775
6879	Gina M. Ianni	551-31-003	65.5		\$18,683.60	\$159,700	\$52,701	
6891	Ryan M. Koler	551-31-004	100.0		\$28,524.58	\$119,600	\$39,468	
6895	The Angelone Trust Agreement	551-31-005	54.0		\$15,403.27	\$112,800	\$37,224	
6899	Steven T. Smith	551-31-006	50.0		\$14,262.29	\$144,900	\$47,817	
6905	Stuart Light	551-31-007	50.0		\$14,262.29	\$130,000	\$42,900	
6911	James W. Schilling Sr.	551-31-071	50.0		\$14,262.29	\$135,100	\$44,583	
6917	Ronald E. Scherban	551-31-023		75.0				
6935	Arthur W. Good	552-01-015	69.0		\$19,681.96	\$151,600	\$50,028	
6943	Irene Marie Sattler	552-01-016	69.0		\$19,681.96	\$128,700	\$42,471	
6949	Ray Anthony Sitkowski	552-01-014	69.0		\$19,681.96	\$130,000	\$42,900	

**WEST LAKE WATERSHED
SANITARY SEWER IMPROVEMENTS
PHASE II & III
ASSESSMENT CHECKLIST
Revised 5/18/10**

House Number	Owner's Name	Parcel Number	Assessible Frontage Based on Auditor's Legal Frontage	Non-assessible Frontage Based on Auditor's Legal Frontage	Tentative Preliminary Assessment	Current Market Value	Maximum Assessment 33%	Maximum Assessment Exceeded?
6955	Henry Zebrowski	552-01-004	69.0		\$19,681.96	\$166,700	\$55,011	
6961	John Walter Klump	552-01-003	69.0		\$19,681.96	\$228,300	\$75,339	
6969	Thomas F. Kline	552-01-002	69.0		\$19,681.96	\$150,400	\$49,632	
6981	Kalemba Family Ltd. Part Pll.	552-01-013	32.0	37.0	\$9,127.87	\$107,800	\$35,574	

**WEST LAKE WATERSHED
SANITARY SEWER IMPROVEMENTS
PHASE II & III
ASSESSMENT CHECKLIST
Revised 5/18/10**

House Number	Owner's Name	Parcel Number	Assessible Frontage Based on Auditor's Legal Frontage	Non-assessible Frontage Based on Auditor's Legal Frontage	Tentative Preliminary Assessment	Current Market Value	Maximum Assessment 33%	Maximum Assessment Exceeded?
Skyview Drive								
412	Eugene J. Dorosy	551-22-040	56.8		\$16,201.96	\$312,000	\$102,960	
400	Leo J. Barther	551-22-039	159.6		\$45,525.23	\$227,300	\$75,009	
374	Brian D. Holbrook	551-22-038	65.0		\$18,540.98	\$159,500	\$52,635	
352	Daniel J. Sidor	551-22-037	65.0		\$18,540.98	\$146,600	\$48,378	
328	Ronald R. Bassak, Trustee	551-22-036	90.0		\$25,672.12	\$142,900	\$47,157	
298	Milivoj Zivkov	551-22-035	90.0		\$25,672.12	\$170,500	\$56,265	
266	Timothy P. Neal	551-22-034	100.0		\$28,524.58	\$162,400	\$53,592	
232	Carolyn J. Acker, Trustee	551-22-033	100.0		\$28,524.58	\$166,200	\$54,846	
198	Ryan J. & Danielle Nowlin	551-22-032	104.9		\$29,922.29	\$178,500	\$58,905	
166	John D. Jurca	551-22-031	140.7		\$40,134.09	\$218,000	\$71,940	
132	Thomas E. & Elizabeth I. Fisher	551-22-030	107.1		\$30,549.83	\$170,200	\$56,166	
98	Michael A. Kovach	551-22-029	100.0		\$28,524.58	\$155,300	\$51,249	
66	Alexander Fedorchuk	551-22-028	100.0		\$28,524.58	\$165,100	\$54,483	
30	Brana A. Blagosevic	551-22-027	64.0	39.1	\$18,255.73	\$144,900	\$47,817	
29	Thomas O. Mason Trust	551-22-003	64.0	65.0	\$18,255.73	\$157,900	\$52,107	
65	Ronald W. & Margaret A. Durkin	551-22-051	100.0		\$28,524.58	\$157,400	\$51,942	
97	John M. Bova	551-22-050	100.0		\$28,524.58	\$151,800	\$50,094	
131	Clarence N. Gregory	551-22-049	104.0		\$29,665.56	\$169,600	\$55,968	
165	Franklin R. Melena	551-22-048	100.0		\$28,524.58	\$232,900	\$76,857	
197	Susan B. Kile	551-22-047	109.2		\$31,148.84	\$174,400	\$57,552	
231	Brian T. & Vera Boutler	551-22-046	100.0		\$28,524.58	\$176,500	\$58,245	
265	Doloros V. Zuranski	551-22-045	100.0		\$28,524.58	\$179,800	\$59,334	
297	Anna L. Pollarine	551-22-053	100.0		\$28,524.58	\$137,000	\$45,210	
361	Nicholas F. Pollarine	551-22-043	186.3		\$43,890.00	\$133,000	\$43,890	Y, cap at \$43,890
399	Michael J & Nancy L. Kotalik	551-22-042	113.2		\$32,289.83	\$161,000	\$53,130	
411	Ronald W. Durkin	551-22-041	37.4		\$10,668.19	\$200,300	\$66,099	
Ridgewood Drive								
456	Robert C. Stanley	551-22-022		93.4				
547	Elenore F. Lisicki & Judy Krenel	551-22-023		157.5				
Broadview Road								
-	Leo J. Schillero	551-22-001 &	60.0		\$9,075.00	\$27,500	\$9,075	Y, cap at \$9,075
6475	Leo J. Schillero	551-22-002	60.0		\$17,114.75	\$136,000	\$44,880	
Totals			6,003.8	868.8	\$1,664,788.02			

