CONSTRUCTION PLANS

FOR

SEWER SYSTEM REHABILITATION

WATER SECTOR PROGRAM FY2022

for the

CITY OF HAMMOND, LOUISIANA

Pete Panepinto, Mayor

COUNCIL:

Kip Andrews
Sam DiVittorio
Carlee White Gonzales
Steve Leon
Devon Wells

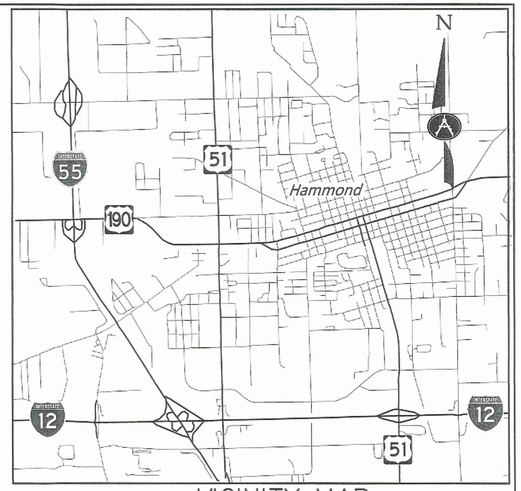
Lisa Cockerham, Clerk of the Council

SEPTEMBER 7, 2023

Prepared by:

Spangler Engineering, LLC
Consulting Civil Engineers

214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046



VICINITY MAP
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STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

Recommended: _____ 20 JULY 2023
T. C. SPANGLER, JR., P. E. Date

Approved: _____ 7/22/2023
Pete Panepinto, Mayor Date

Approved: _____ 7/22/2023
GUY PALERMO, SUPERINTENDENT WATER & SEWER DEPT. Date

SET NO. ____

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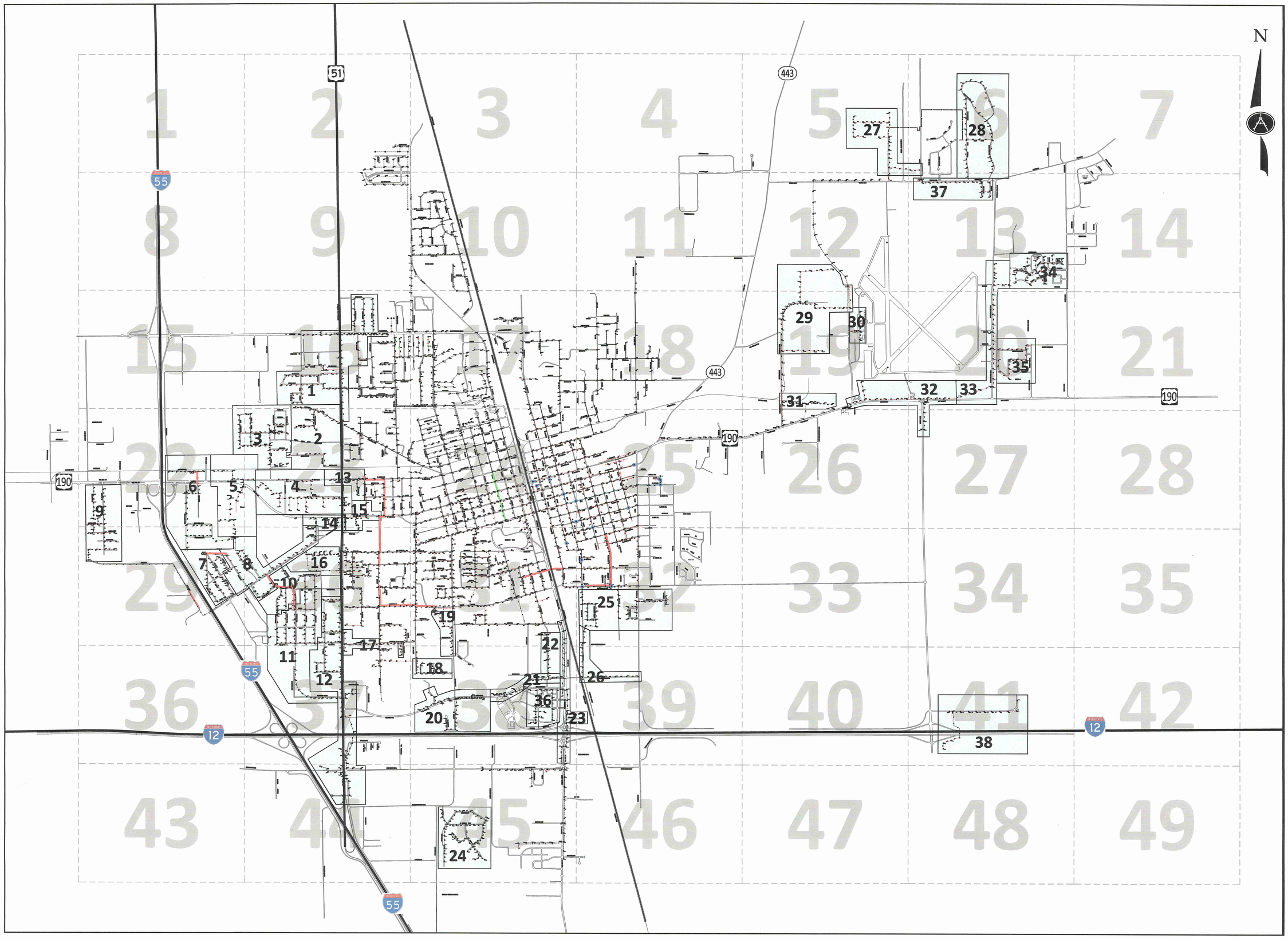

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED
PROFESSIONAL
ENGINEER

SCALE:	1" = 200'
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

PANEL MAP

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022

for

CITY OF HAMMOND

Spangler Engineering, LLC
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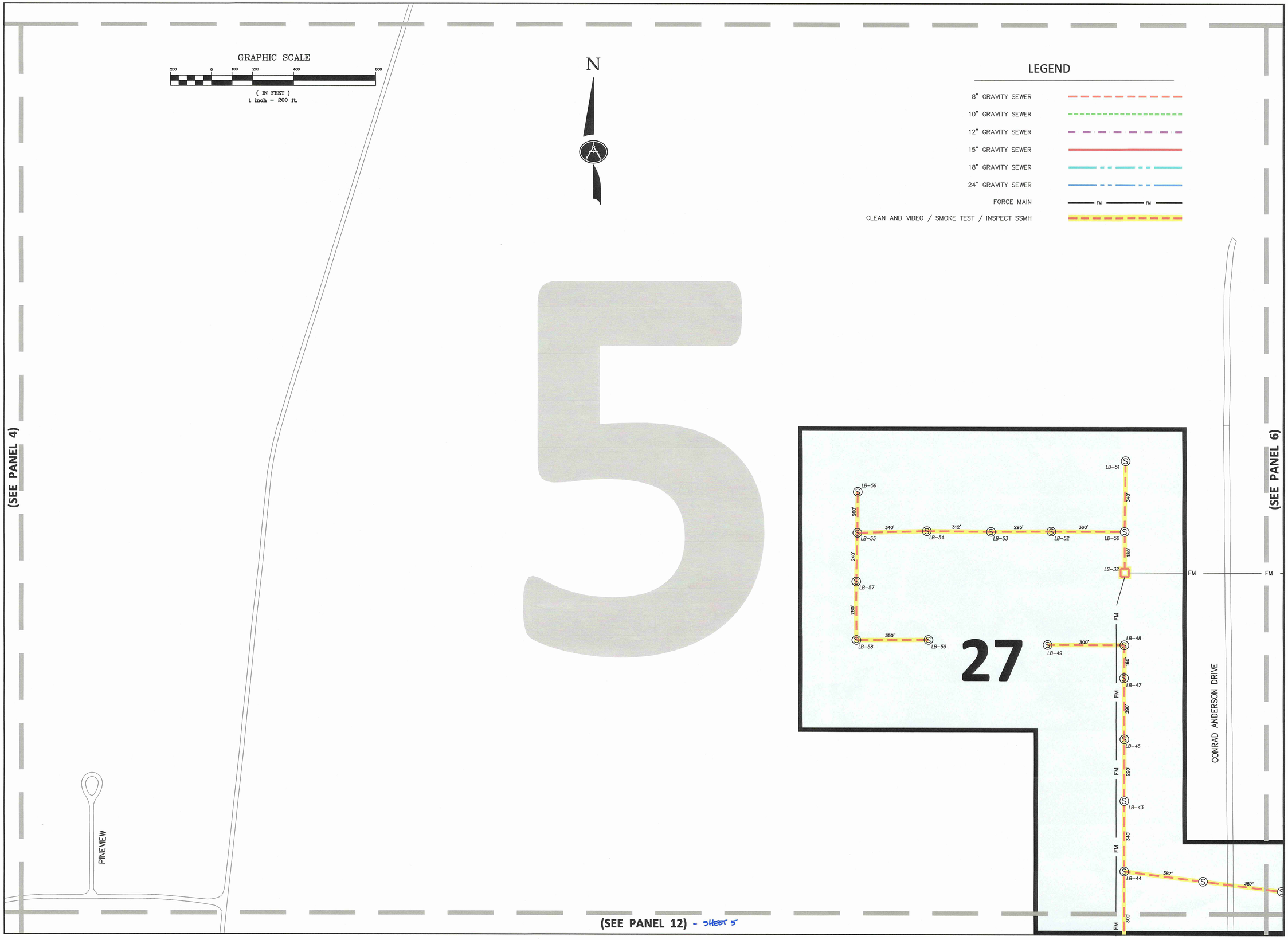

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

SCALE:	1" = 200'
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 5

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
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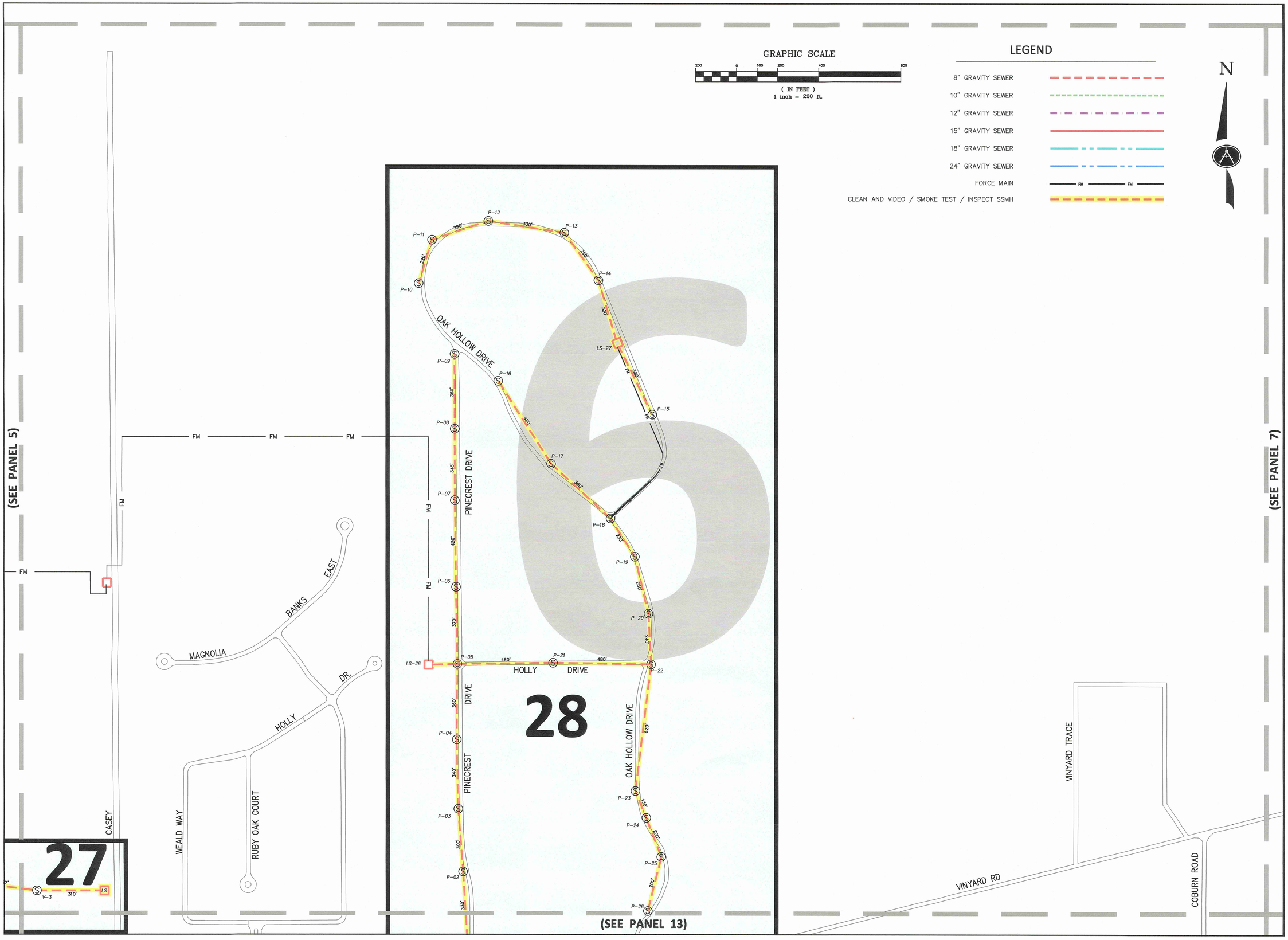

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
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SCALE:	1" = 200'
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SSES MAP
PANEL 6

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
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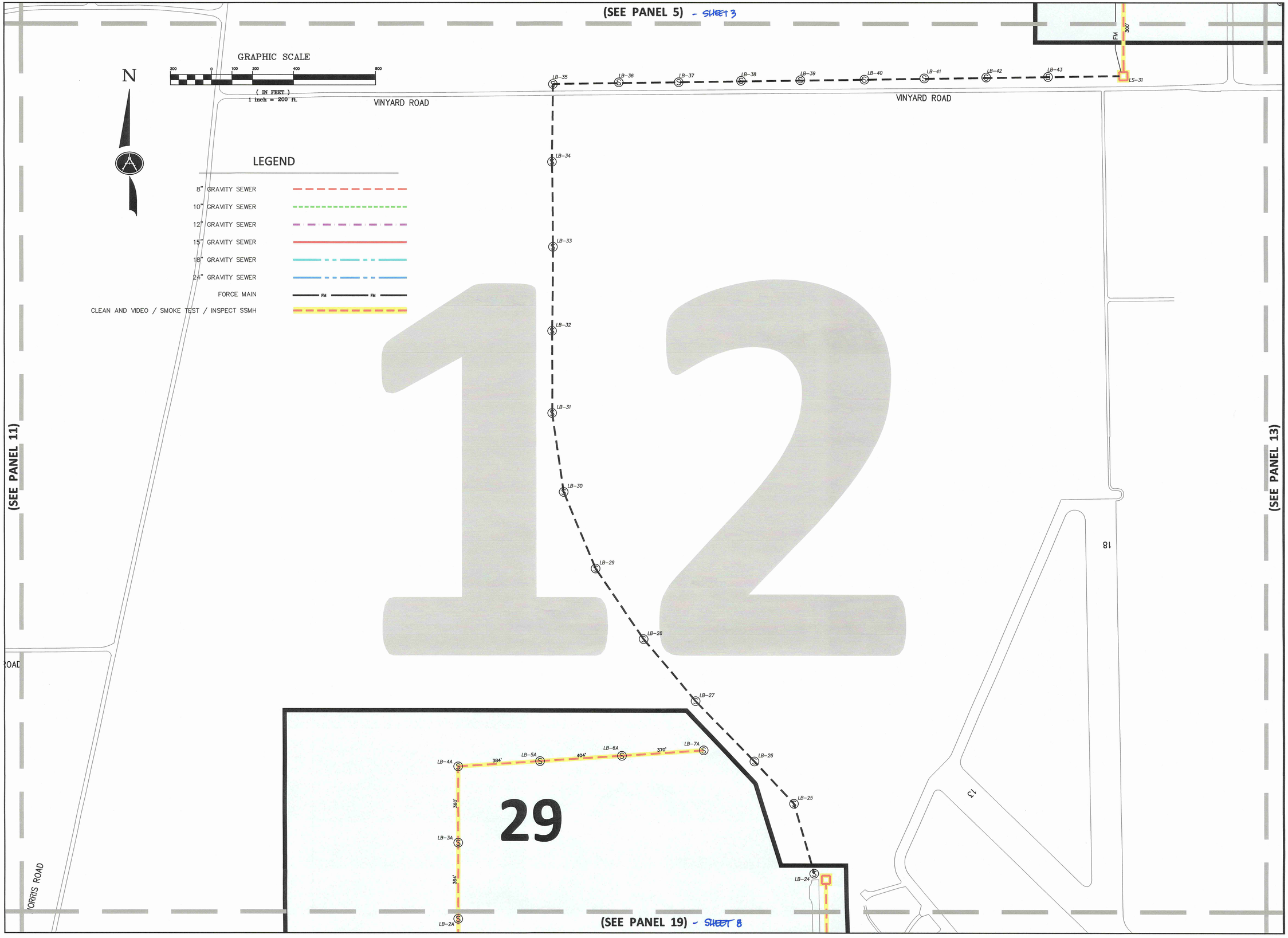

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SSES MAP
PANEL 12

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
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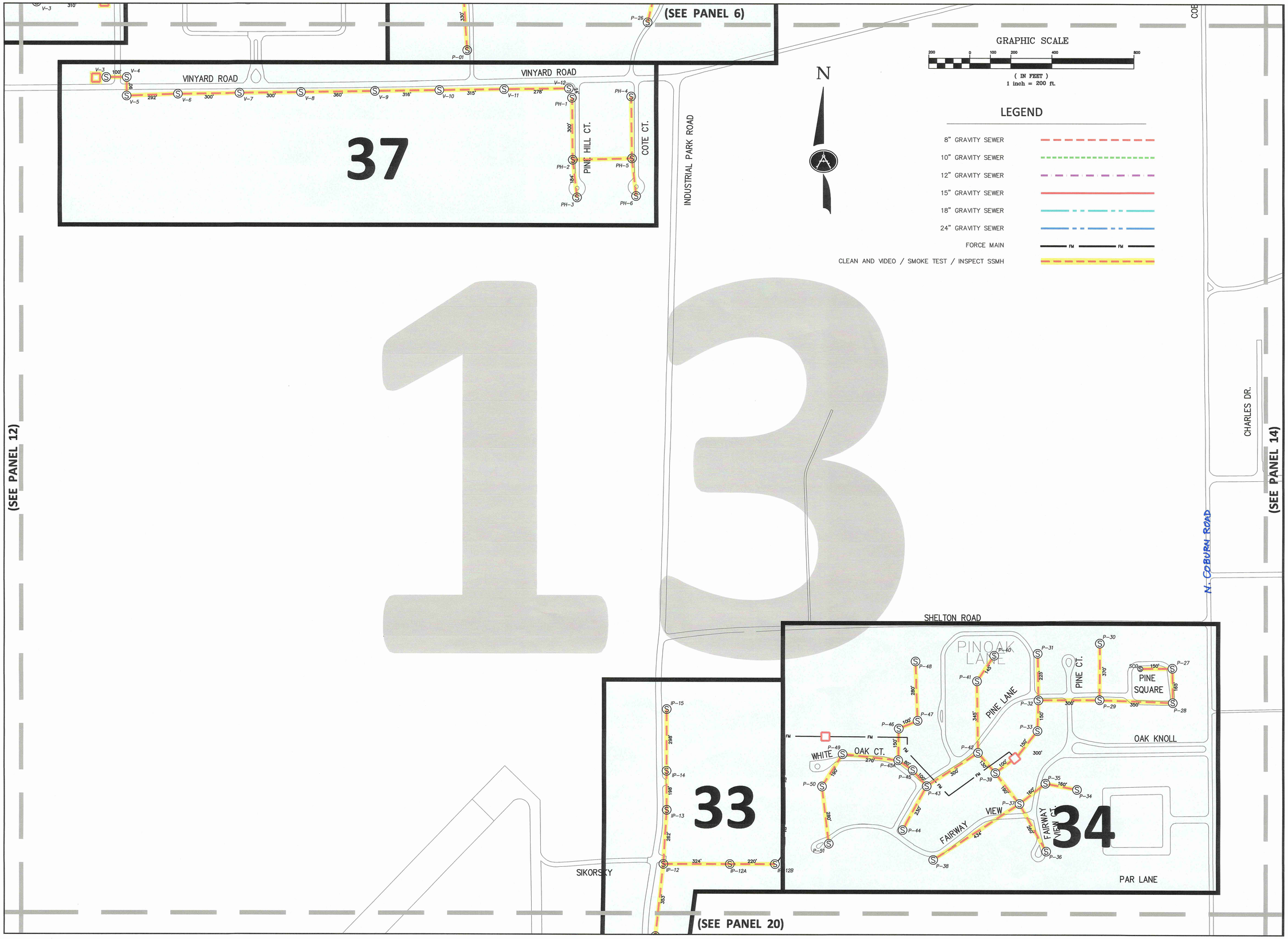

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T. C. SPANGLER, JR.
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CIVIL ENGINEERING

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SSES MAP
PANEL 13

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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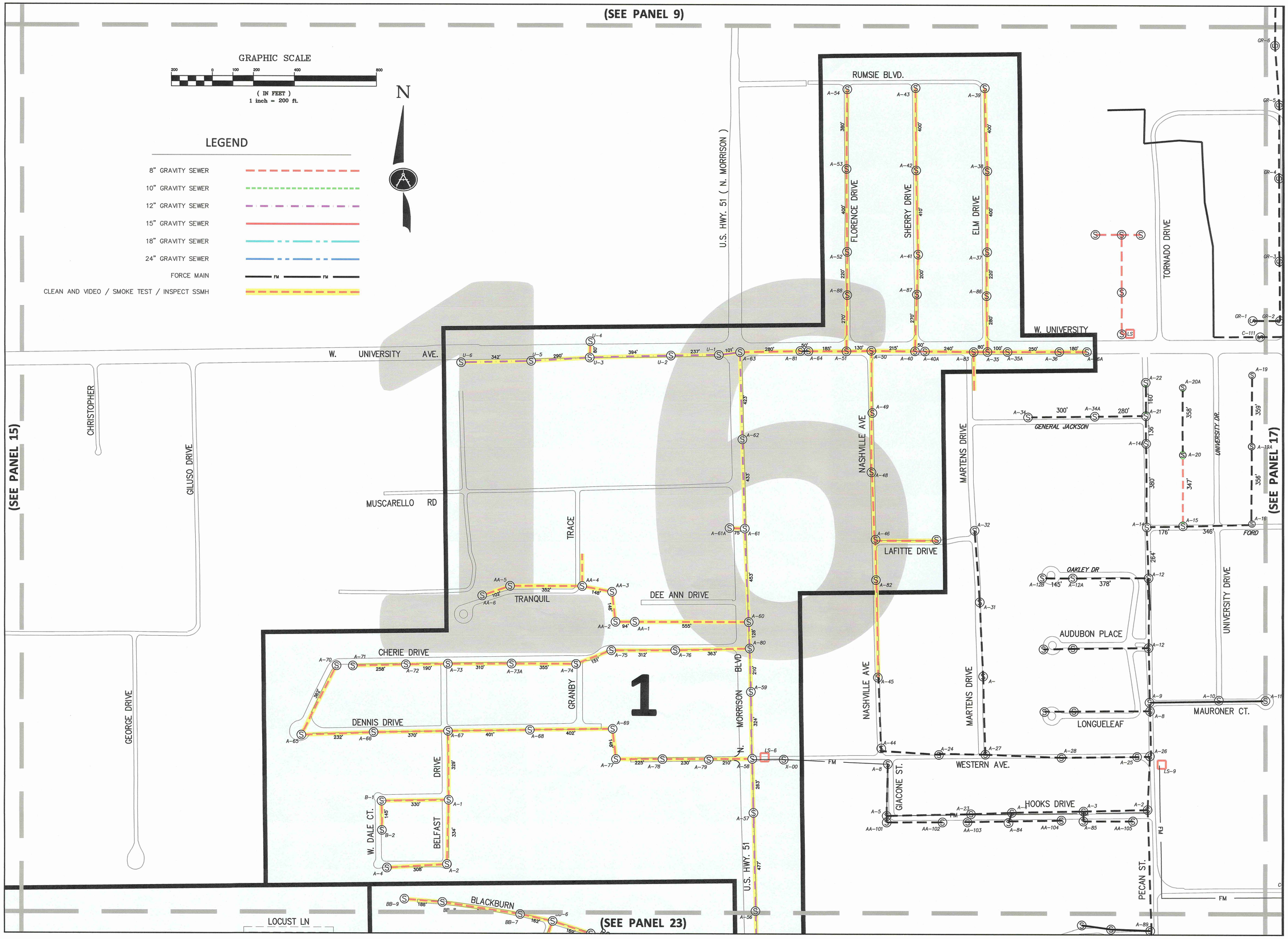

STATE OF LOUISIANA
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CIVIL ENGINEERING

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CHECKED:	T.C.S.