**WEST LAKE WATERSHED
 SANITARY SEWER IMPROVEMENTS
 PHASE II & III
 ASSESSMENT CHECKLIST
 Revised 5/18/10**

House Number	Owner's Name	Parcel Number	Assessible Frontage Based on Auditor's Legal Frontage	Non-assessible Frontage Based on Auditor's Legal Frontage	Tentative Preliminary Assessment	Current Market Value	Maximum Assessment 33%	Maximum Assessment Exceeded?
	E. Parkhaven Drive		73.2					
	Justo Lane		50.0					
	Mapleview Drive		60.0					
	Scenic Lane		75.0					
	Chestnut Road		60.0					
	Panorama Drive		60.0					
Total Intersections			378.2					

West Creek Watershed
Phase II Sanitary Sewer Improvements
City of Seven Hills, Ohio

Opinion of Probable Construction Cost				
ITEM	QUAN.	UNIT	PRICE	AMOUNT
Mobilization	1	LS	\$21,500.00	\$21,500
Bonds & Insurance	1	LS	\$11,700.00	\$11,700
Above Ground Video Taping	1	LS	\$4,250.00	\$4,250
Maintenance of Traffic	1	LS	\$20,000.00	\$20,000
Silt Fence	480	LF	\$1.12	\$538
Construction Safety Fence	1370	LF	\$1.00	\$1,370
Inlet Basin Protection	10	EA	\$50.00	\$500
Storm Water Pollution Prevention Plan	1	LS	\$1,250.00	\$1,250
Pipe Removed (18" and less)	1358	LF	\$21.00	\$28,518
Inlet Basin Removed	4	EA	\$300.00	\$1,200
Yard Drain Removed	1	EA	\$150.00	\$150
Utility Allowance - Pole Support	1	LS	\$5,000.00	\$5,000
Tree Removal - Over 12" Diameter	7	EA	\$600.00	\$4,200
8" Restrained Jt. DIP Directionally Drilled	493	LF	\$160.00	\$78,880
Tree Removal (greater than 9" caliper)	22	EA	\$1,000.00	\$22,000
4" Concrete Sidewalk	750	SF	\$5.30	\$3,975
Portland Cement Concrete Pavement Replacement (Type A)	41.8	SY	\$50.00	\$2,090
Asphalt Pavement Replacement, (Type C)	356.4	SY	\$43.00	\$15,325
Concrete Drives and Aprons (Type A), 6" Thick	497.8	SY	\$57.00	\$28,375
Asphalt Resurfacing	2589.4	SY	\$7.00	\$18,126
Temporary Pavement	499.3	SY	\$29.25	\$14,605
Subbase Repair	517.9	CY	\$38.33	\$19,851
Storm Inlet Basin	4	EA	\$2,500.00	\$10,000
Yard Drain	1	EA	\$1,000.00	\$1,000
6" Storm Sewer Replacement	170	LF	\$40.00	\$6,800
8" Storm Sewer Replacement	240	LF	\$50.00	\$12,000
12" Storm Sewer Replacement	705	LF	\$60.00	\$42,300
6" PVC, SDR 35, 5'-10' Deep	52	EA	\$59.00	\$3,068
6" PVC, SDR 35, 10'-15' Deep	118	LF	\$78.00	\$9,204
6" PVC, SDR 35, 10'-15' Deep, Special Backfill Material	174	LF	\$127.00	\$22,098
6" PVC, SDR 35, 15'-20' Deep, Special Backfill Material	267	LF	\$164.00	\$43,788
8" PVC, SDR 35, 5'-10' Deep	595	LF	\$60.00	\$35,700
8" PVC, SDR 35, 10'-15' Deep	555	LF	\$79.00	\$43,845
8" PVC, SDR 35, 15'-20' Deep	176	LF	\$107.00	\$18,832
8" PVC, SDR 35, 5'-10' Deep, Special Backfill Material	83	LF	\$90.00	\$7,470
8" PVC, SDR 35, 10'-15' Deep, Special Backfill Material	718	LF	\$127.00	\$91,186
8" PVC, SDR 35, 15'-20' Deep, Special Backfill Material	742	LF	\$165.00	\$122,430
6" Risers	95	LF	\$150.00	\$14,250
Transfer Sanitary Service Connections	4	EA	\$150.00	\$600
Type "A" Manhole 5'-10' Deep	3	EA	\$6,400.00	\$19,200
Type "A" Manhole 10'-15' Deep	6	EA	\$7,300.00	\$43,800
Type "A" Manhole 15'-20' Deep	5	EA	\$8,200.00	\$41,000
Type "A" Drop Manhole 15'-20' Deep	2	EA	\$8,800.00	\$17,600
Connection to Existing Manhole	2	EA	\$1,800.00	\$3,600
Seeding & Mulching	1	LS	\$44,843.00	\$44,843
Contingencies				\$95,802
TOTAL				\$1,053,817

The estimated useful life of the West Creek Watershed Phase II Sanitary Sewer Improvements is 50 years.


Robert H. Greytak, P.E. No. 46478



West Creek Watershed
Phase III Sanitary Sewer Improvements
City of Seven Hills, Ohio