SSES MAP
PANEL 16

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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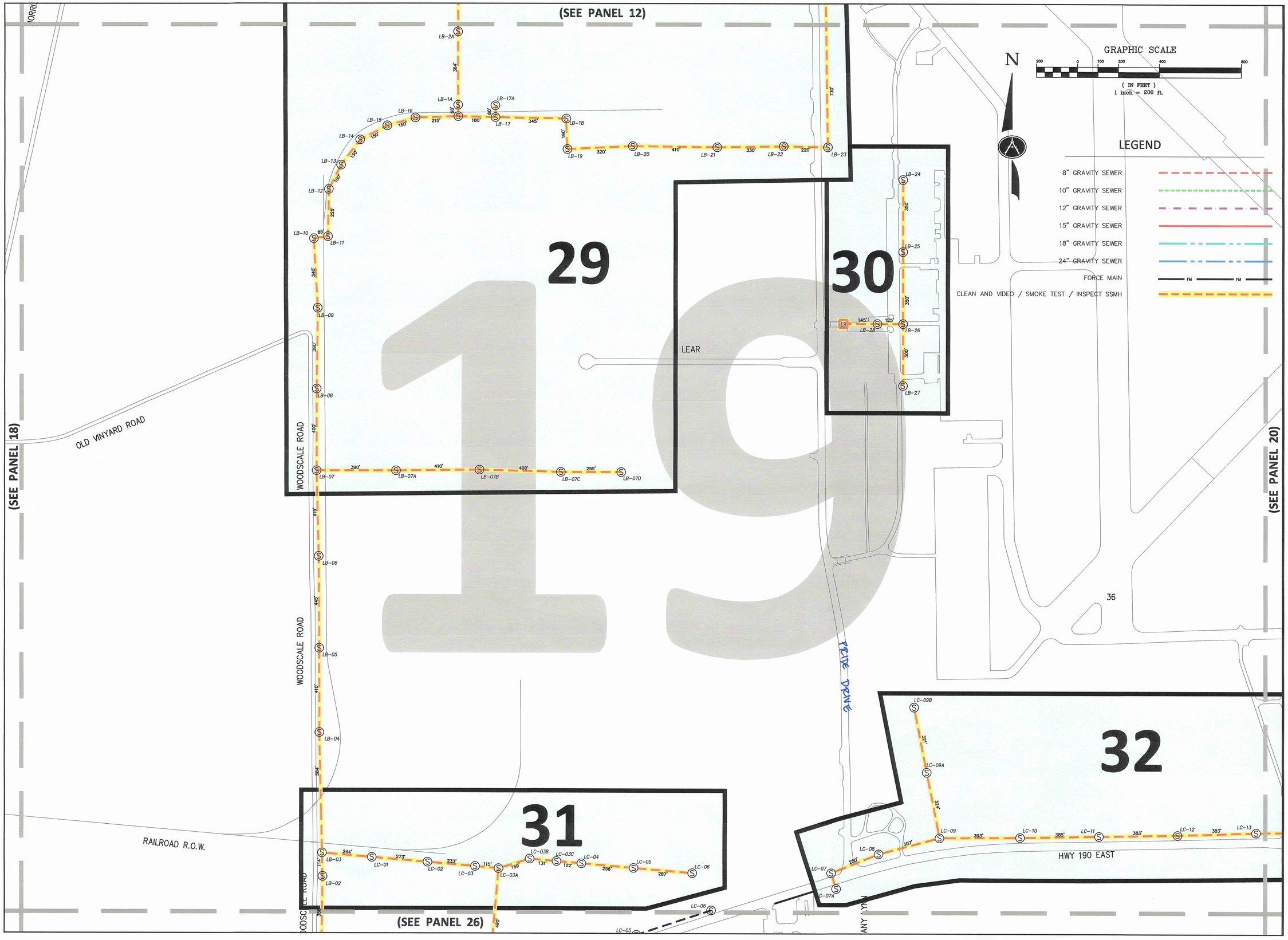

STATE OF LOUISIANA
T. C. SPANGLER, JR.
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SCALE:	1" = 200'
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CHECKED:	T.C.S.

SSES MAP
PANEL 19

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
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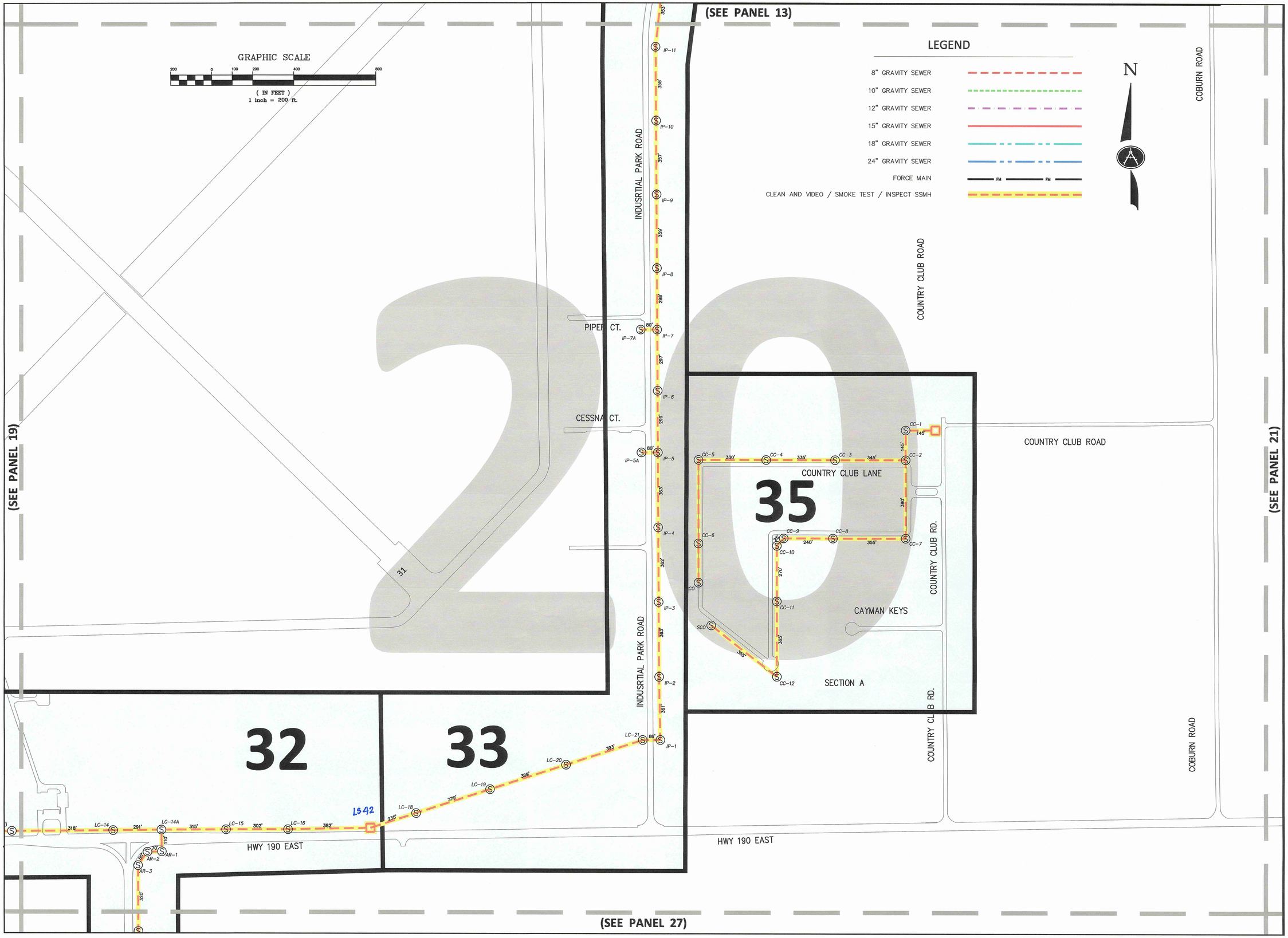

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING

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SSES MAP
PANEL 20

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
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T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING

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DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 22

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
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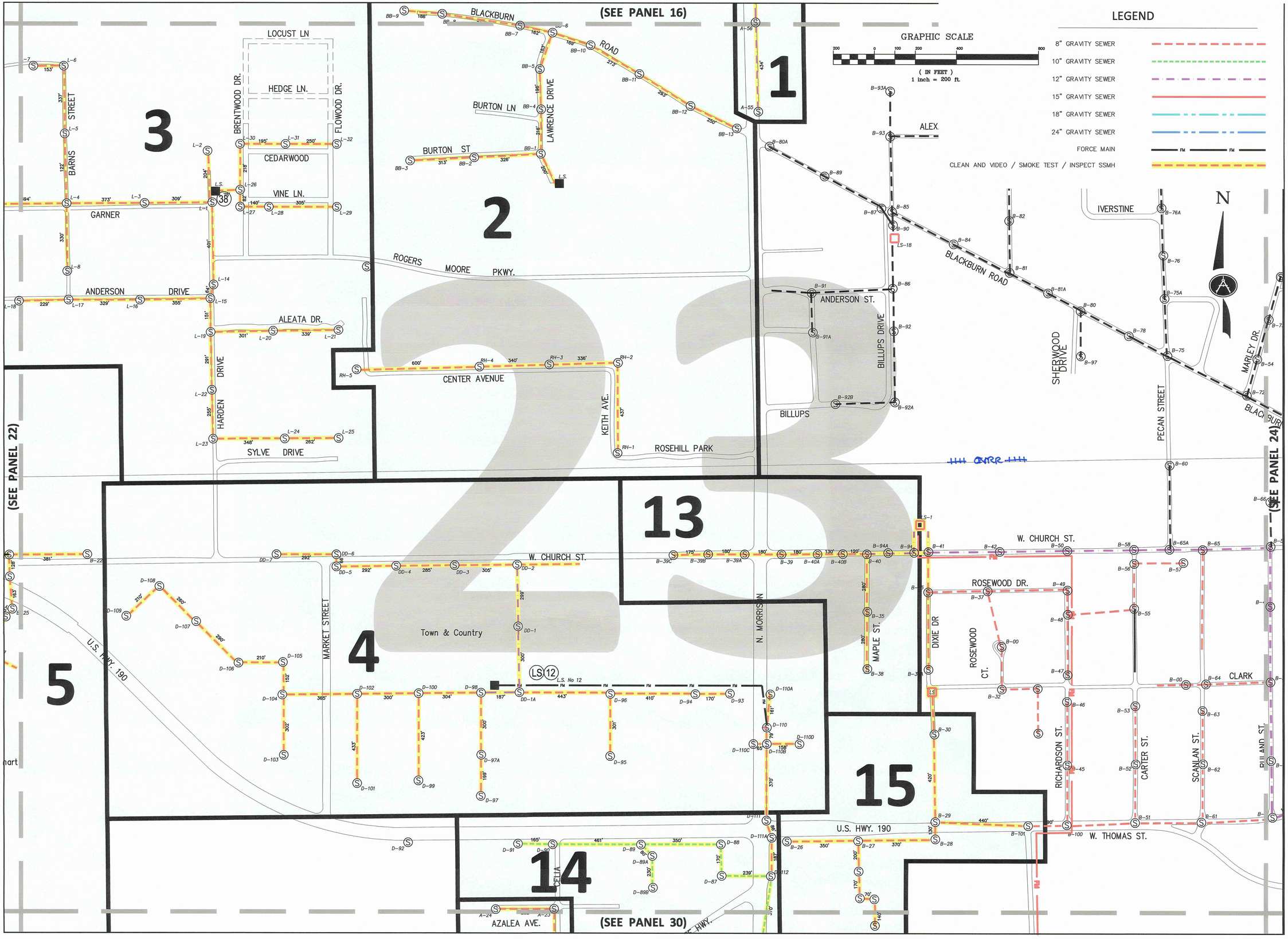

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
IN CIVIL ENGINEERING

SCALE:	1" = 200'
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DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 23

SEWER SYSTEM REHABILTATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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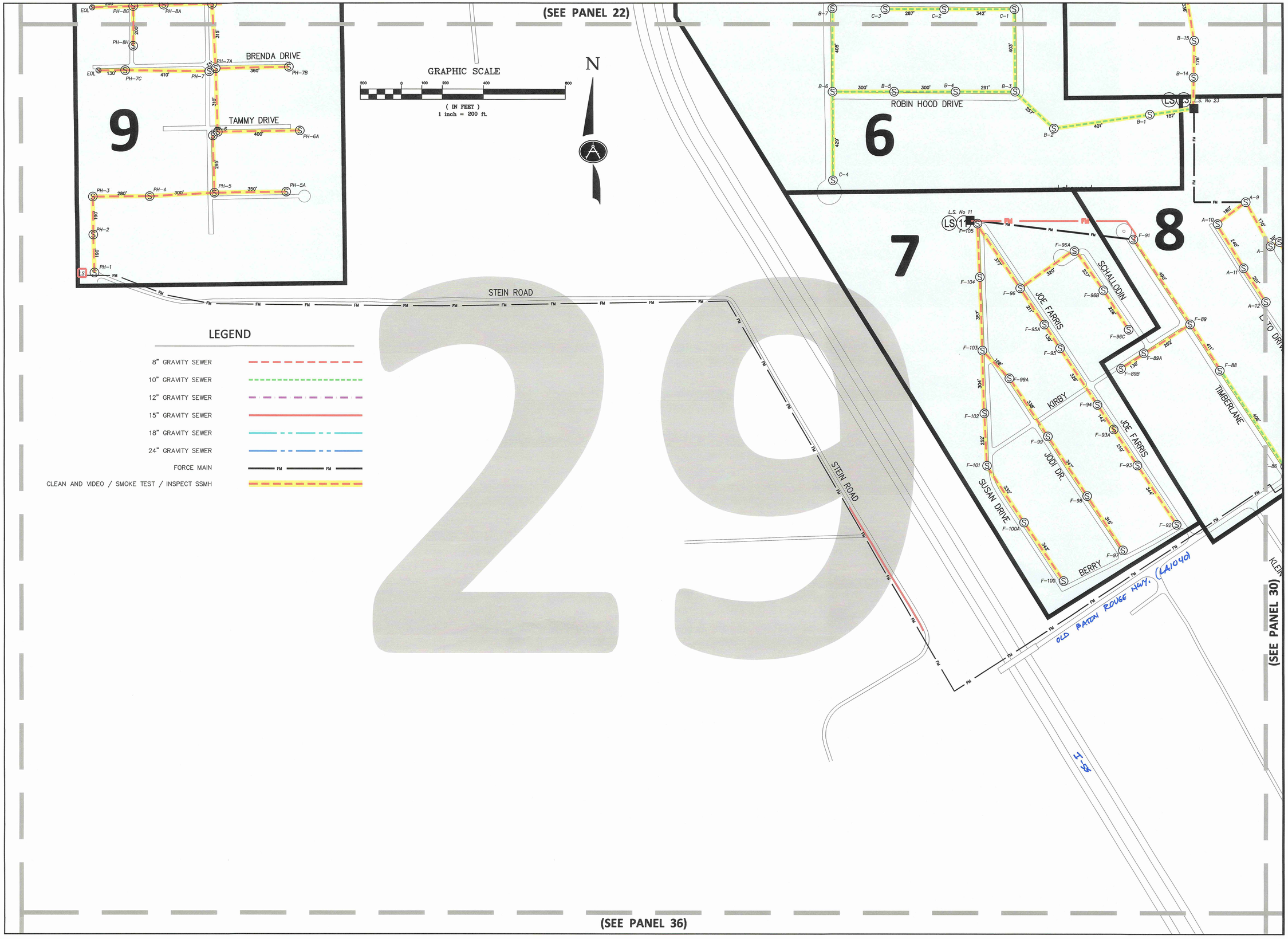

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER

SCALE:	1" = 200'
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 29

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

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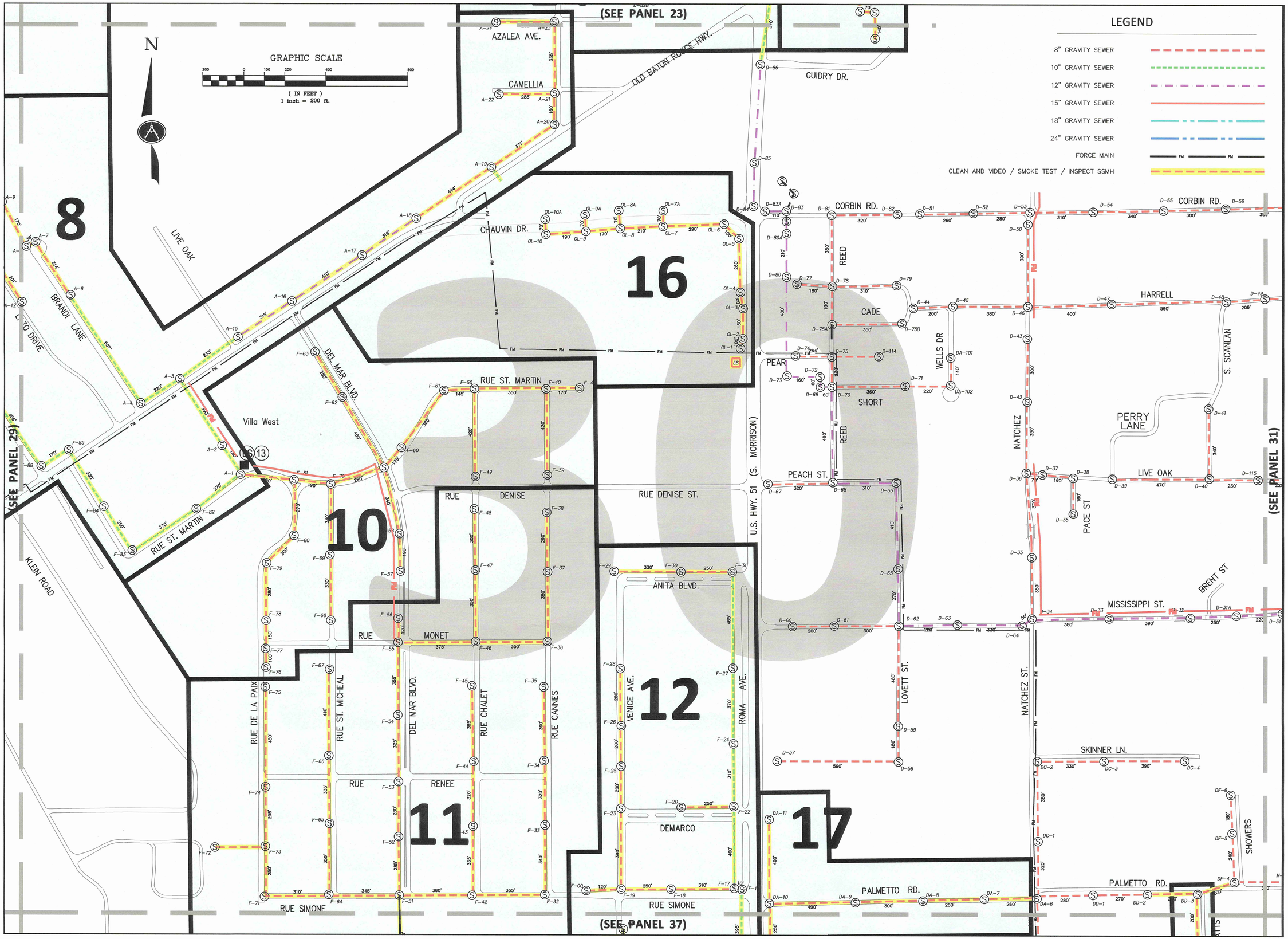

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER

SCALE:	1" = 200'
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 30

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-5665 FAX: (985) 542-0046

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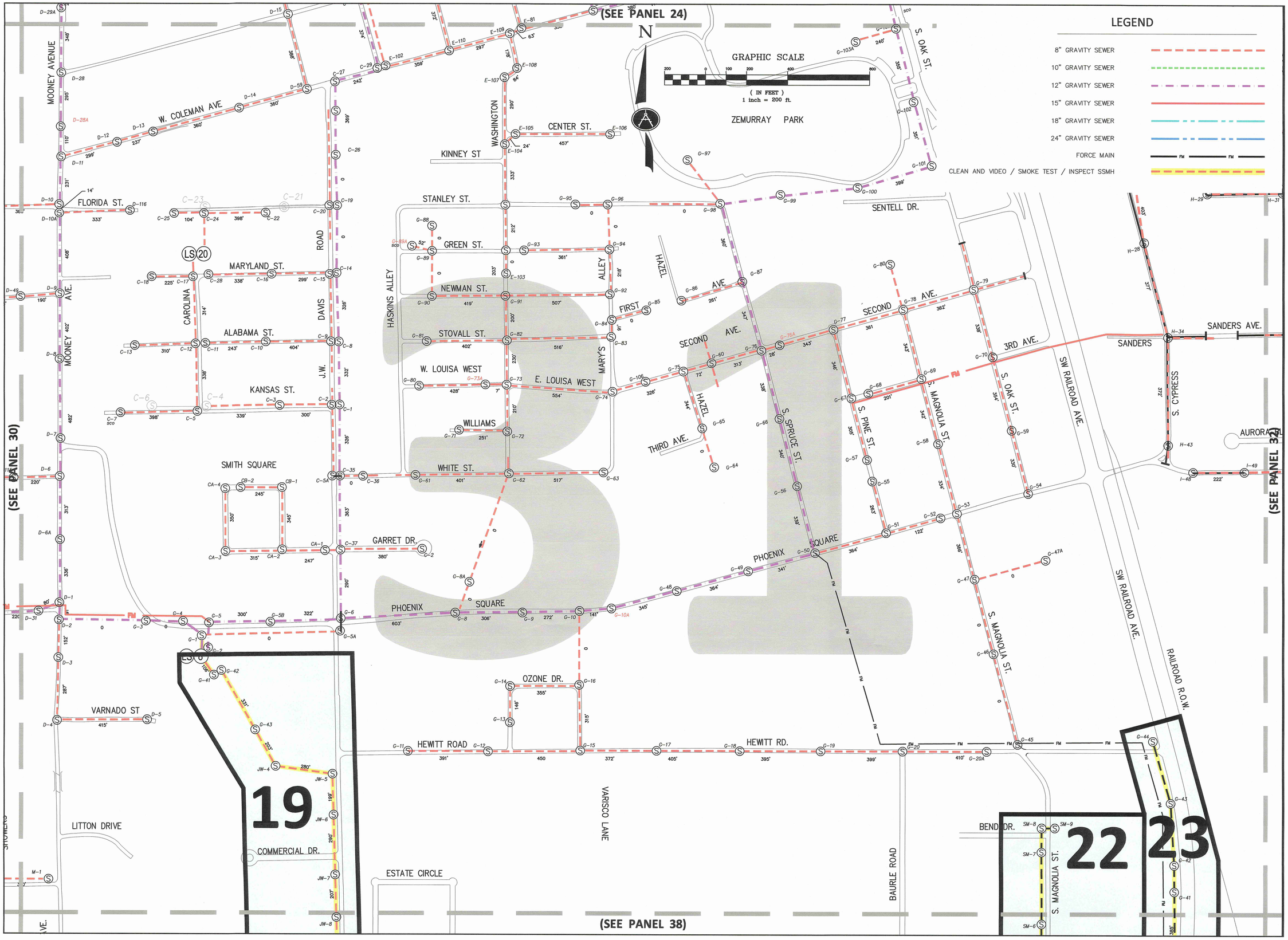

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

SCALE:	1" = 200'
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 31

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
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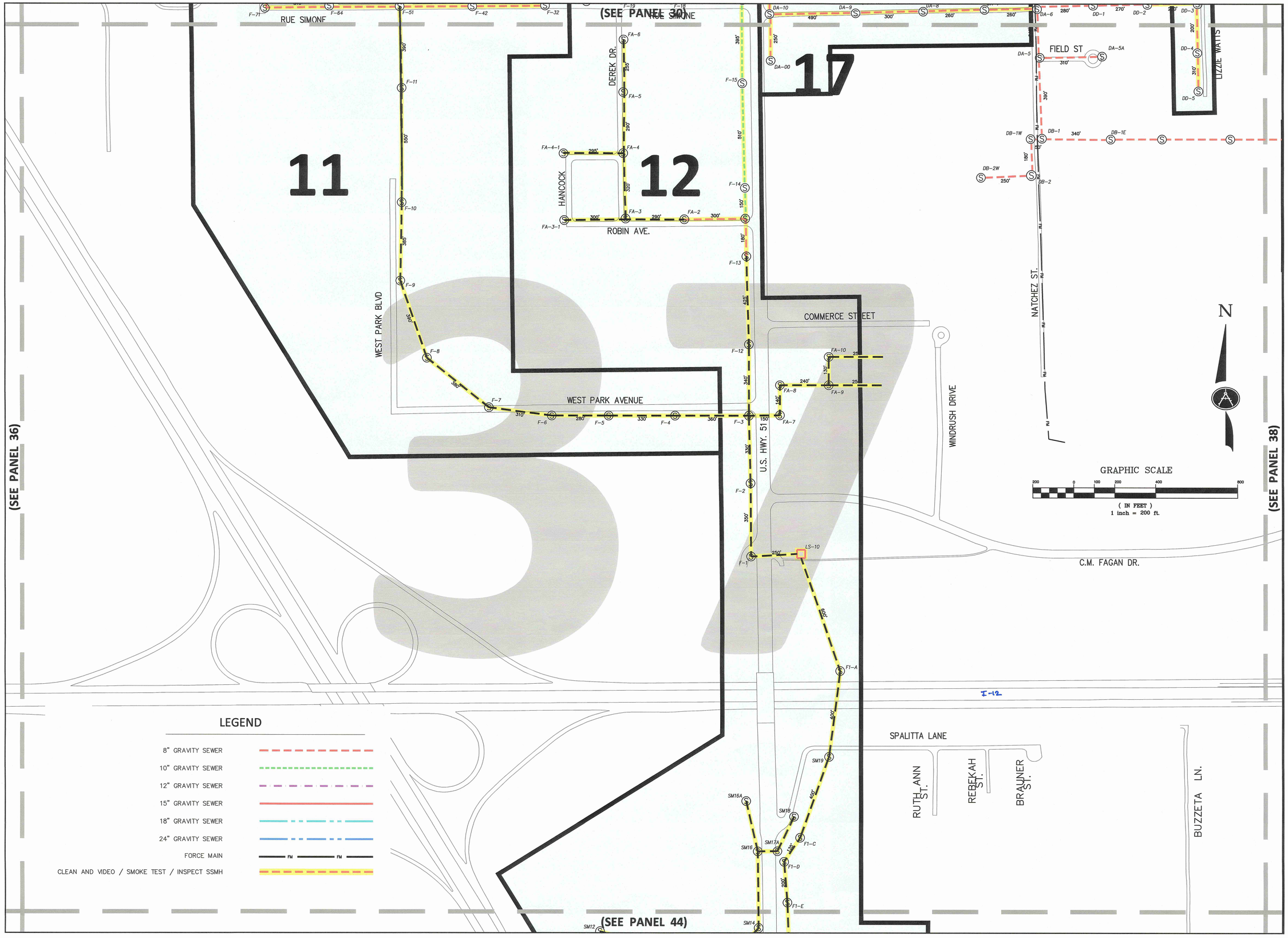

STATE OF LOUISIANA
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SSES MAP
PANEL 37

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
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STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
IN LOUISIANA

SCALE:	1" = 200'
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DRAWN:	M.F.H.
CHECKED:	T.C.S.

SSES MAP
PANEL 38

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
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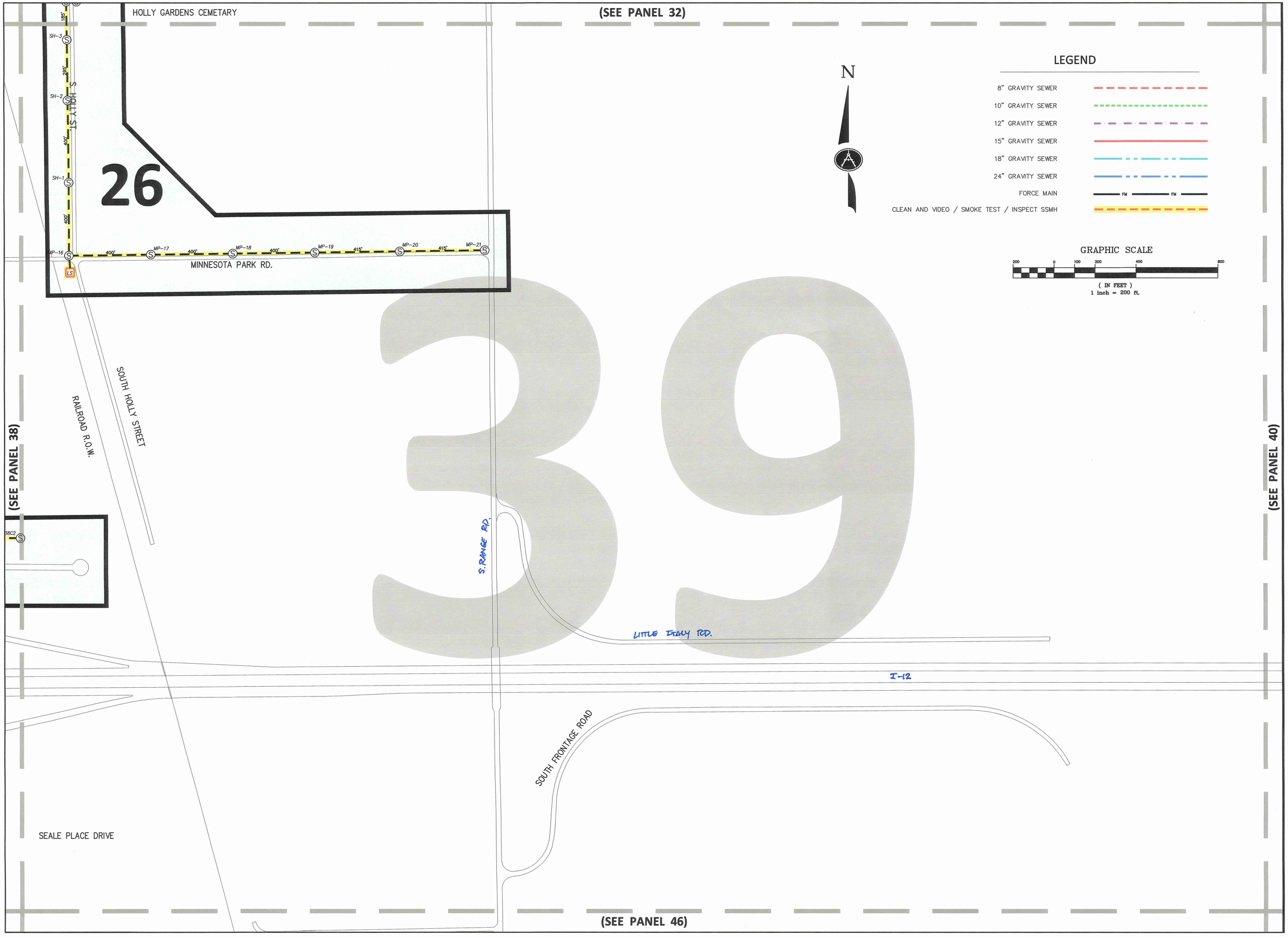

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

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SSES MAP
PANEL 39

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
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(SEE PANEL 34)

(SEE PANEL 40)

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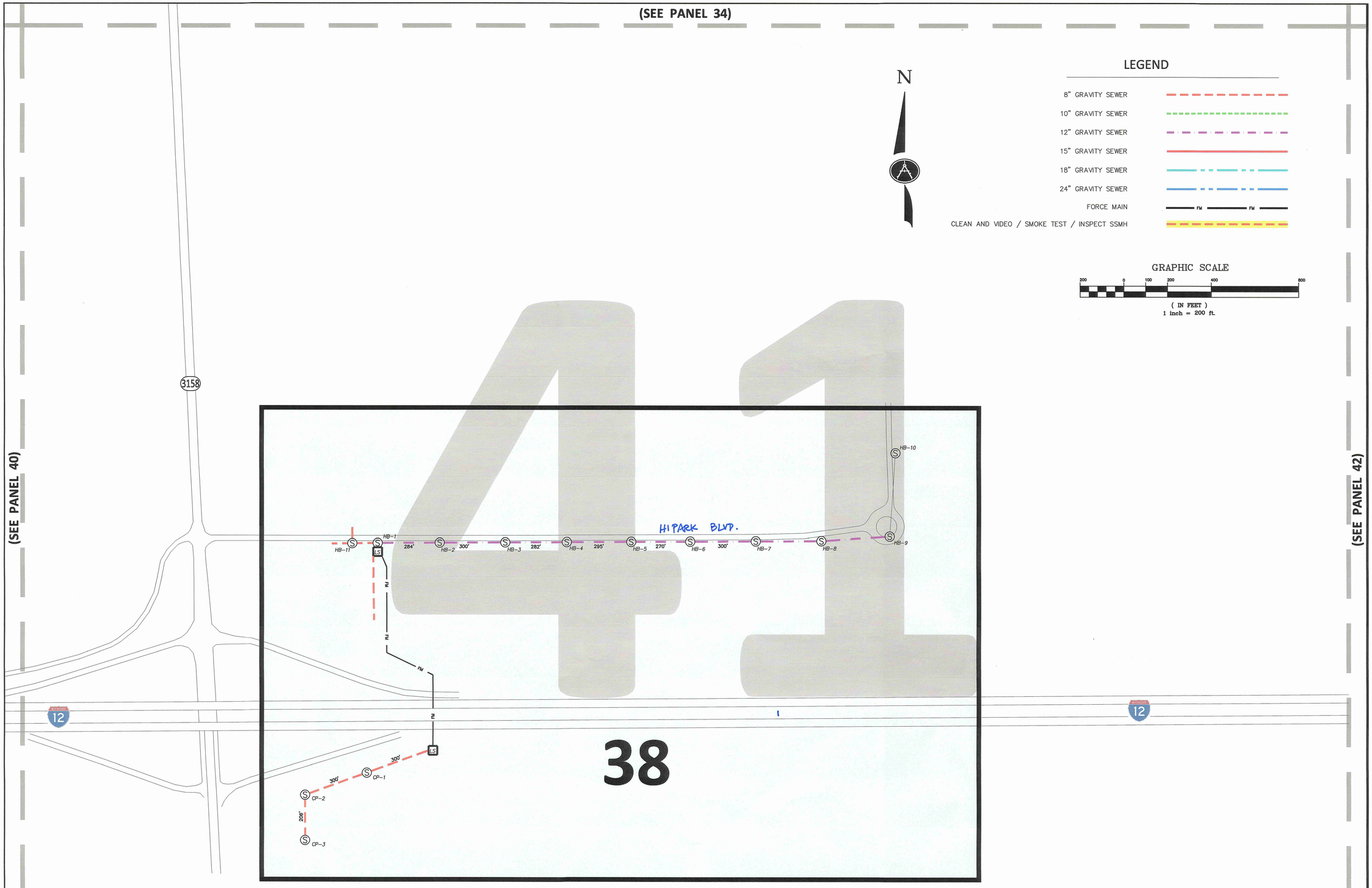

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SCALE:	1" = 200'
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SSES MAP
PANEL 41

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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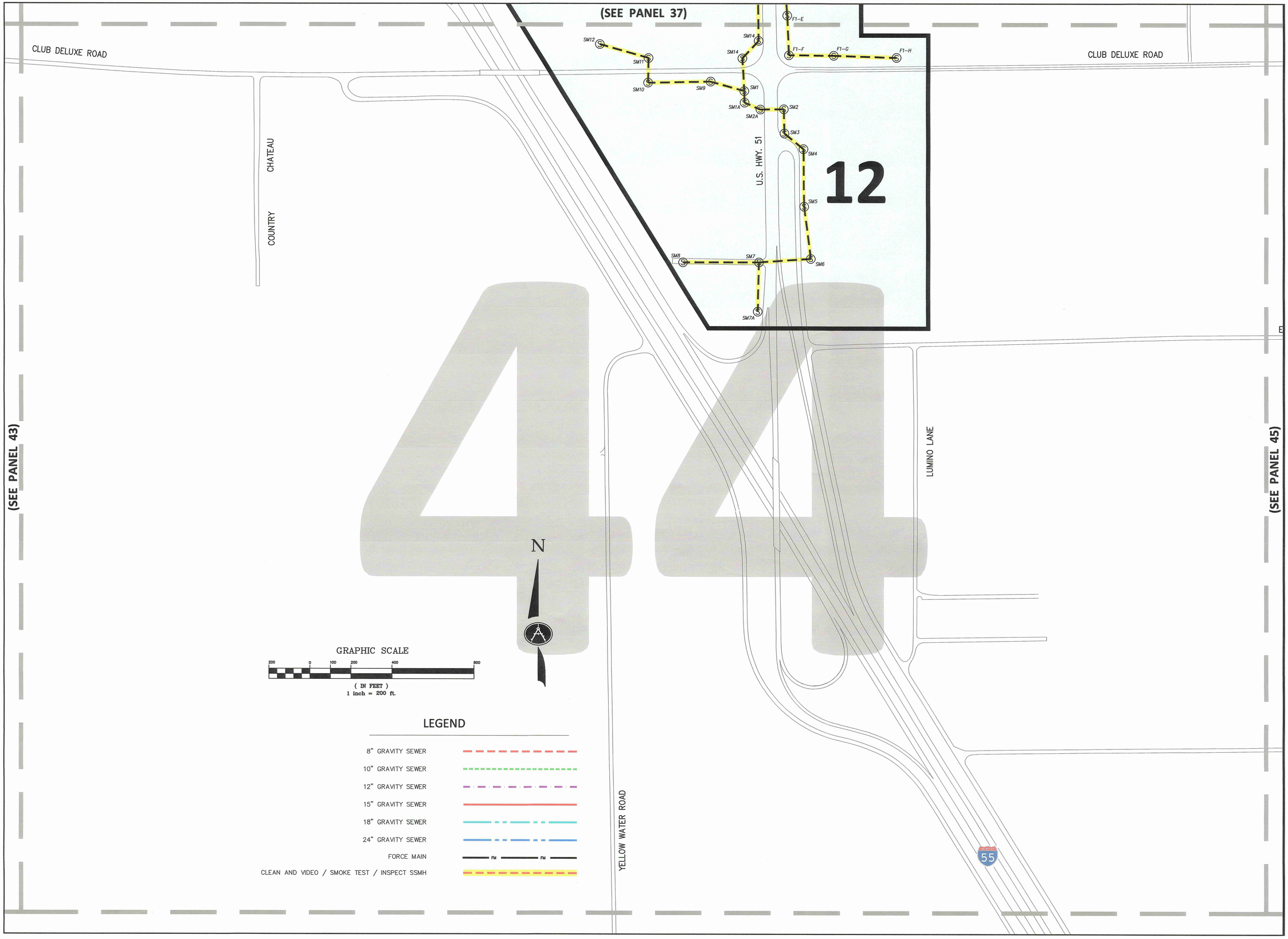

STATE OF LOUISIANA
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CHECKED:	T.C.S.