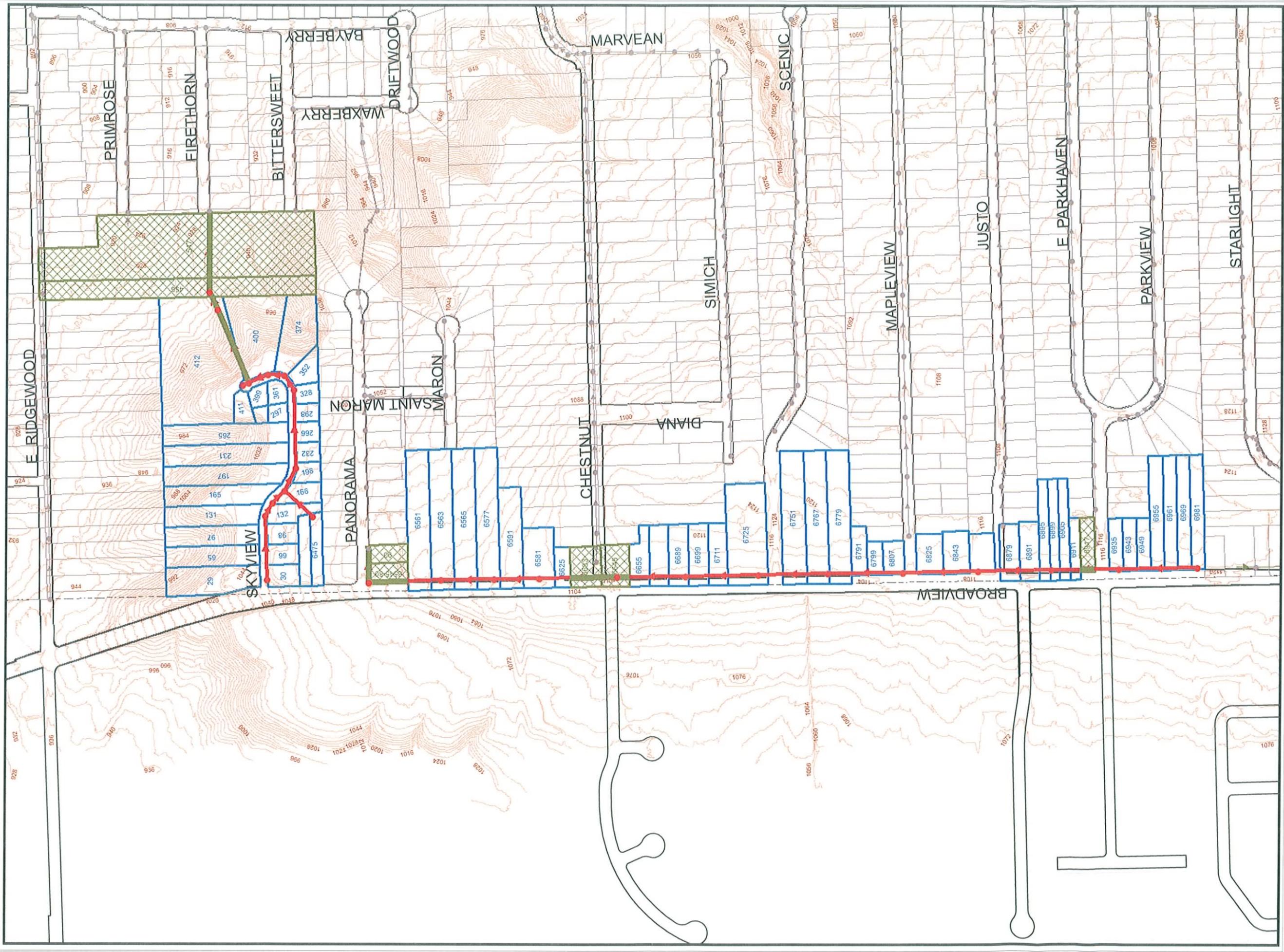
Opinion of Probable Construction Cost				
ITEM	QUAN.	UNIT	PRICE	AMOUNT
Mobilization	1	LS	\$11,200.00	\$11,200
Bonds & Insurance	1	LS	\$6,075.00	\$6,075
Above Ground Video Taping	1	LS	\$1,350.00	\$1,350
Maintenance of Traffic	1	LS	\$5,000.00	\$5,000
Silt Fence	3580	LF	\$1.12	\$4,010
Storm Water Pollution Prevention Plan	1	LS	\$1,250.00	\$1,250
Utility Allowance - Pole Support	1	LS	\$2,000.00	\$2,000
Tree Removal - Over 12" Diameter	9	EA	\$600.00	\$5,400
8" Restrained Jt. DIP Directionally Drilled	90	LF	\$160.00	\$14,400
8" DIP in 18" Steel Casing	245	LF	\$250.00	\$61,250
Tree Removal (greater than 9" caliper)	17	EA	\$1,000.00	\$17,000
4" Concrete Sidewalk	130	SF	\$5.30	\$689
Portland Cement Concrete Pavement Replacement (Type A)	24.9	SY	\$50.00	\$1,245
Concrete Drives and Aprons (Type A), 6" Thick	185.9	SY	\$57.00	\$10,596