SSES MAP
PANEL 44

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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CONSULTING CIVIL ENGINEERS
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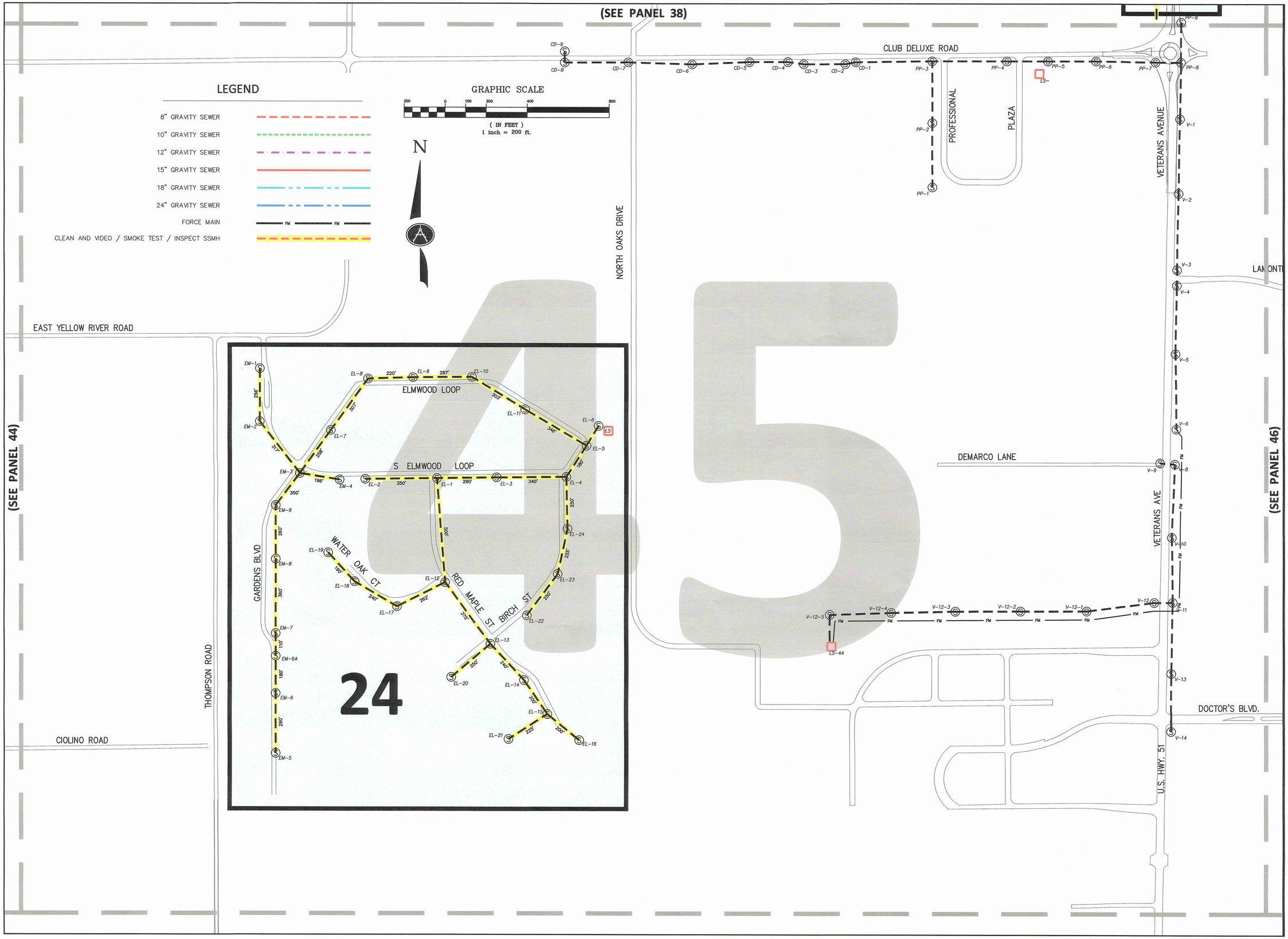

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CHECKED:	T.C.S.

SSES MAP
PANLE 45

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
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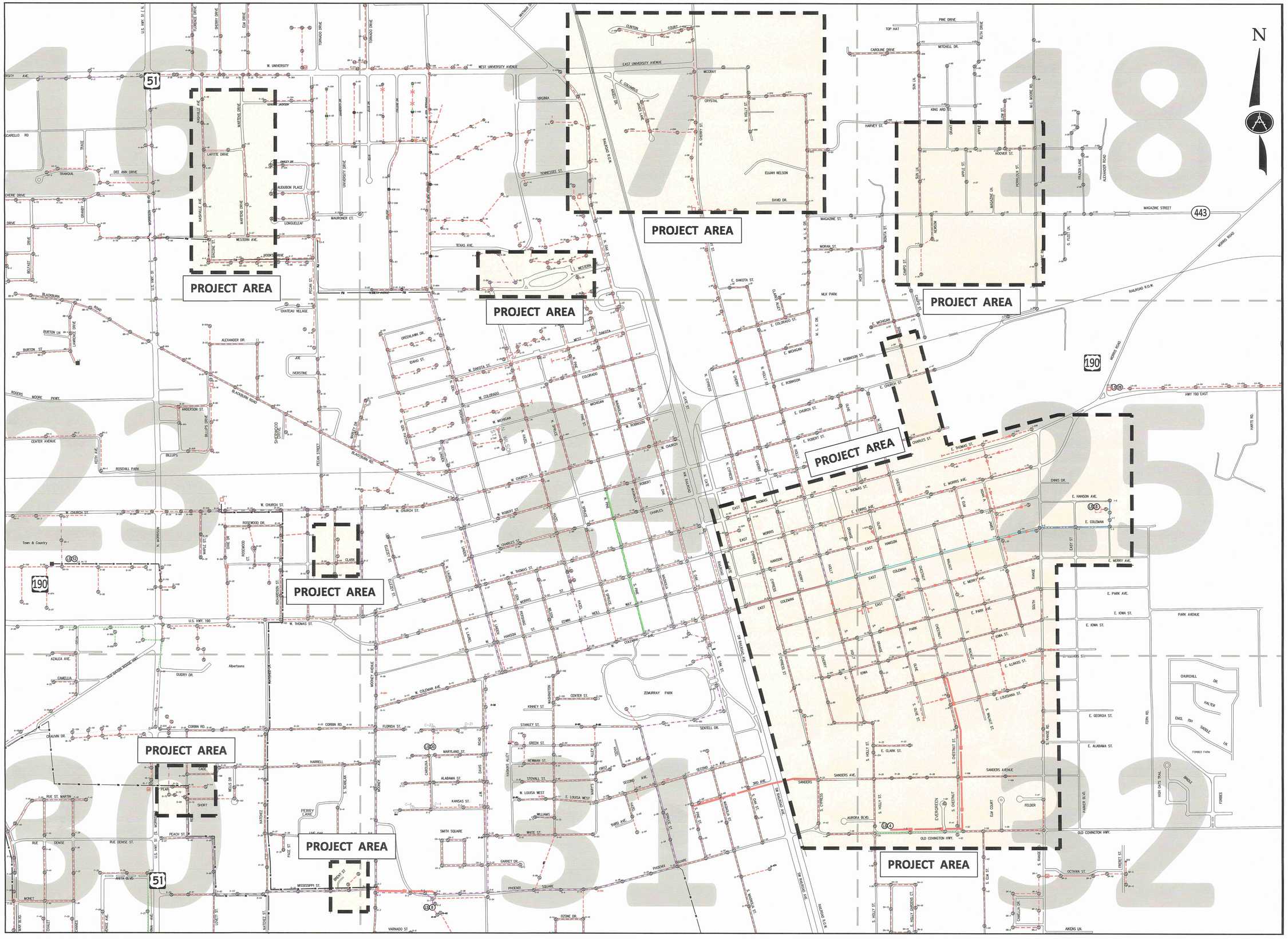

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

SCALE:	1" = 500'
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

I & I REPAIRS
RELEASE #1
INDEX SHEET

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET
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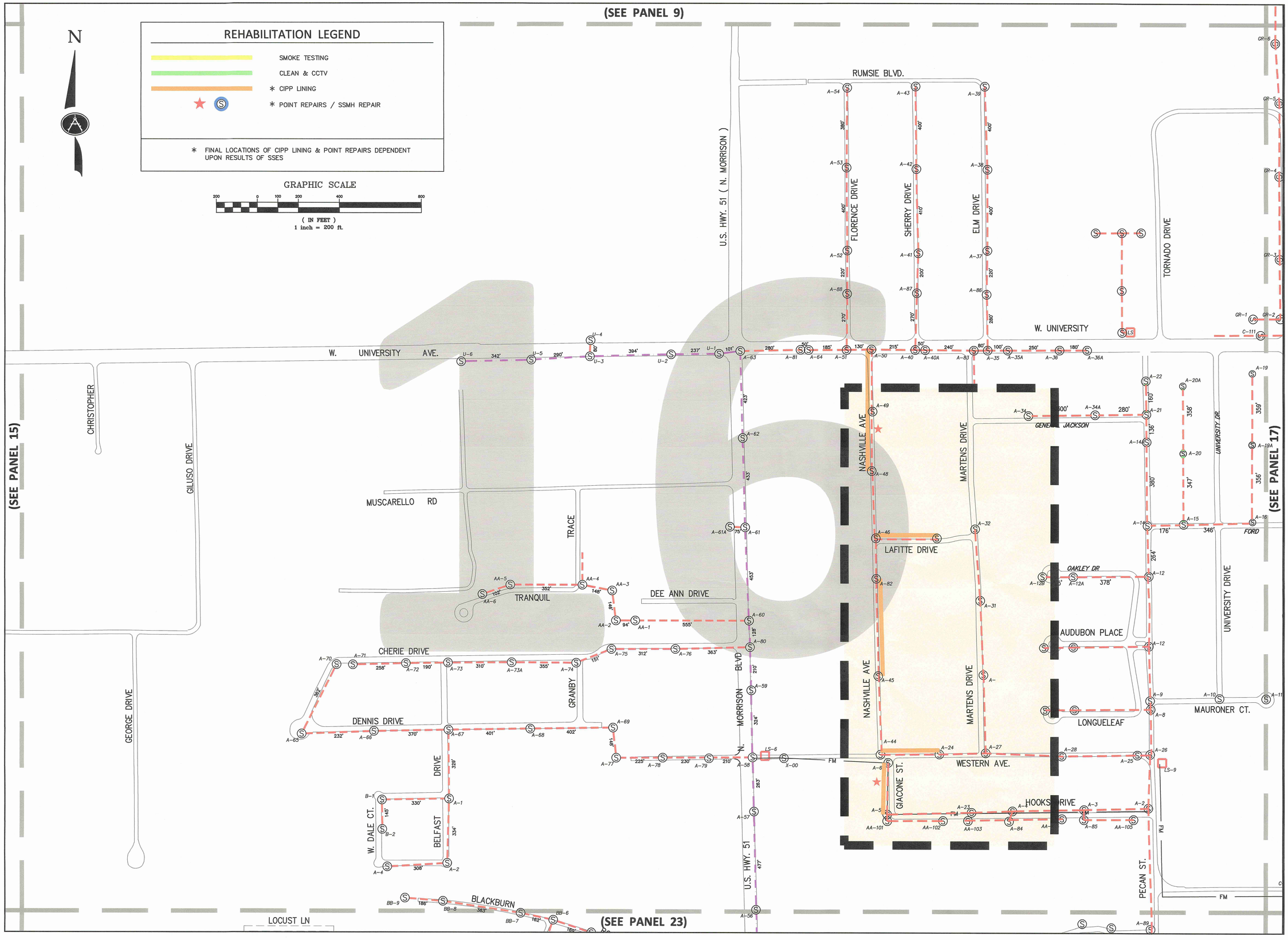

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER

SCALE:	1" = 200'
DATE:	9/7/2023
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22

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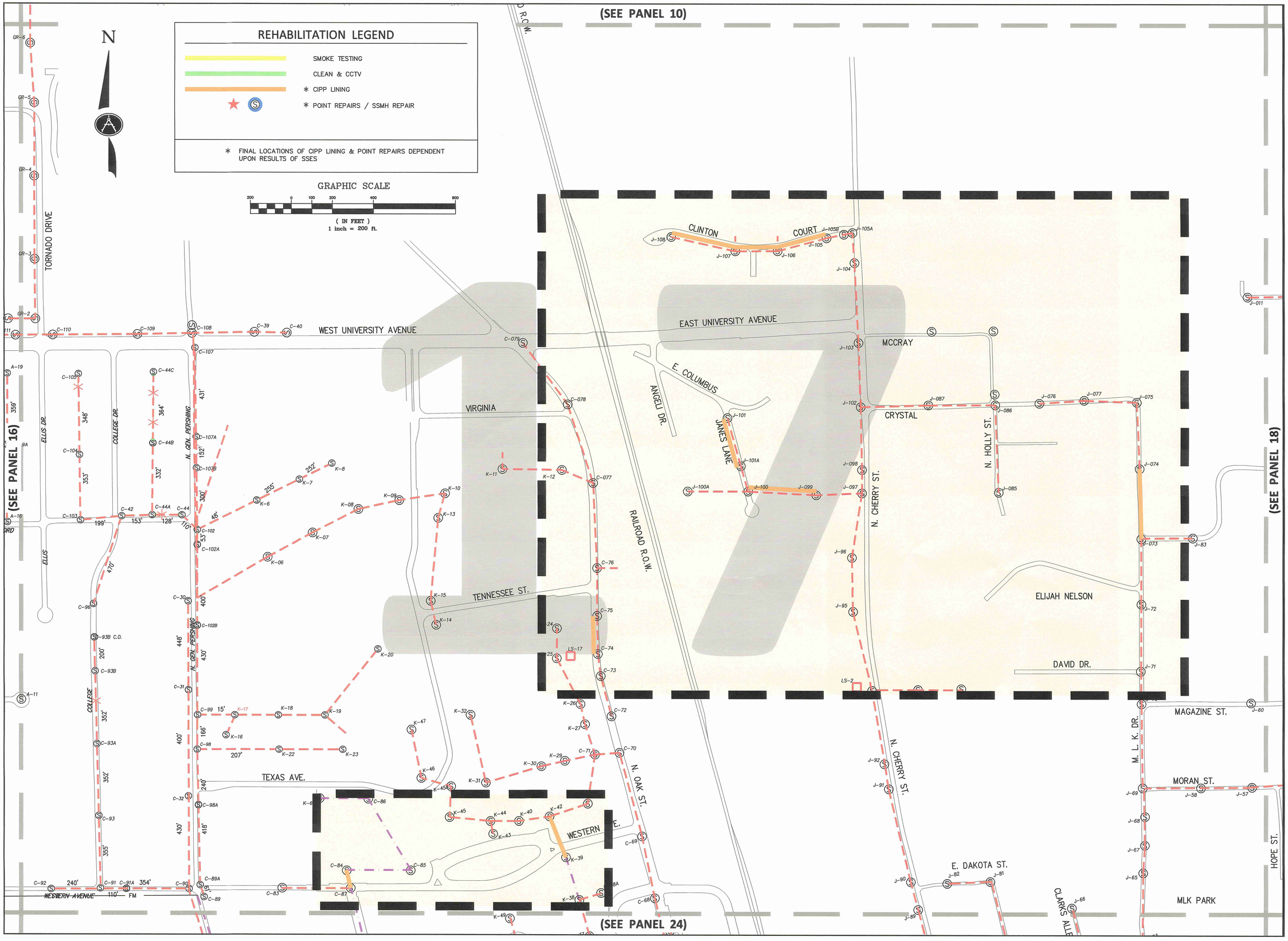

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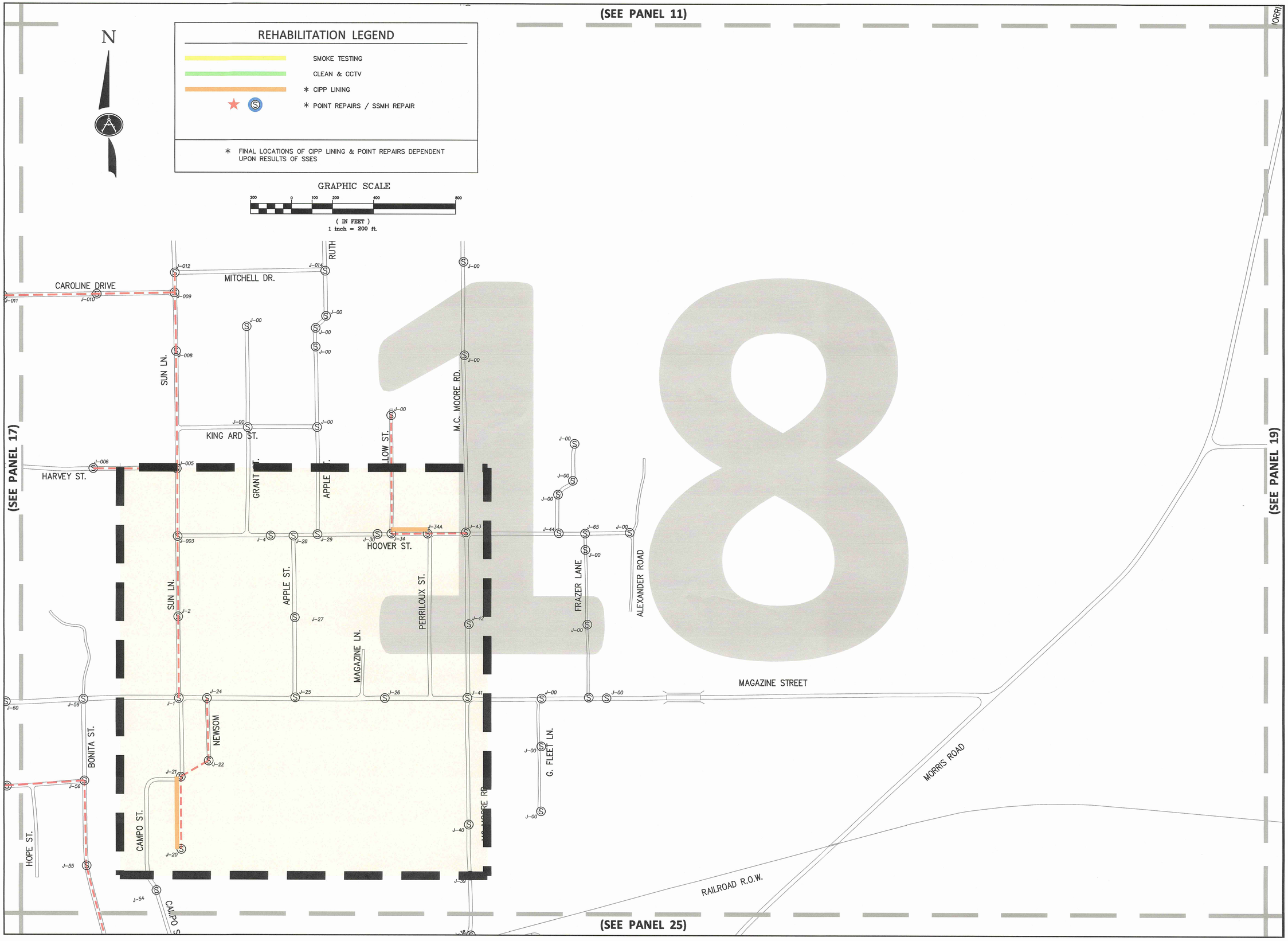

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24

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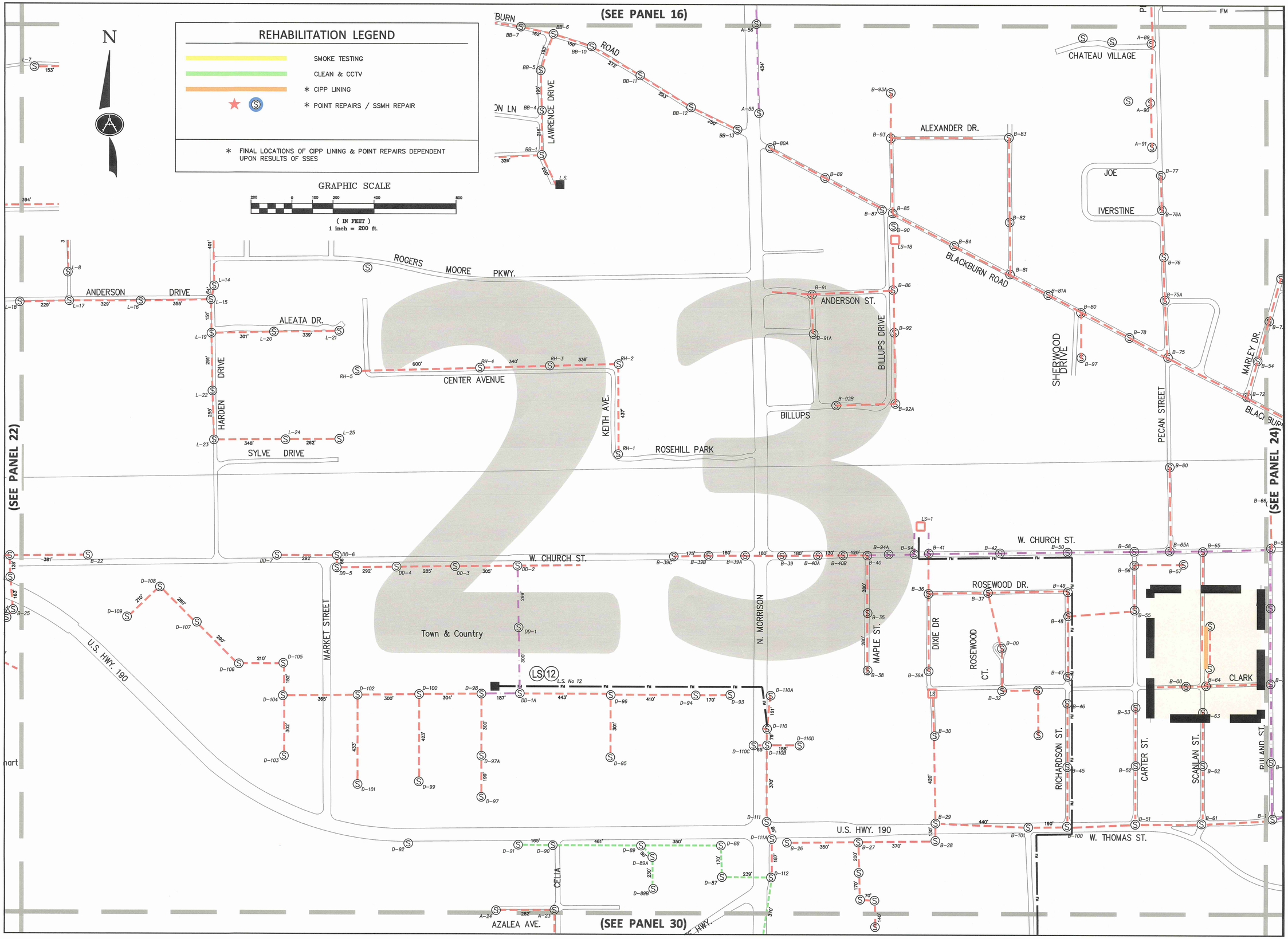

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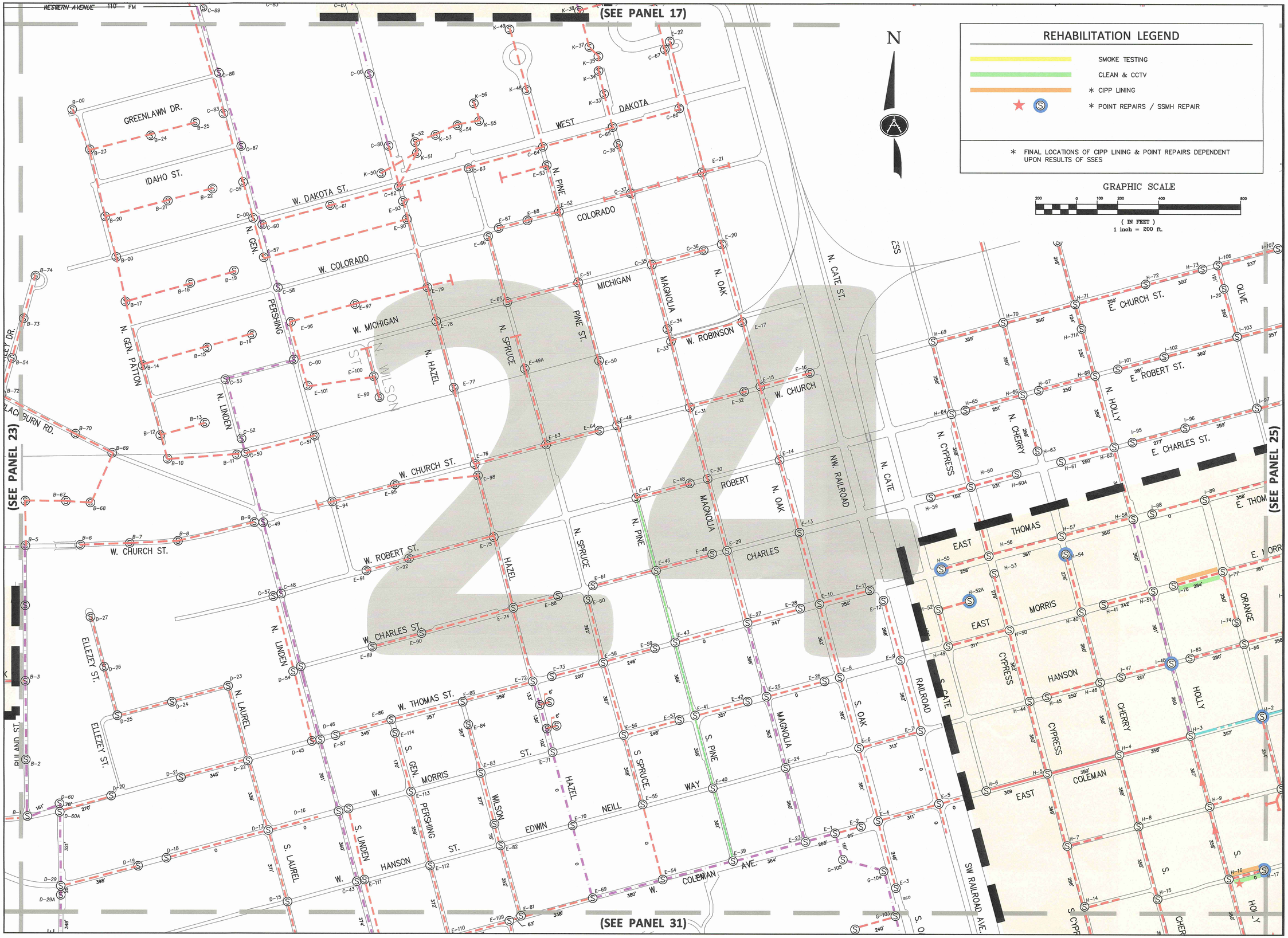

T. C. SPANGLER, JR.
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26

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STATE OF LOUISIANA
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27

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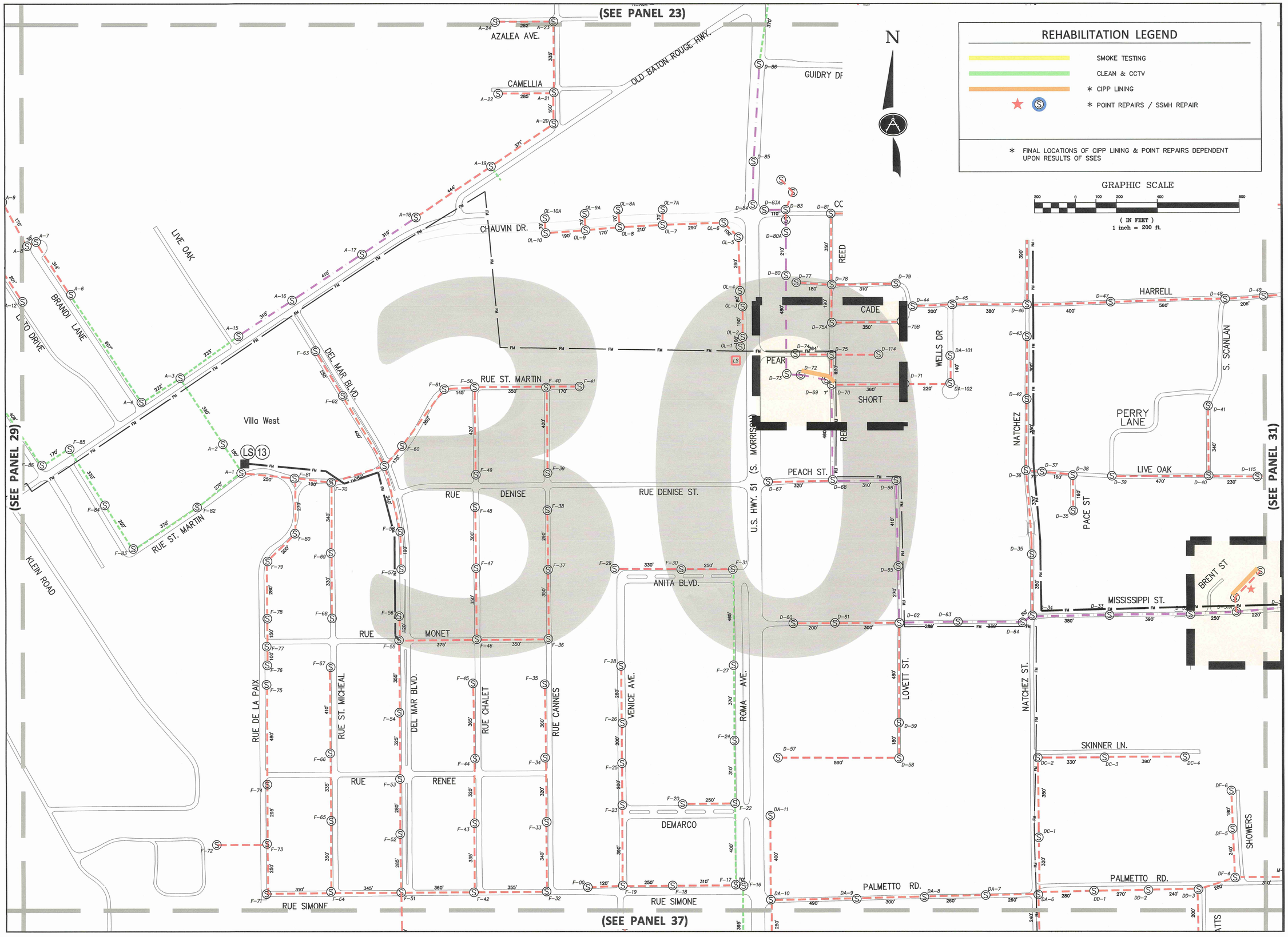

STATE OF LOUISIANA
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28

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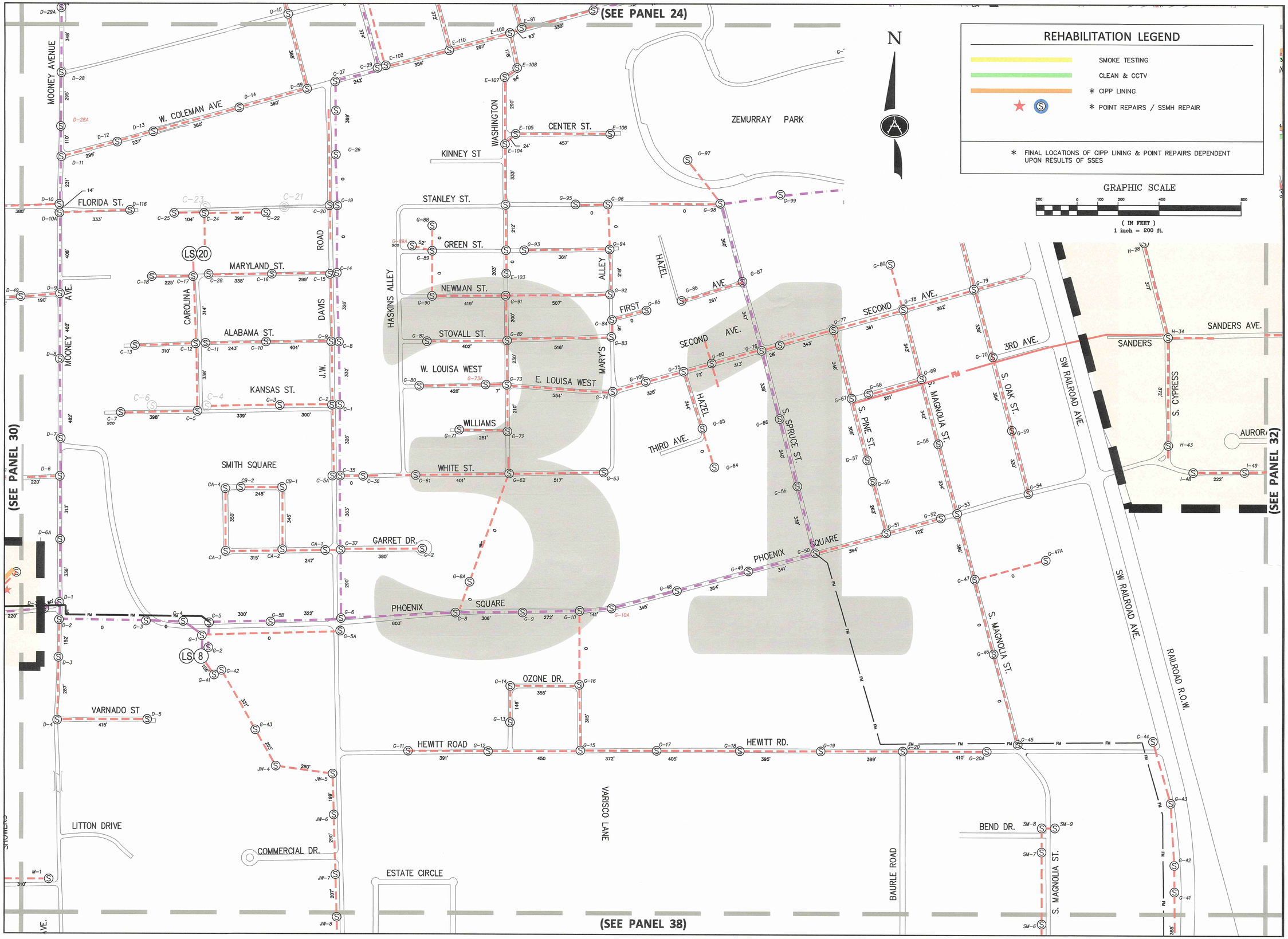

STATE OF LOUISIANA
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29

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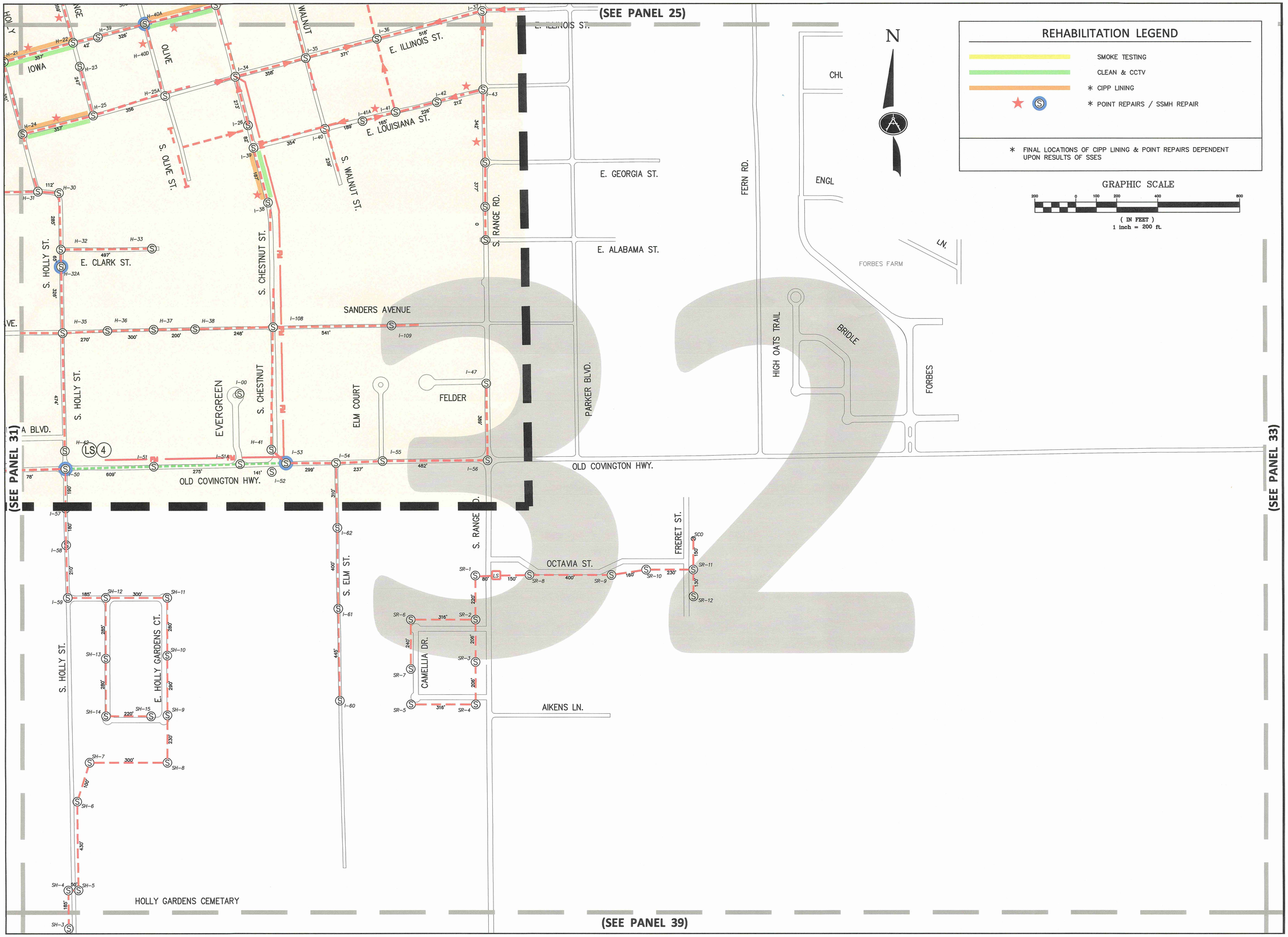

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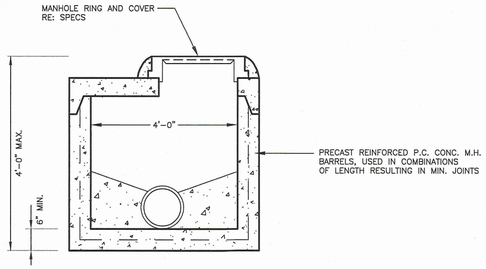
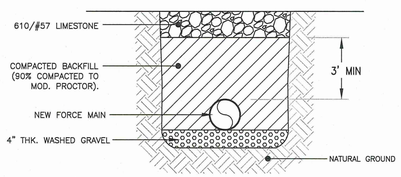


A SHALLOW MANHOLE
N.T.S.



B REMOVE & REPLACE GRAVEL DRIVE
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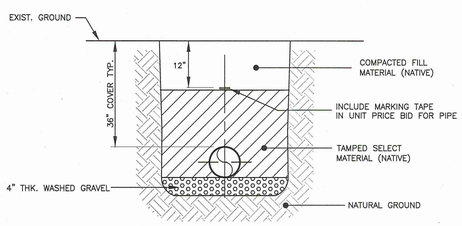

C TYP. TRENCH BEDDING BACKFILL DETAIL
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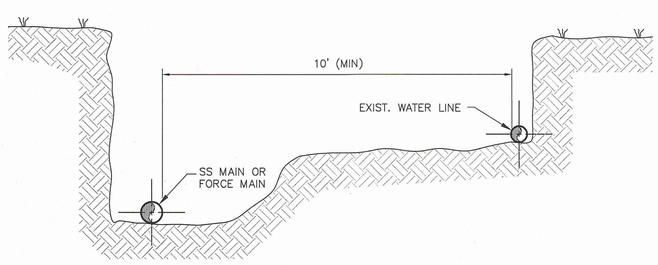

D SEWER LINE PARALLELING WATER LINE
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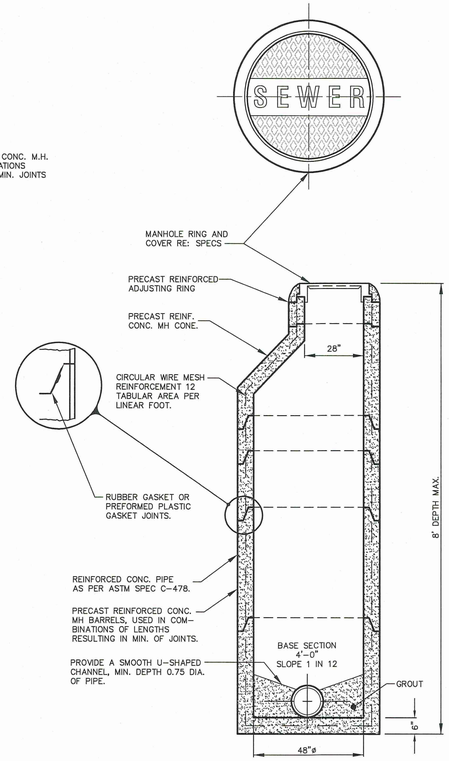

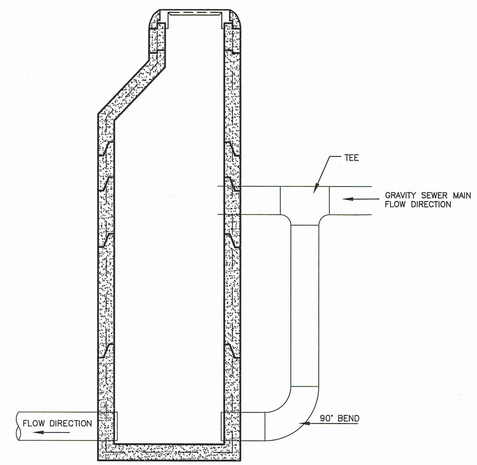

E PRECAST CONC. DETAIL w/ MONOLITHIC BASE — DROP MANHOLE
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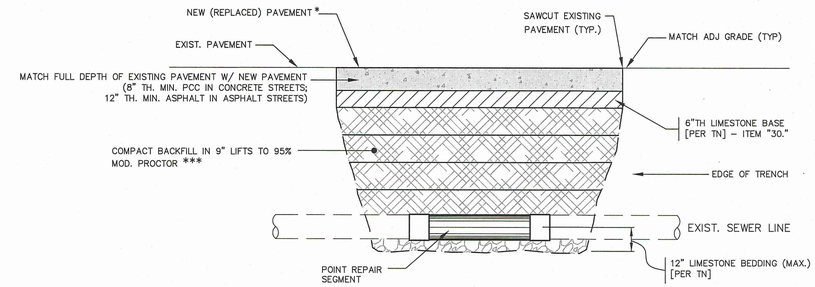


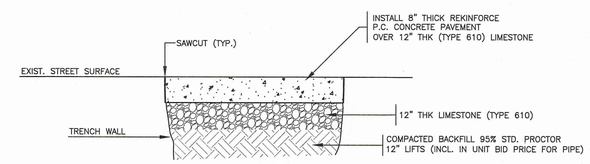
SECTION

*— NOMINAL INITIAL STREET/DRIVEWAY CUTS SHALL BE 8'x8' FOR POINT REPAIRS 6' DEEP.
— FOR POINT REPAIRS DEEPER THAN 6', STREET DRIVEWAY CUTS MAY BE 1.5x DEPTH OF P.R.

**— STREET PAVEMENTS SHALL MATCH FULL DEPTH OF EXISTING PAVEMENT W/ 8"TH MIN. PCC IN CONCRETE STREETS AND 12" TH MIN. ASPHALT PATCH IN ASPHALT STREETS
— DRIVEWAYS / SIDEWALKS SHALL BE 6"TH PCC

***— EXCAVATED NATIVE MATERIAL SHALL BE USED AS TRENCH BACKFILL UNLESS DETERMINED BY THE ENGINEER THAT EXIST. MATL. IS UNSUITABLE.
— IF EXIST. MATL. IS DEEMED UNSUITABLE, HAUL-IN & COMPACT SELECT BACKFILL. [PAYABLE PER CY]

F PAVEMENT REPAIR DETAILS - POINT REPAIRS
N.T.S.