Asphalt Drive and Aprons (Type C)	34.7	SY	\$70.00	\$2,429
Concrete Curb	56	LF	\$7.00	\$392
Curb Drain	70	LF	\$8.35	\$585
6" PVC, SDR 35, 5'-10' Deep	280	EA	\$59.00	\$16,520
8" PVC, SDR 35, 5'-10' Deep	329	LF	\$60.00	\$19,740
8" PVC, SDR 35, 10'-15' Deep	1686	LF	\$79.00	\$133,194
8" PVC, SDR 35, 15'-20' Deep	617	LF	\$107.00	\$66,019
8" PVC, SDR 35, 5'-10' Deep, Special Backfill Material	71	LF	\$90.00	\$6,390
8" PVC, SDR 35, 10'-15' Deep, Special Backfill Material	279	LF	\$127.00	\$35,433
8" PVC, SDR 35, 15'-20' Deep, Special Backfill Material	63	LF	\$165.00	\$10,395
6" Risers	143	LF	\$150.00	\$21,450
Type "A" Manhole 5'-10' Deep	1	EA	\$6,400.00	\$6,400
Type "A" Manhole 10'-15' Deep	5	EA	\$7,300.00	\$36,500
Type "A" Manhole 15'-20' Deep	3	EA	\$8,200.00	\$24,600
Seeding & Mulching	1	LS	\$50,900.00	\$50,900
Contingencies				\$57,241
TOTAL				\$629,653