G REMOVE / REPLACE STREET PAVEMENT
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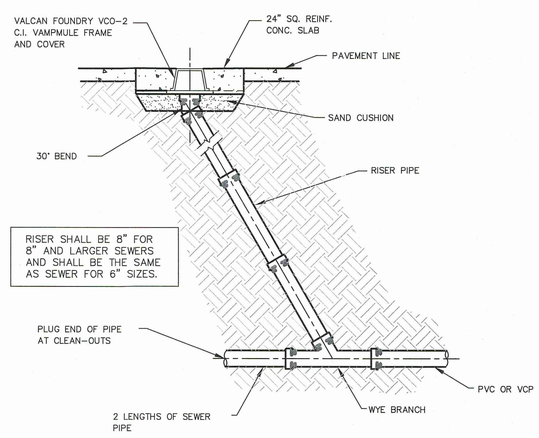

H SANITARY SEWER CLEANOUT
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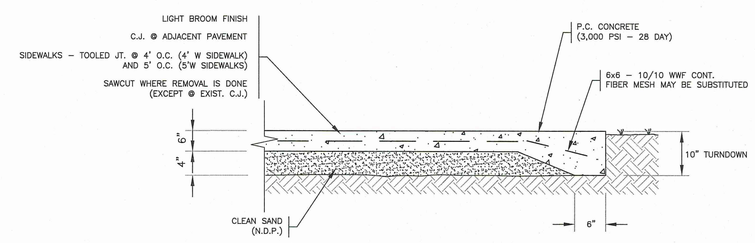

I REMOVE & REPLACE SIDEWALK / DRIVEWAY
N.T.S.

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
IN
CIVIL

SCALE:	
DATE:	9/7/2023
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STANDARD DETAILS

SEWER SYSTEM REHABILITATION
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for
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GENERAL PROVISIONS

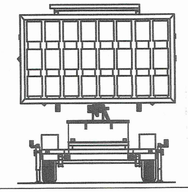
- All temporary traffic control (TTC) devices used shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges, the MUTCD, and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices where applicable.
- Materials used for TTC shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges and, when applicable, the LADOTD AML.
- Placement of TTC devices shall not commence without the approval of the Engineer and until work is about to begin, unless they are covered.
- No lane closures, lane shifts, diversions or detours shall occur without the approval of the Engineer.
- Responsibility is hereby placed upon the contractor for the installation, maintenance and operation of all TTC devices called for in these plans or required by the Engineer for the protection of the traveling public as well as all LADOTD and construction personnel.
- The contractor shall also be responsible for the maintenance of all permanent signs, pavement markings, and traffic signals left in place as essential to the safe movement and guidance of traffic within the project limits unless noted in the plans.
- The DTOE shall serve as a technical advisor to the Engineer for all traffic control matters.
- The Chief Construction Engineer or his appointed designee shall approve all signs and situations not addressed in the plans based on the recommendations of the Project Engineer and the DTOE. All changes shall be noted in <u>all</u> project traffic control diaries.
- The Chief Construction Engineer or his appointed designee shall approve all design speeds of diversions or shifts, if it differs from design plans, based on the recommendations of the Project Engineer and the DTOE.
- All temporary traffic control plans shall comply with the Transportation Management Plan.
- Any additional signs shown in the MUTCD and required by the Engineer shall be installed under Item 713-01-00100.
- Neither work activity nor storage of equipment, vehicles, TMAs, or materials shall occur within the buffer space.
- When a work area has been established on one side of the roadway only, there shall be no conflicting operations or parking on the opposite shoulder within 500 feet of the work area.
- A lighting plan shall be submitted to the Engineer 30 days prior to night work for approval. (See section 105.20 of the Louisiana Standard Specifications for Roads and Bridges.)
- Parking of vehicles or unattended equipment or storage of materials, within the clear zone shall not be permitted unless protected by guardrail or barriers. If the clear zone is not defined on the plan sheets, the Engineer shall verify.
- Immediately upon removal of existing guardrail, the contractor shall install and maintain an NCHRP Report 350 or MASH approved device to protect the blunt end of the bridge or column until new guardrail is installed. After removal of the existing guardrail, new guardrail should be installed within seven (7) days. On non-NHS routes with shoulders less than 8 feet wide: If an NCHRP 350 Report Test Level 3 or MASH device is required but the field conditions of the roadway cannot support a Test Level 3 device, then a Test Level 2 device can be substituted in its place upon approval by the Engineer. If utilized, a TMA is allowed for a maximum of 72 hours.
- All costs associated with crash devices are to be included in Item 713-01-00100.
- Sight distance should be considered when placing traffic control devices.
- On all mainline Interstates, a minimum of 1.5 feet of paved shoulder on the left and right side shall be maintained at all times.
- On Interstates, a minimum of 11 foot lanes shall be maintained. On all other roadways, a 10 foot minimum travel lane should be maintained where practical.
- TTC Standards are not drawn to scale.
- The contractor shall develop an internal traffic control plan approved by the Engineer prior to each phase.
- Truck restrictions such as (but not limited to) restricting lanes, oversize loads or times of travel, may be required for narrow lanes or other field conditions.

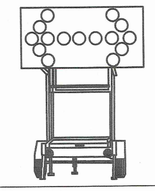
PAVEMENT MARKINGS (see AML)

- All pavement markings within the limits of the project or adjacent to the project limits that are in conflict with the project signing or the required traffic movements shall be removed from the pavement by blast cleaning or grinding. <u>(Existing striping shall not be painted over with black paint or covered with tape.)</u>
- If special pavement markings are needed, they shall be reflectorized, removable and accompanied by the proper signage.
- Temporary Raised Pavement Markers may be added to supplement temporary striping in areas of transition, in tapers, in diversions and in other areas of need as shown in the plans or as directed by the Engineer.
- Materials and placement of temporary pavement markings shall conform to Section 713 of the Louisiana Standard Specifications for Roads and Bridges. If no pay item exists for temporary markings, they shall be installed under item 713-01-00100.
- Temporary markings installed in the permanent configuration shall comply with LADOTD pavement marking standard plans, MUTCD and/or the permanent striping plans.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

- PCMS shall be used on all Interstate Highways. PCMS shall be used on all other roadways (where space is available) with an ADT greater than 20,000.
- When used in advance of a lane closure or a lane shift, the PCMS should be placed on the right hand side of the road a minimum distance of 2 miles in advance of the taper for interstates and to be determined by the Engineer on other highways.
- For interstates and multi-lane highways, if vehicles are queuing beyond the 2 mile PCMS, an additional PCMS should be placed on the right hand side of the road approximately 5 miles in advance of the taper or at the end of the queue, whichever is greater.
- PCMS messages shall be approved by the DTOE. Messages shall be no more than 3 lines and 2 screens.
- Messages shall display only traffic operational, regulatory, warning, and guidance information. PCMS messages shall not display advertising or safety messages. Messages should only convey information concerning the problem/situation, location, and recommended driver action.
- PCMS should be placed as far from the traveled lane as possible. They shall be shielded by guardrail or barriers. If this is not possible they shall be delineated with a min. 3 drum taper spaced at 20ft with a 4th drum alongside the PCMS.
- If the PCMS encroaches on the improved shoulder then the contractor shall install a shoulder closure.
- When the PCMS is not displaying a work zone appropriate message pertaining to the ongoing construction project it shall be shielded by guard rail or barriers, or removed from the clear zone.





STATE OF LOUISIANA
GARY N. LeBLANC
REG. No. 23720
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
6-27-18

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

SPEED LIMITS

- The Engineer may approve a 10 mph drop in the speed limit for posted speeds of 45 mph or greater and for any construction, maintenance or utility operation that requires one or more of the following:
  - (A) The condition of the traveled way is degraded due to milled surfaces or uneven travel lane lines greater than 1.5 inches.
  - (B) Work is in progress in the immediate vicinity of the travel way requiring lane closures or lane width reductions less than 11 feet.
  - (C) Workers present on the shoulder within 2 feet of the edge of the traveled way without barrier protection.
- The reduced speed zone shall only apply to those portions of the project limits affected. The Engineer may allow SPEED LIMIT WHEN FLASHING signs to supplement reduced speed zones.
- If the speed limit is reduced, speed limit signs shall be placed:
  - (A) beyond major intersections;
  - (B) at one mile intervals in rural areas;
  - (C) at half mile intervals in urban areas.
- At the end of the reduced speed zone, a speed limit sign displaying the original speed limit prior to construction shall be installed.
- For all other speed limit reductions not listed above, the Project Engineer and the DTOE shall recommend the speed reduction to the Chief Construction Engineer or his appointed designee for approval.
- If the speed limit is reduced more than 10 mph, placement of the signs shall be re-evaluated according to the MUTCD.

FLASHING ARROW BOARDS

- All Flashing Arrow Boards shall be 4 feet by 8 feet and Type C.
- Flashing Arrow Boards should be placed on the shoulder. When there is no shoulder or median area, the arrow board shall be placed within the closed lane behind the channelizing devices and as close to the beginning of the taper as practical.
- Flashing arrow boards shall be delineated with retroreflective TTC devices.
- At no time shall the arrow board encroach in the traveled way. When Flashing Arrow Board signs are not being used, they shall be shielded by guard rail or barriers, or removed.
- Arrow boards shall only be used for lane reduction tapers and shall not be used for lane shifts.

ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
AGCI	Associated General Contractors of America
AML	Approved Materials List
ANSI	American National Standards Institute
ATSSA	American Traffic Safety Services Association
B.O.P.	Beginning of Project
DTOE	District Traffic Operations Engineer
E.O.P.	End of Project
LADOTD	Louisiana Department of Transportation and Development
MASH	AASHTO Manual for Assessing Safety Hardware
MUTCD	Manual on Uniform Traffic Control Devices
NCHRP	National Cooperative Highway Research Program
NHS	National Highway System
PCMS	Portable Changeable Message Sign
TMA	Truck Mounted Attenuator
TMC	Traffic Management Center
TTC	Temporary Traffic Control
TTC Standards	Temporary Traffic Control Standard Plans

FOR INFORMATIONAL PURPOSES ONLY

THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

SHEET NUMBER	PARISH	CONTROL SECTION	STATE PROJECT

DESIGNED G. LEBLANC
CHECKED J. COLVIN
DETAILED C. FAKOURI
CHECKED G. LEBLANC
SERIES NUMBER

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

APPROVED BY CHIEF ENGINEER DATE: 7/2/18

TEMPORARY TRAFFIC CONTROL
GENERAL NOTES SHEET
TTC-00 (A)

DOTD TRAFFIC ENGINEERING

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET
32

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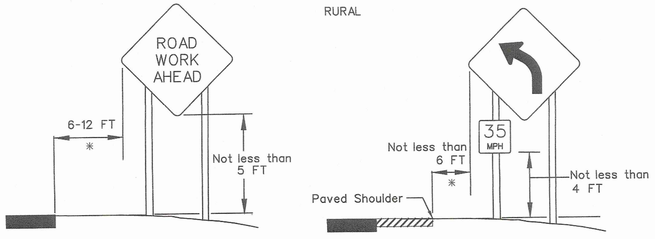
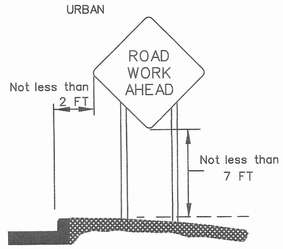
SIGNS

- All signs used for temporary traffic control shall follow the plans, the LADOTD TTC Standards and the MUTCD.
- Signs shown in the TTC illustrations are typical and may vary with each specific condition.
- One Type B High Intensity light shall be used to supplement the first sign (or pair of signs) that gives warning about a lane closure during nighttime operations (See AML).
- Mesh rollup signs shall not be allowed on any project.
- Contractor shall use caution not to damage existing signs which remain in place. Any LADOTD signs damaged by work operations shall be replaced by the contractor under item 713-01-00100.
- All signs (permanent and temporary) shall be removed or completely covered with a strong, lightweight, opaque material when no longer applicable. (Burlap is not an acceptable material to cover signs).
- At no time shall signs warning against a particular operation be left in place once the operation has been completed or where the condition has been removed.
- Warning signs used for temporary traffic controls shall meet the following guidelines unless otherwise noted in the plans:
  - (A) size shall be 48 inches by 48 inches.
  - (B) see the Louisiana Standard Specifications for Roads and Bridges and the AML for sheeting information.
  - (C) lateral distance of signs shall be a minimum of 6 feet from the edge of shoulder or edge of pavement if no shoulder exists and 2 feet from the back of curb in urban areas (see diagram).
- When portable sign frames are not in use, they shall be moved to an area inaccessible to traffic and not visible to the driver.
- Left side mounted signs will not be required for roadways with a center left turn lane and for undivided roadways.
- Vinyl roll up signs may be used if work zone is in place for 12 hours or less, there are no more than 2 lanes in each direction and if signs meet all size, color, retroreflectivity and NCHRP 350 Report or MASH requirements.
- All signs shall be visible to the drivers (i.e. no obstructions such as on street parking or other traffic control devices shall block the sign).
- On divided highways, signs shall be placed on the right and the left as shown on the TTC standards.
- 1 foot portable sign stands may be used if the work zone is in place for 14 hours or less and there are no more than 2 lanes in each direction.
- Sign posts:
  - -Signs measuring 10 square feet or less shall be mounted on 1 rigid post
  - -Signs over 10 square feet shall be mounted on 2 rigid posts
  - -Signs over 20 square feet shall be mounted on at least 3 rigid posts
- Rigid sign supports shall be driven to a minimum depth of 3 feet. (If splicing is required, see Allowable Lap Splice U-channel Post.)
- For sign height, see the Rural and Urban diagrams:



* If lateral distance is not practical, the sign may be placed no less than 2 feet.

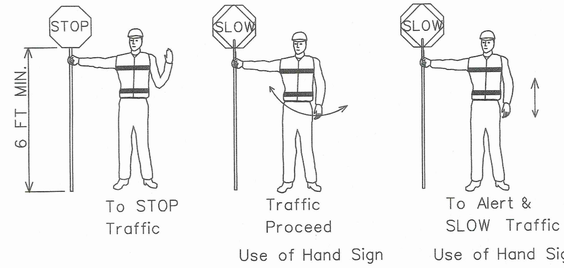


LANE CLOSURES

- All proposed lane, road or shoulder closures shall be reviewed by the DTOE and approved by the Engineer.
- Two lane, two-way highways shall have a maximum work area of two miles; all other roadways shall have a four mile maximum work area.
- A queue analysis shall be performed prior to approval of lane closures on all Interstates according to Section 6A.1 of the Traffic Engineering Manual.
- Closure plans and times shall be turned in to the Engineer for review according to the following:
  - (A) 5 working days minimum if traffic control plan has been approved or is contained in the plans.
  - (B) 10 working days minimum and a traffic control plan must be submitted for lane closures not addressed in the plans.
- Weekly updates to the DTOE, Project Engineer, the LADOTD TMC operator and the regional TMC operator (if applicable) will be required for all ongoing lane closures to update the closure status.
- Daily updates to the DTOE, Project Engineer and TMC operator (if applicable) will be required for all projects where active closures are in place.

FLAGGERS

- All flaggers shall be qualified.
- The contractor shall be responsible for training or assuring that all flaggers are qualified to perform flagging duties.
- A Qualified Flagger is one that has completed courses such as those offered by ATSSA or other courses approved by the LADOTD Work Zone Task Force. The contractor shall be responsible for getting the flagger course approved.
- When utilized, a flagger shall use a minimum 18 inch octagonal shape sign on a minimum 6 foot stop/slow paddle and wear ANSI Class 2 Lime Green vest during day time operations and ANSI Class 3 Lime Green ensemble during night operations.
- In all flagging operations, the flagger must be visible from the flagger advance warning sign.
- Flaggers shall not be used on the Interstate.



STATE OF LOUISIANA
GARY N. LeBLANC
REG. No. 28220
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
6-27-18

PEDESTRIAN CONSIDERATIONS

- If the TTC zone affects the movement of pedestrians, adequate pedestrian access and walkways shall be provided either through the TTC zone or a designated alternate route.
- Pedestrians should be provided with a convenient and accessible path that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s) or footpath(s).
- Advance notification of sidewalk closures shall be provided by the maintaining agency.

REFERENCES

- The contractor shall be responsible for understanding all rules and requirements in the current edition of the following documents:

1) Louisiana Standard Specifications for Roads and Bridges. http://www.dotd.la.gov/highways/specifications/
2) Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). http://mutcd.fhwa.dot.gov/
3) LADOTD Approved Materials List (AML) Manual. http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Materials_Lab/Pages/Menu_QPL.aspx
4) LADOTD Traffic Engineering Manual http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Traffic_Engineering/Misc%20Documents/Traffic%20Engineering%20Manual.pdf
5) National Cooperative Highway Research Program (NCHRP) Report 350: "Guidelines for Work Zones Traffic Control Devices". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_350-a.pdf
6) NCHRP Report 475: "A Procedure for Assessing and Planning Nighttime Highway Construction and Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_475.pdf
7) NCHRP Report 476: "Guidelines for Design and Operation of Nighttime Traffic Control for Highway Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_476.pdf
8) NCHRP Report 498: "Illumination Guidelines for Nighttime Highway Work". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_498.pdf
9) American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide.
10) American Traffic Safety Services Association (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices and Features.
11) U.S. Department of Transportation Federal Highway Administration Traffic Control Handbook for Mobile Operations at Night. http://www.dot.state.il.us/blr/1023.pdf

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

FOR INFORMATIONAL PURPOSES ONLY

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

APPROVED BY CHIEF ENGINEER: DATE: 7/3/18

SERIES NUMBER | STATE PROJECT | CONTROL SECTION | PARISH | SHEET NUMBER

DESIGNED G. LEBLANC
CHECKED J. COLVIN
DETAILED C. FAKOURI
CHECKED G. LEBLANC

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TEMPORARY TRAFFIC CONTROL
GENERAL NOTES SHEET

TTC-00 (B)

DOTD TRAFFIC ENGINEERING

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET 33

THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

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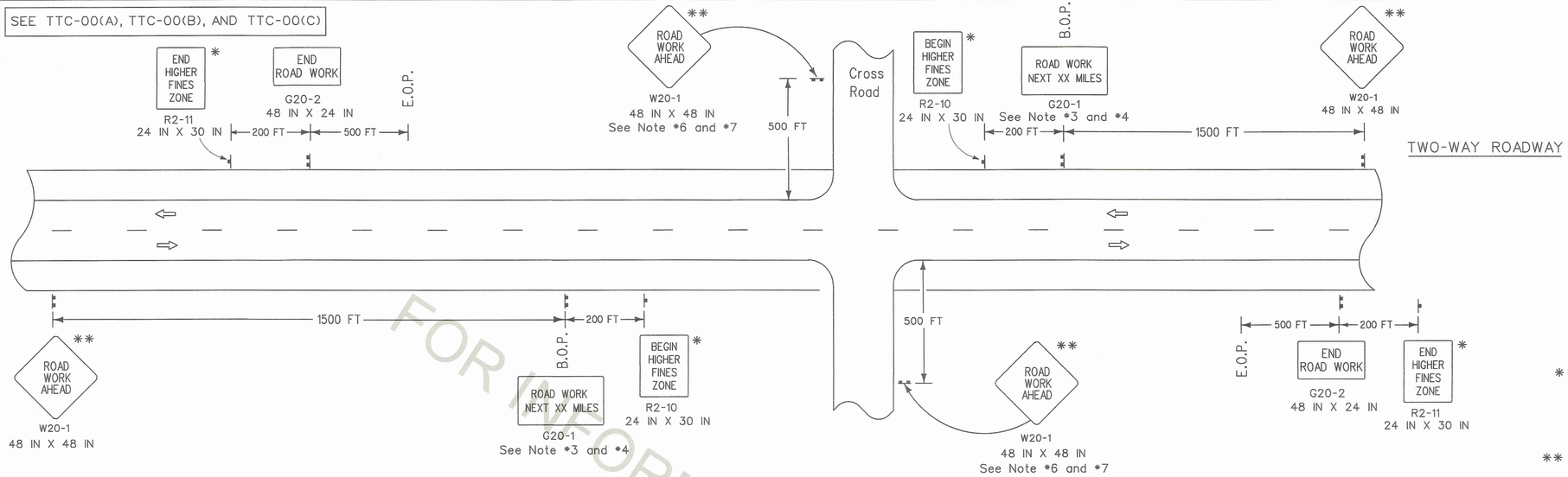
SEE TTC-00(A), TTC-00(B), AND TTC-00(C)



* For divided roadways with speeds ≥ 50 mph use larger sign, 36 IN X 48 IN.

** Any sign of the W20-1 series may be used.

FOR INFORMATIONAL PURPOSES ONLY

NOTES

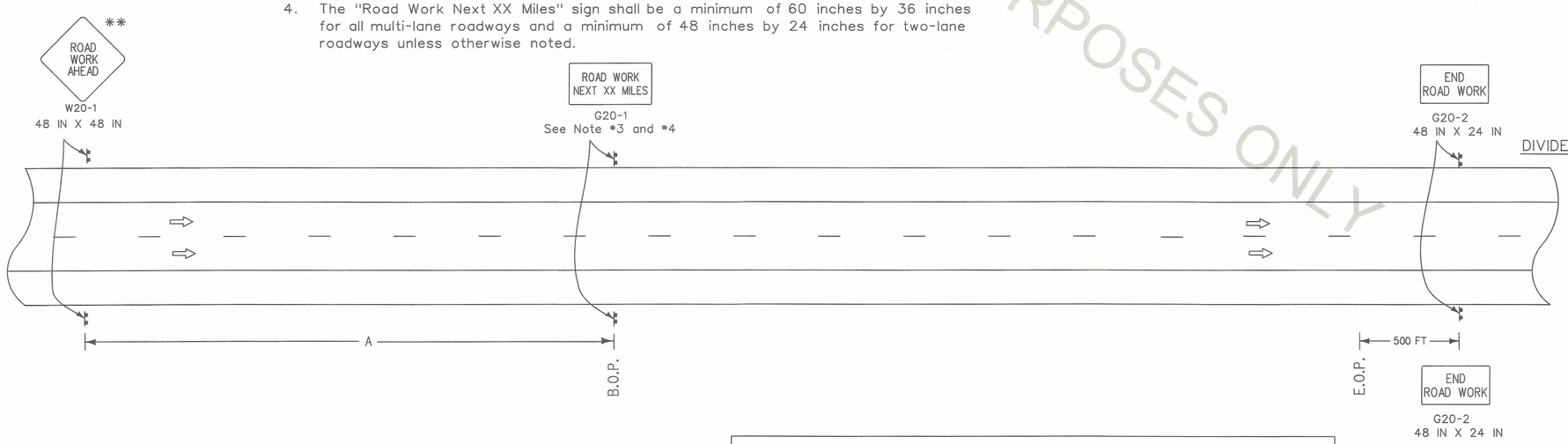
This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C), and other Temporary Traffic Control Sheets as appropriate.