The estimated useful life of the West Creek Watershed Phase III Sanitary Sewer Improvements is 50 years.


Robert H. Greytak, P.E. No. 46478



City of Seven Hills West Creek Watershed Sanitary Sewer Improvements Phase II and III



- Legend**
- 6732 ft Proposed Sanitary Sewers
 - 16477 ft Nonassessable Sanitary Sewers (24.5%)
 - 63 Assessable Parcels
 - 7 Nonassessable Parcels
 - Existing Sanitary Sewers
 - 4 ft Interval Contour Lines



CHAPTER 729
Sewer Rates

729.01	Declaration of necessity.	729.05	Collection of delinquent bills.
729.02	Definitions.	729.06	Bylaws and regulations.
729.03	Computation of charges.	729.07	Use of moneys.
729.031	Capital cost surcharge for Shar-Bon Area. (Repealed)	729.08	Waiver of sewer rental charge.
729.04	Billing and collection.		

CROSS REFERENCES

Finance Director's responsibilities for funds - see CHTR. Art. V, §3
Sewage and sewers - see S. & P. S. Ch. 721
Trunk Sewer No. 1, permits and fees - see S. & P. S. Ch. 722
Owner's responsibilities for underground utilities - see P. & Z.
Chap. 915

729.01 DECLARATION OF NECESSITY.

It is hereby determined and declared to be necessary and conducive to the public health, safety, and welfare and the convenience of the City and its inhabitants to operate the sanitary sewer and storm drainage systems in the City as a public utility and to levy and collect maintenance charges upon all lands, lots, and premises served by having connections with such and/or being served with such systems. Such charges, when collected, shall be used for the purposes hereinafter provided. (Ord. 40-1982. Passed 5-24-82.)

729.02 DEFINITIONS.

As used in this chapter, "sewage" means water or water-borne wastes and "industrial wastes" means liquid wastes resulting from any commercial, manufacturing, or industrial operation or process, which water-borne or liquid wastes enter the City sewerage systems, or any portion thereof from any premises having a connection therewith. "Storm drainage systems" means road ditches, storm sewers, culverts and/or natural watercourses which conduct the natural drainage of the City. (Ord. 40-1982. Passed 5-24-82.)

729.03 COMPUTATION OF CHARGES.

(a) Pursuant to the provisions of Ohio R.C. 729.49 and related sections of the Ohio Revised Code, every person, firm or corporation whose premises in the City are served by the City sanitary sewer and/or storm drainage systems, whereby the water, sewerage or industrial wastes are disposed of by the City through its system or otherwise, shall pay a system service or rental charge of sixty-five cents (\$.65) per front foot per lot for one sewer connection, for each year of maintenance of sanitary sewers, and thirty cents (\$.30) per front foot per lot for each year of maintenance of storm drainage systems.