1. This layout represents the minimum traffic controls required for placement of "Road Work Next XX Miles" and "End Road Work" signs.
2. This layout does not replace other TTC Standard Sheets, but is intended as a supplement to the required signing.
3. The distance on the "Road Work Next XX Miles" sign shall be stated to the nearest whole mile. This sign shall be placed at the Beginning of Project (B.O.P.) limits. This sign may be omitted if work zone is less than 0.5 miles.
4. The "Road Work Next XX Miles" sign shall be a minimum of 60 inches by 36 inches for all multi-lane roadways and a minimum of 48 inches by 24 inches for two-lane roadways unless otherwise noted.
5. The "End Road Work" sign shall be placed 500 feet past the End of Project (E.O.P.) limits.
6. If "Road Work Ahead" sign is used on a cross road to warn of road work on another route, then "End Road Work" sign is not required.
7. When projects are separated by less than 1 mile, they shall be signed as one project; this may require coordination.

LEGEND

Traffic Sign

Direction of Travel



SPEED LIMIT (prior to construction)	SPACING 'A'
≤ 40 mph	1500 FT
45 mph	2640 FT
> 45 mph	5280 FT

- Sign spacing to be adjusted for Horizontal and Vertical curves.
- For work outside of the traveled way, see TTC-01 and TTC-02.

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STATE OF LOUISIANA
GARY N. LeBLANC
REG. No. 28220
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
6-27-18

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SHEET NUMBER	PARISH	CONTROL SECTION	STATE PROJECT

DESIGNED G. LEBLANC
CHECKED J. COLVIN
DETAILED C. FAKOURI
CHECKED G. LEBLANC
SERIES NUMBER

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

DATE: 7/2/18
APPROVED BY CHIEF ENGINEER:

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING

TEMPORARY TRAFFIC CONTROL
LAYOUT FOR PLACEMENT OF ROAD WORK NEXT XX MILES AND END ROAD WORK SIGNS

TTC-00 (D)

DOTD TRAFFIC ENGINEERING

SCALE:
DATE: 9/7/2023
DRAWN: M.F.H.
CHECKED: T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

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CONSULTING CIVIL ENGINEERS
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SHEET
34

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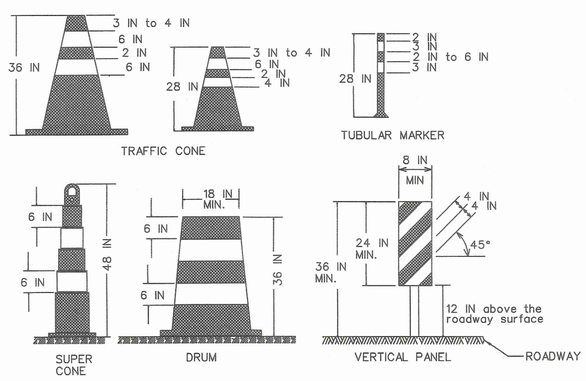
CHANNELIZING DEVICES

- The following devices may be used as channelizing devices: Tubular Markers, Vertical Panels, Cones, Drums and Super Cones.
- 28 inch traffic cones are not allowed on:
  1) Interstates
  2) Highways with speeds greater than 40 mph.
- During nighttime operations, 28 inch and 36 inch cones are not allowed.
- Retroreflective material pattern used on super cones shall match that used on drums.

- Tangent Areas:
  A) Standard Spacing: See Standard Device Spacing and Buffer Space table.
  B) Daylight Operations: Drums and super cones are spaced at standard spacing. All other devices are at 1/2 standard spacing.
  C) Nighttime Operations: Drums and supercones at standard spacing are the only devices allowed.

- Taper Areas:
  A) Standard Spacing: See Standard Device Spacing and Buffer Space table.
  B) Daylight Operations: Drums are spaced at standard spacing. All other devices are 1/2 standard spacing.
  C) Nighttime Operations: Drums (at standard spacing) are the only devices allowed.
- Type C steady burn lights shall be used on all channelizing devices in the taper as well as the first two devices in the tangent at night, (see the AML).
- Typical channelizing device lateral placement (do not include when it is used as a divider for opposing directions of traffic) shall be 2 feet off the lane line in the closed lane or shoulder.
- Devices may be adjusted laterally to accomodate ongoing work in the immediate vicinity but must be returned to the closed lane after the work activity has moved.
- Channelizing devices on the lane line shall be of the same type.
- Channelizing devices in each taper shall be of the same type.



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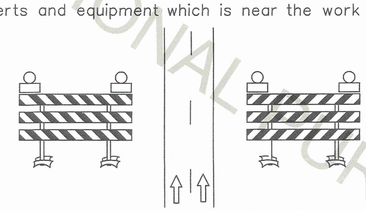
TYPE III BARRICADES

- Only Type III Barricades shall be used.
- All barricades shall use Type 3 High Intensity Sheeting on both sides of the barricade.
- All barricades shall be a minimum of 8 feet in length and must meet NCHRP Report 350 or MASH requirements.
- When used for overnight closures, two Type B High Intensity Lights shall supplement all barricades that are placed in a closed lane or that extend across a highway. Two Type A Low Intensity Lights may be used in urban areas if approved by the Engineer (See AML).
- When signs and lights are to be mounted to a barricade, they must meet NCHRP Report 350 or MASH requirements.
- A truck with a TMA may be substituted for a barricade when workers are present.
- Barricades shall be placed:
  (A) at the beginning of a closed lane or shoulder and at 1,000 foot intervals where no active work is ongoing and the lane must remain closed. A minimum of 2 barricades shall be placed if the lane or shoulder closure is less than 2,000 feet. (One barricade shall be placed at the beginning of the lane closure after the buffer space and one shall be placed in the middle of the lane closure.)
  (B) before each or group of unfilled holes or holes filled with temporary material.
  (C) before uncured concrete.
  (D) in the closed lane on each side of every intersection and crossover. (Do not block sight distance.)
  (E) in front of piles of material (dirt, aggregate, broken concrete), culverts and equipment which is near the work zone.



TTC for DROP-OFFS

NON-INTERSTATE

Average Drop-off	Current Posted Speed (Prior to Construction)	
	> 45 MPH	≤ 45 MPH
≤ 3 IN	Low Shoulder Sign (Optional)	Low Shoulder Sign (Optional)
> 3 IN ≤ 6 IN	Shoulder Drop Off Sign & Edge Lines or Shoulder Drop Off Sign & Channelizing Device	Shoulder Drop Off Sign
> 6 IN ≤ 10 IN	No Shoulder Sign, Edge Lines & Vertical Panel	No Shoulder Sign & Channelizing Device
> 10 IN	Concrete Barrier (if drop off is < 12 FT from edge of travel lane) & Edge Lines	No Shoulder Sign & Vertical Panel

INTERSTATE

Average Drop-off	
≤ 2 IN	Low Shoulder Sign (Optional)
> 2 IN ≤ 6 IN	Shoulder Drop Off Sign & Edge Lines or Shoulder Drop Off Sign & Channelizing Device
> 6 IN	Concrete Barrier (if drop off is < 12 FT from edge of travel lane), Shoulder Drop Off Sign, & Edge Lines

- If a portable concrete barrier will be required then the deflection shall be considered in the design.
- For Interstate ramps, refer to non-Interstate drop offs.

STATE OF LOUISIANA
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REG. No. 28220
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
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STANDARD DEVICE SPACING AND BUFFER SPACE

SPEED LIMIT (prior to construction)	MERGING TAPER LENGTH (L) Lane Width (FT)				STANDARD DEVICE SPACING IN FEET		BUFFER SPACE
MPH	9	10	11	12	Along Taper	Along Tangent	FT
25	94	105	115	125	20	40	155
30	135	150	165	180	30	60	200
35	184	205	225	245	35	70	250
40	240	267	294	320	40	80	305
45	405	450	495	540	40	80	360
50	450	500	550	600	40	80	425
55	495	550	605	660	40	80	495
60	540	600	660	720	40	80	570
65	585	650	715	780	40	80	645
70	630	700	770	840	40	80	730
75	675	750	825	900	40	80	820

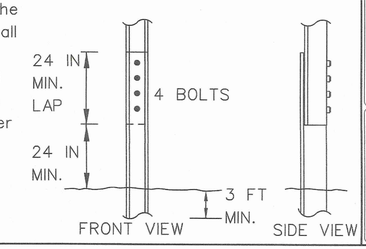
SPEED LIMIT (prior to construction)	SHIFTING TAPER LENGTH (1/2)(L) Lane Shift (FT)						STANDARD DEVICE SPACING IN FEET		BUFFER SPACE
MPH	2	4	6	8	10	12	Along Taper	Along Tangent	FT
25	11	21	32	42	52	63	20	40	155
30	15	30	45	60	75	90	30	60	200
35	21	41	62	82	102	123	35	70	250
40	27	54	80	107	134	160	40	80	305
45	45	90	135	180	225	270	40	80	360
50	50	100	150	200	250	300	40	80	425
55	55	110	165	220	275	330	40	80	495
60	60	120	180	240	300	360	40	80	570
65	65	130	195	260	325	390	40	80	645
70	70	140	210	280	350	420	40	80	730
75	75	150	225	300	375	450	40	80	820

SPEED LIMIT (prior to construction)	SHOULDER TAPER LENGTH (1/3)(L) Shoulder Width (FT)						STANDARD DEVICE SPACING IN FEET		BUFFER SPACE
MPH	2	4	6	8	10	12	Along Taper	Along Tangent	FT
25	7	14	21	28	35	42	20	40	155
30	10	20	30	40	50	60	30	60	200
35	14	28	41	55	68	82	35	70	250
40	18	36	54	72	89	107	40	80	305
45	30	60	90	120	150	180	40	80	360
50	34	67	100	134	167	200	40	80	425
55	37	74	110	147	184	220	40	80	495
60	40	80	120	160	200	240	40	80	570
65	44	87	130	174	217	260	40	80	645
70	47	94	140	187	234	280	40	80	730
75	50	100	150	200	250	300	40	80	820

- All termination and flagger tapers are 100 feet. (MIN. 6 channelizing devices per lane equally spaced 20 feet apart.)
- See TTC Standards for flagger taper.
- See MUTCD for taper formulas.

- ALLOWABLE LAP SPLICE FOR U-CHANNEL POST

U-Channel posts may be spliced where long lengths are required. The upper section shall overlap the lower section by at least 24 inches. The bottom edge of the upper section of the splice shall be a minimum of 24 inches above the ground. The spliced sections shall be secured with at least four 5/16 inch diameter hex bolts spaced equally along the splice.



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SHEET NUMBER

PARISH | CONTROL SECTION | STATE PROJECT

DESIGNED G. LEBLANC
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NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

APPROVED BY CHIEF ENGINEER DATE: 7/2/18

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TEMPORARY TRAFFIC CONTROL
GENERAL NOTES SHEET
TTC-00 (C)

DOTD TRAFFIC ENGINEERING

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

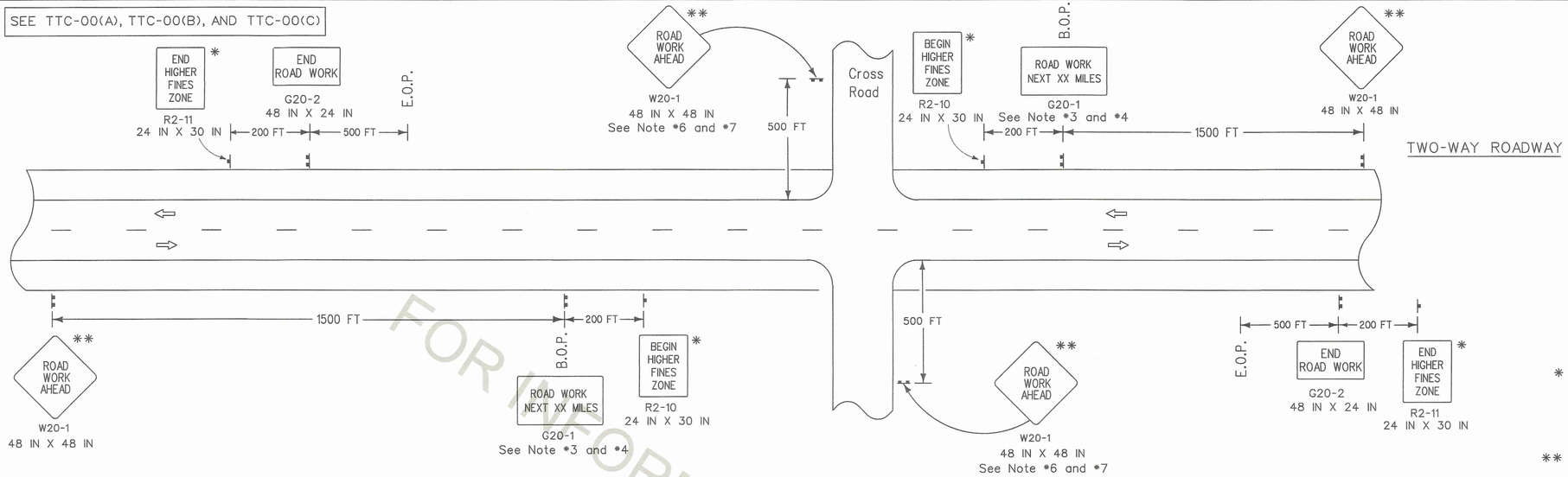
Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET
35

FOR INFORMATIONAL PURPOSES ONLY

K:\2023 LAN\ PROJECTS\Hammond SSES 2023\dwg\STANDARD DETAILS.dwg, 7/24/2023 3:04:53 PM

SEE TTC-00(A), TTC-00(B), AND TTC-00(C)



* For divided roadways with speeds ≥ 50 mph use larger sign, 36 IN X 48 IN.

** Any sign of the W20-1 series may be used.

FOR INFORMATIONAL PURPOSES ONLY

NOTES

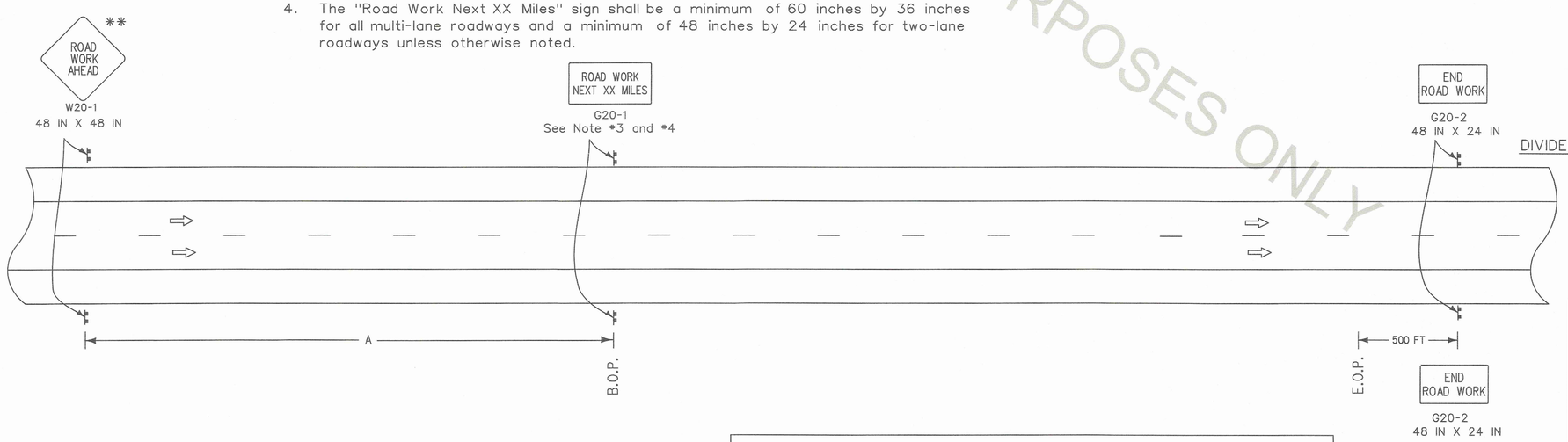
This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C), and other Temporary Traffic Control Sheets as appropriate.

1. This layout represents the minimum traffic controls required for placement of "Road Work Next XX Miles" and "End Road Work" signs.
2. This layout does not replace other TTC Standard Sheets, but is intended as a supplement to the required signing.
3. The distance on the "Road Work Next XX Miles" sign shall be stated to the nearest whole mile. This sign shall be placed at the Beginning of Project (B.O.P.) limits. This sign may be omitted if work zone is less than 0.5 miles.
4. The "Road Work Next XX Miles" sign shall be a minimum of 60 inches by 36 inches for all multi-lane roadways and a minimum of 48 inches by 24 inches for two-lane roadways unless otherwise noted.
5. The "End Road Work" sign shall be placed 500 feet past the End of Project (E.O.P.) limits.
6. If "Road Work Ahead" sign is used on a cross road to warn of road work on another route, then "End Road Work" sign is not required.
7. When projects are separated by less than 1 mile, they shall be signed as one project; this may require coordination.

LEGEND

Traffic Sign

Direction of Travel



SPEED LIMIT (prior to construction)	SPACING 'A'
≤ 40 mph	1500 FT
45 mph	2640 FT
> 45 mph	5280 FT

- Sign spacing to be adjusted for Horizontal and Vertical curves.
- For work outside of the traveled way, see TTC-01 and TTC-02.

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

STATE OF LOUISIANA — GARY N. LeBLANC, REG. No. 28220, REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING — 6-27-18

THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

SHEET NUMBER	PARISH	CONTROL SECTION	STATE PROJECT

DESIGNED G. LEBLANC; CHECKED J. COLVIN; DETAILED C. FAKOURI; CHECKED G. LEBLANC; SERIES NUMBER

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

DATE: 7/2/18

APPROVED BY CHIEF ENGINEER:

TEMPORARY TRAFFIC CONTROL
LAYOUT FOR PLACEMENT OF ROAD WORK NEXT XX MILES AND END ROAD WORK SIGNS

TTC-00 (D)

DOTD TRAFFIC ENGINEERING

STATE OF LOUISIANA — T. C. SPANGLER, JR., REG. No. 20015, REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING — 09/06/23

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

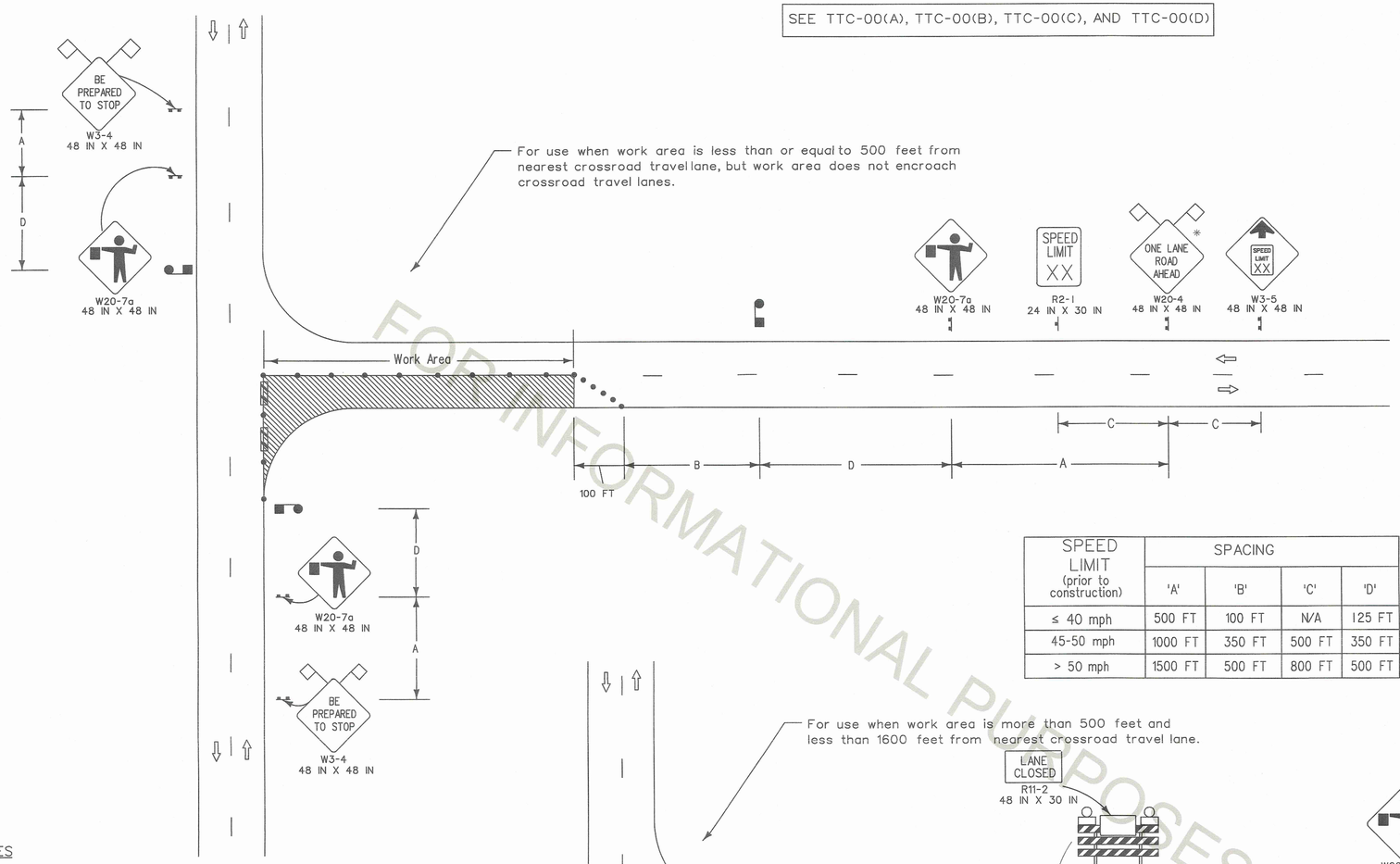
SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