(b) Where such lots are corner lots, cul-de-sac lots, or lots with a radius frontage, said front footage calculation shall be based on the entire front footage of both sides of the corner or the entire arc of curvature of the respective lot.
(Ord. 65-1992. Passed 9-14-92.)

(c) Within condominium housing developments the sewer maintenance charges will be based on the total footage of sewer pipes serving the development multiplied by the sewer maintenance charge per foot divided by the total number of units in the development. Where appropriate the Finance Department is authorized to bill the aggregated annual charges directly to a legally formed condominium owners association in lieu of billing individual unit owners on a separate basis. (Ord. 94-1998. Passed 11-23-98.)

**THE CITY OF SEVEN HILLS OHIO
WEST CREEK WATERSHED
REDUCTION OF SEPTIC TANK OUTFALLS**

Meeting Agenda - July 10, 2007

- 1) HONORABLE MAYOR DAVID BENTKOWSKI
 - a. INTRODUCTION AND ROLES OF OFFICIALS AND CONSULTANTS
 - b. MEETING PURPOSE
 - c. FUNDING

- 2) OHIO EPA AND CUYAHOGA BOARD OF HEALTH
 - a. WEST CREEK WATERSHED
 - b. IMPORTANCE OF WATER QUALITY

- 3) LAW DEPARTMENT
 - a. OHIO EPA DIRECTOR'S FINAL FINDINGS AND ORDERS (DFF&O)
 - b. EASEMENT AQUITION

- 4) ENGINEERING DEPARTMENT
 - a. GENERAL WEST CREEK WATERSHED PLAN TO ELIMINATE SEPTIC TANKS
 - b. GENERAL PROJECT SEQUENCE
 - c. TENTATIVE ASSESSMENTS VIA CERTIFIED MAIL
 - d. CONSTRUCTION OF SANITARY SEWER MAIN
 - e. SERVICE CONNECTION NOTIFICATION GIVEN

- 5) CT CONSULTANTS
 - a. FIELD WORK
 - b. EVALUATION OF COST EFFECTIVE METHODS

- 6) RESIDENTS QUESTIONS
PLEASE COME FORWARD TO THE MICROPHONE AND ASK YOUR QUESTION(S) SO THAT EVERYONE IN THE ROOM CAN HEAR YOUR QUESTION BEFORE A RESPONSE IS GIVEN.

- 7) CLOSING REMARKS FROM THE MAYOR

CONTACT LIST

SEVEN HILLS

MAYOR'S OFFICE	(216) 524-4421	CT CONSULTANTS	(216) 524-5335
COUNCIL	(216) 525-6233	CCBH	(216) 201-2001
LAW DEPARTMENT	(216) 525-6237	OHIO EPA	(330) 963-1124
ENGINEERING DEPARTMENT	(216) 525-6226		



City of Seven Hills
Engineering Department

October 7, 2010

Mr. Kevin Hinckle
Ohio EPA - DEFA
Lazarus Government Center
50 W. Town St., Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

Re: WPCLF Facilities Plan
West Creek Watershed Sanitary Sewer Phase II and III
Seven Hills, Ohio

Dear Kevin:

Per your request, attached is the facilities plan for the above referenced project. The questions you asked in your September 9, 2010 e-mail are answered in the attachment.

Update

Council has not proceeded with the resolution of necessity due to the high estimated assessment rate of \$285 per foot of frontage. We have gone through a value engineering process and have not been able to find additional savings. Currently, the City has obtained a 25% grant from the Ohio Public Work Commission with a not to exceed amount of \$603,100 (with no loan). We have recently reapplied this project for the Program Year 2011 with OPWC for a 60% grant (with no loan) as our efforts to obtain additional funding within the original agreement failed due to lack of funds. We will know in December 2010 if our 2011 resubmitted request will be funded. We are exploring the possibility of performing an income survey that you suggested.

If you have any questions or concerns, please contact my office at (216) 525-6226.

Sincerely,
THE CITY OF SEVEN HILLS, OHIO

Mark K. Papke, P.E.
City Engineer

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