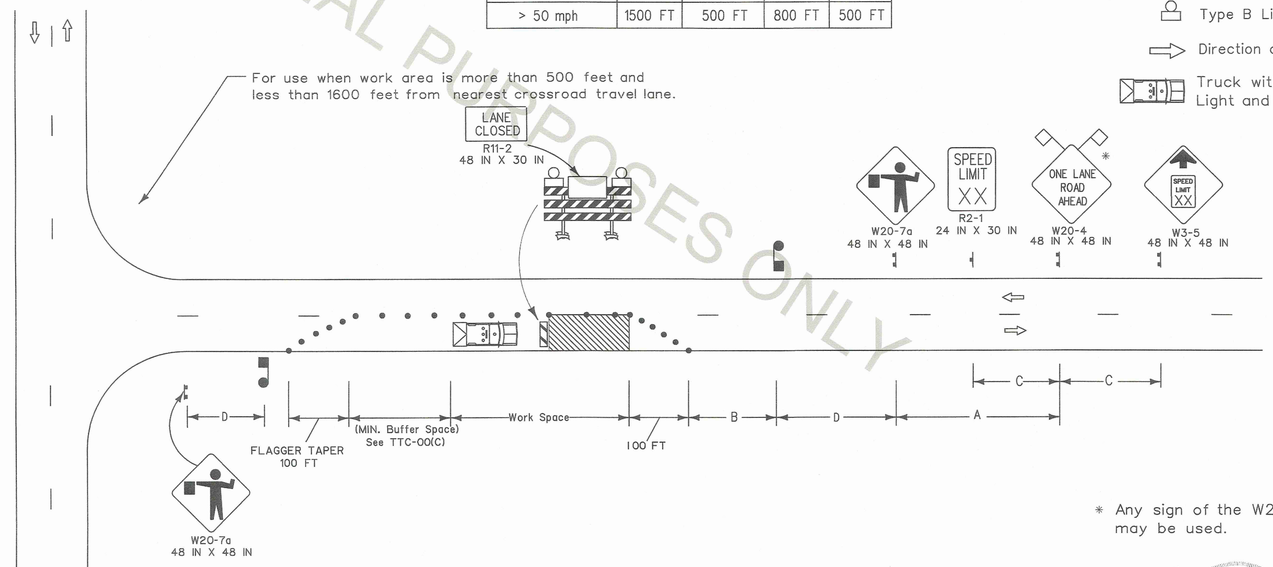
SHEET 36

K:\2023 LAND PROJECTS\Hammond SSES 2023\dwg\STANDARD DETAILS.dwg, 7/24/2023 3:04:17 PM

SEE TTC-00(A), TTC-00(B), TTC-00(C), AND TTC-00(D)

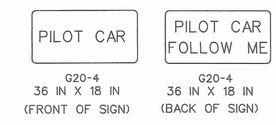


SPEED LIMIT (prior to construction)	SPACING			
	'A'	'B'	'C'	'D'
≤ 40 mph	500 FT	100 FT	N/A	125 FT
45-50 mph	1000 FT	350 FT	500 FT	350 FT
> 50 mph	1500 FT	500 FT	800 FT	500 FT



PILOT CAR

- If used, a pilot car shall guide a queue of vehicles through the work zone or diversion.
- It shall be used in restricted visibility operations such as lime or cement stabilization, chip seals, or operations in hilly or curvy terrains, where flaggers cannot see each other (no clear line-of-sight).
- The operation of the pilot vehicle shall be coordinated with flagging operations or other controls at each end of the one-lane section and all major driveways and street intersections.
- The pilot car sign should be mounted 7 feet above roadway in a position visible to oncoming and following traffic.
- The pilot car shall have an amber beacon light.
- The sign mounted on the vehicle shall be two-sided.



LEGEND

- Traffic Sign
- Channelizing Devices
- Type III Barricades
- Work Area
- Flagger
- Type B Light
- Direction of Travel
- Truck with Amber Light and TMA

* Any sign of the W20-4 series may be used.

NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C), and TTC-00(D).

1. This layout represents the minimum traffic controls required for lane closures on two-lane roads with two-way traffic less than 1600 feet from an intersection. For advance signing see TTC-00(D).
2. Visual or radio contact shall be required between flaggers at all times. The flagger shall be visible from flagger sign.
3. Only law officers shall direct traffic against a traffic signal indication.
4. If work area is greater than 1600 feet see TTC-04.
5. If a pilot car is required then the contractor is not required to have channelizing devices in the tangent section.
6. A vehicle with a flashing amber light and a truck mounted attenuator shall be used on all roadways with an ADT greater than 20,000 and a pre-construction speed greater than or equal to 40 mph. This vehicle shall move with work operations not to exceed the roll-ahead distance required by the manufacturer plus 100 feet.

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

STATE OF LOUISIANA
GARY N. LeBLANC
REG. No. 26220
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
6-27-18

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER

DESIGNED	G. LEBLANC	PARISH
CHECKED	J. COLVIN	
DETAILED	C. FAKOURI	CONTROL SECTION
CHECKED	G. LEBLANC	
SERIES NUMBER		STATE PROJECT

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

APPROVED BY CHIEF ENGINEER: DATE: 7/2/18

TEMPORARY TRAFFIC CONTROL
LAYOUT FOR LANE CLOSURES ON TWO LANE ROADS WITH TWO-WAY TRAFFIC NEAR INTERSECTIONS (FLAGGING OPERATIONS)
TTC-03

DOTD TRAFFIC ENGINEERING

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
9/7/2023

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

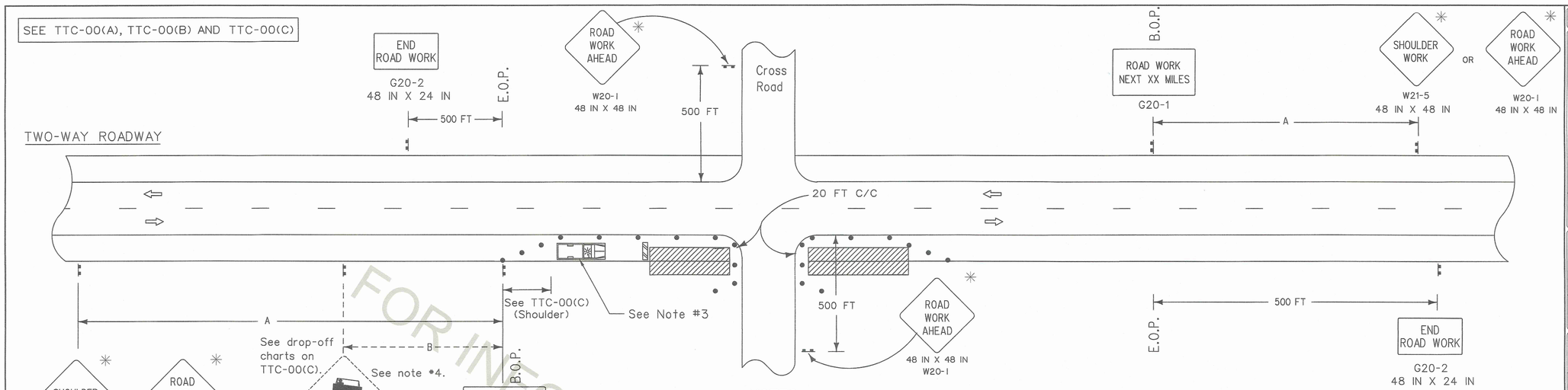
SHEET
37

THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

K:\2023 LAND PROJECTS\Hammond SSES 2023\dwg\STANDARD DETAILS.dwg, 7/24/2023 3:03:42 PM

SEE TTC-00(A), TTC-00(B) AND TTC-00(C)

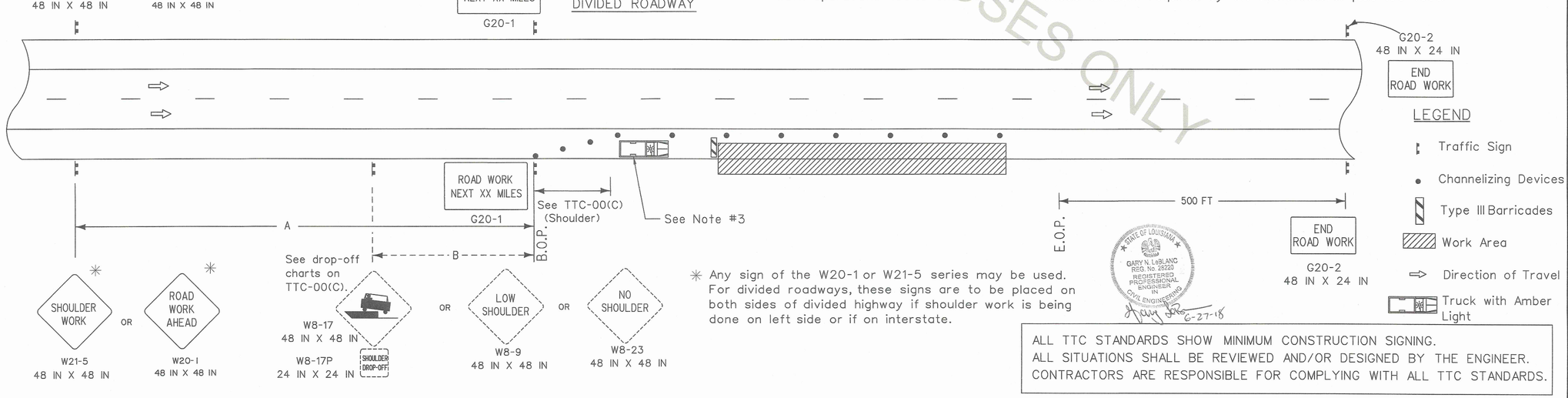
TWO-WAY ROADWAY



SPEED LIMIT (prior to construction)	SPACING	
	'A'	'B'
≤ 40 mph	500 FT	250 FT
45-50 mph	1000 FT	350 FT
≥ 55 mph	1500 FT	500 FT
Expressway/Interstate	2500 FT	1000 FT

- See TTC-00(C) for minimum taper length and maximum device spacing for shoulder closure tapers.
- If horizontal curve radius is less than 300 feet, device spacing shall be 25 feet.

DIVIDED ROADWAY



✳ Any sign of the W20-1 or W21-5 series may be used. For divided roadways, these signs are to be placed on both sides of divided highway if shoulder work is being done on left side or if on interstate.

NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C)

1. This layout represents the minimum traffic controls required for workers and equipment operating less than 15 feet from the traveled way for more than one hour. Less than one hour, see figure TA-4 of the MUTCD.
2. No signs or barricades are required for equipment operating or work in progress greater than 15 feet from the traveled way. (See TTC-01).
3. Work or equipment confined to a spot location (less than 200 feet) shall be marked by channelizing devices spaced at 25 feet or by a vehicle with an amber light visible to traffic. Work extending more than 200 feet of roadway length shall be marked with appropriate devices spaced as noted on TTC-00(C).
4. Applicable drop-off sign options are defined on TTC-00(C).
5. The distance on the "Road Work Next XX Miles" sign shall be stated to the nearest whole mile. This sign shall be placed at the Beginning of Project (B.O.P.) limits. This sign may be omitted if work zone is less than 0.5 miles.
6. A vehicle with a flashing amber light and a truck mounted attenuator shall be used on all roadways with an ADT greater than 20,000 and a pre-construction speed greater than or equal to 40 mph. This vehicle shall move with work operations not to exceed the roll-ahead distance required by the manufacturer plus 100 feet.

LEGEND

- Traffic Sign
- Channelizing Devices
- Type III Barricades
- Work Area
- Direction of Travel
- Truck with Amber Light

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

STATE OF LOUISIANA GARY N. LeBLANC REG. No. 29220 REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING 6-27-18

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER	PARISH	CONTROL SECTION	STATE PROJECT

DESIGNED G. LEBLANC
CHECKED J. COLVIN
DETAILED C. FAKOURI
CHECKED G. LEBLANC
SERIES NUMBER

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

DATE: 7/2/18

APPROVED BY CHIEF ENGINEER:

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

TEMPORARY TRAFFIC CONTROL
LAYOUT FOR WORK LESS THAN 15 FEET FROM THE TRAVELED WAY

TTC-02

DOTD TRAFFIC ENGINEERING

STATE OF LOUISIANA T. C. SPANGLER, JR. REG. No. 20015 REGISTERED PROFESSIONAL ENGINEER CIVIL ENGINEERING

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

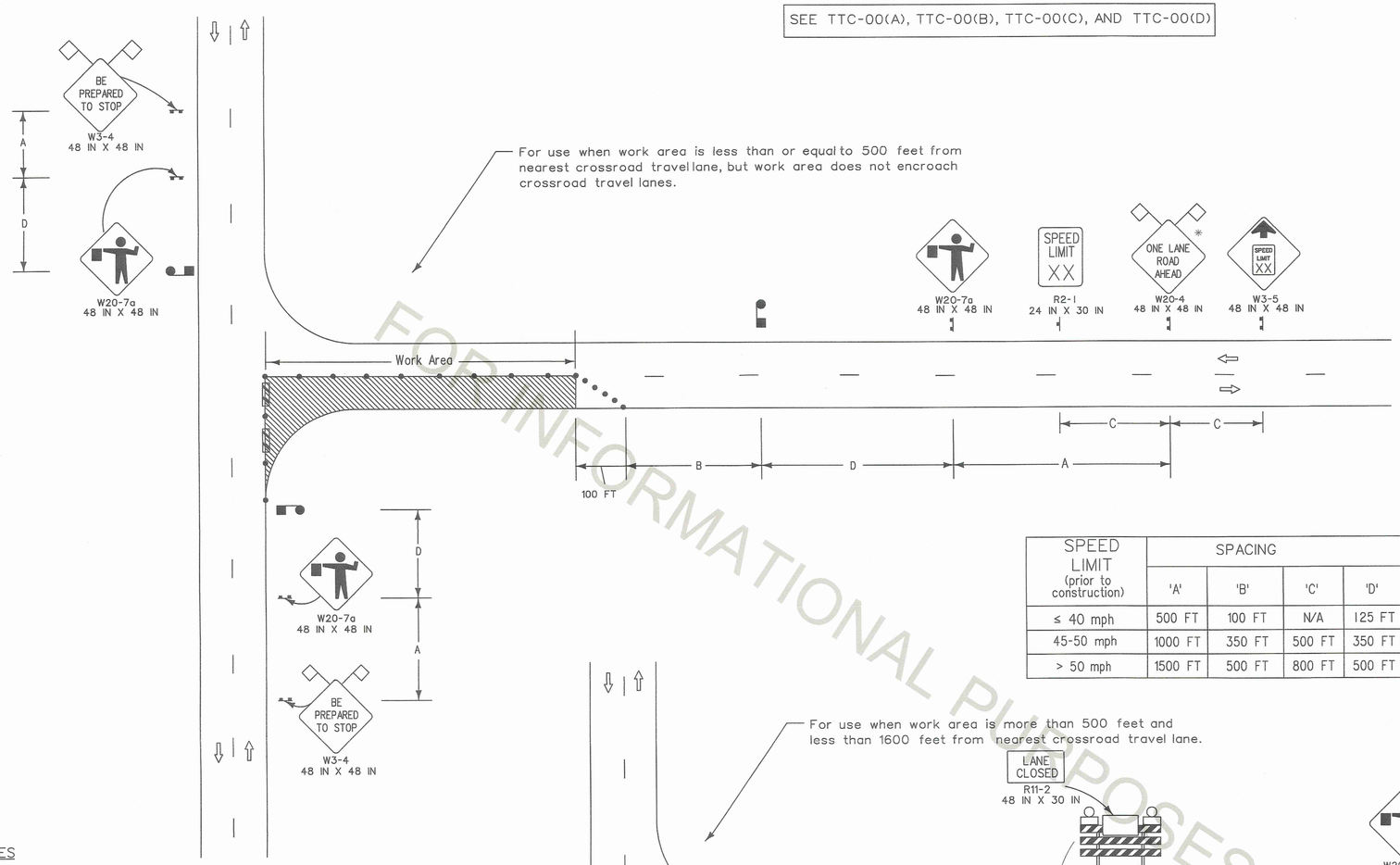
Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET 38

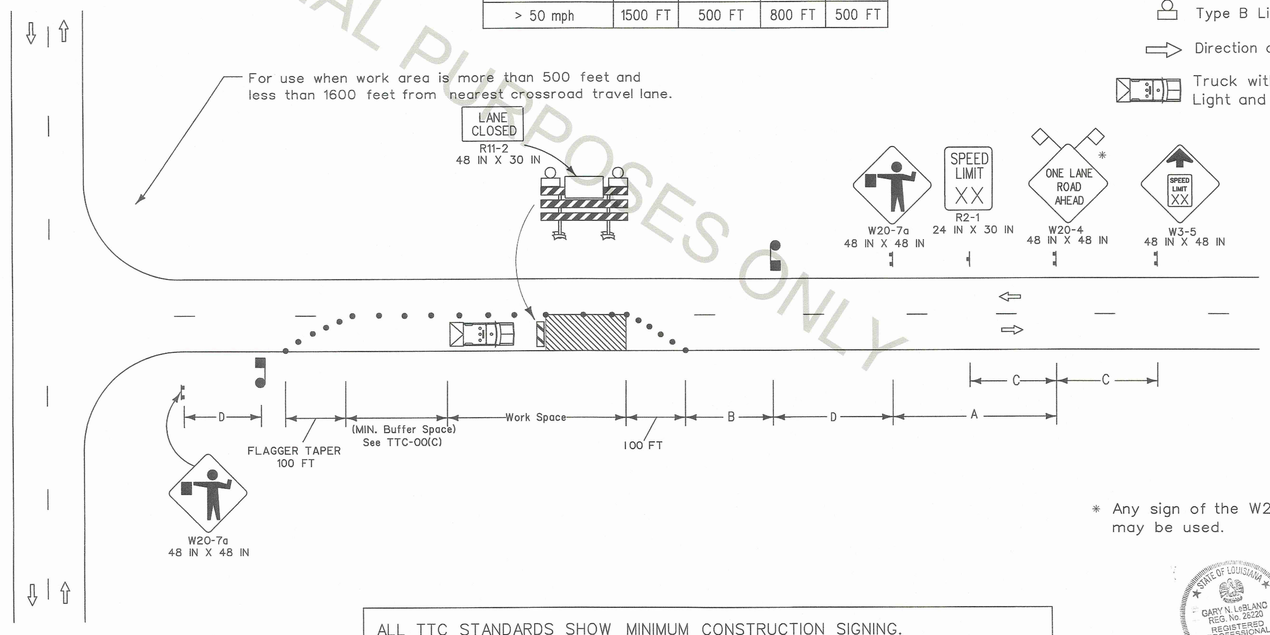
THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

K:\2023 LAND PROJECTS\Hammond SSES 2023\dwg\STAN2023 DETAILS.dwg, 7/24/2023 2:46:54 PM

SEE TTC-00(A), TTC-00(B), TTC-00(C), AND TTC-00(D)

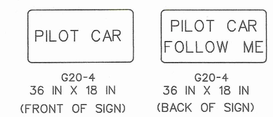


SPEED LIMIT (prior to construction)	SPACING			
	'A'	'B'	'C'	'D'
≤ 40 mph	500 FT	100 FT	N/A	125 FT
45-50 mph	1000 FT	350 FT	500 FT	350 FT
> 50 mph	1500 FT	500 FT	800 FT	500 FT



PILOT CAR

- If used, a pilot car shall guide a queue of vehicles through the work zone or diversion.
- It shall be used in restricted visibility operations such as lime or cement stabilization, chip seals, or operations in hilly or curvy terrains, where flaggers cannot see each other (no clear line-of-sight).
- The operation of the pilot vehicle shall be coordinated with flagging operations or other controls at each end of the one-lane section and all major driveways and street intersections.
- The pilot car sign should be mounted 7 feet above roadway in a position visible to oncoming and following traffic.
- The pilot car shall have an amber beacon light.
- The sign mounted on the vehicle shall be two-sided.



LEGEND

- Traffic Sign
- Channelizing Devices
- Type III Barricades
- Work Area
- Flagger
- Type B Light
- Direction of Travel
- Truck with Amber Light and TMA

NOTES

This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C), and TTC-00(D).

1. This layout represents the minimum traffic controls required for lane closures on two-lane roads with two-way traffic less than 1600 feet from an intersection. For advance signing see TTC-00(D).
2. Visual or radio contact shall be required between flaggers at all times. The flagger shall be visible from flagger sign.
3. Only law officers shall direct traffic against a traffic signal indication.
4. If work area is greater than 1600 feet see TTC-04.
5. If a pilot car is required then the contractor is not required to have channelizing devices in the tangent section.
6. A vehicle with a flashing amber light and a truck mounted attenuator shall be used on all roadways with an ADT greater than 20,000 and a pre-construction speed greater than or equal to 40 mph. This vehicle shall move with work operations not to exceed the roll-ahead distance required by the manufacturer plus 100 feet.

* Any sign of the W20-4 series may be used.

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

STATE OF LOUISIANA
GARY N. LeBLANC
REG. No. 2620
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
6-27-18

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER

PARISH | CONTROL SECTION | STATE PROJECT

DESIGNED G. LEBLANC
CHECKED J. COLVIN
DETAILED C. FAKOURT
CHECKED G. LEBLANC
SERIES NUMBER

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

APPROVED BY CHIEF ENGINEER. DATE: 7/2/18

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TEMPORARY TRAFFIC CONTROL
LAYOUT FOR LANE CLOSURES ON TWO LANE ROADS WITH TWO-WAY TRAFFIC NEAR INTERSECTIONS (FLAGGING OPERATIONS)
TTC-03

DOTD
TRAFFIC ENGINEERING

THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

SCALE:
DATE: 9/7/2023
DRAWN: M.F.H.
CHECKED: T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET
39

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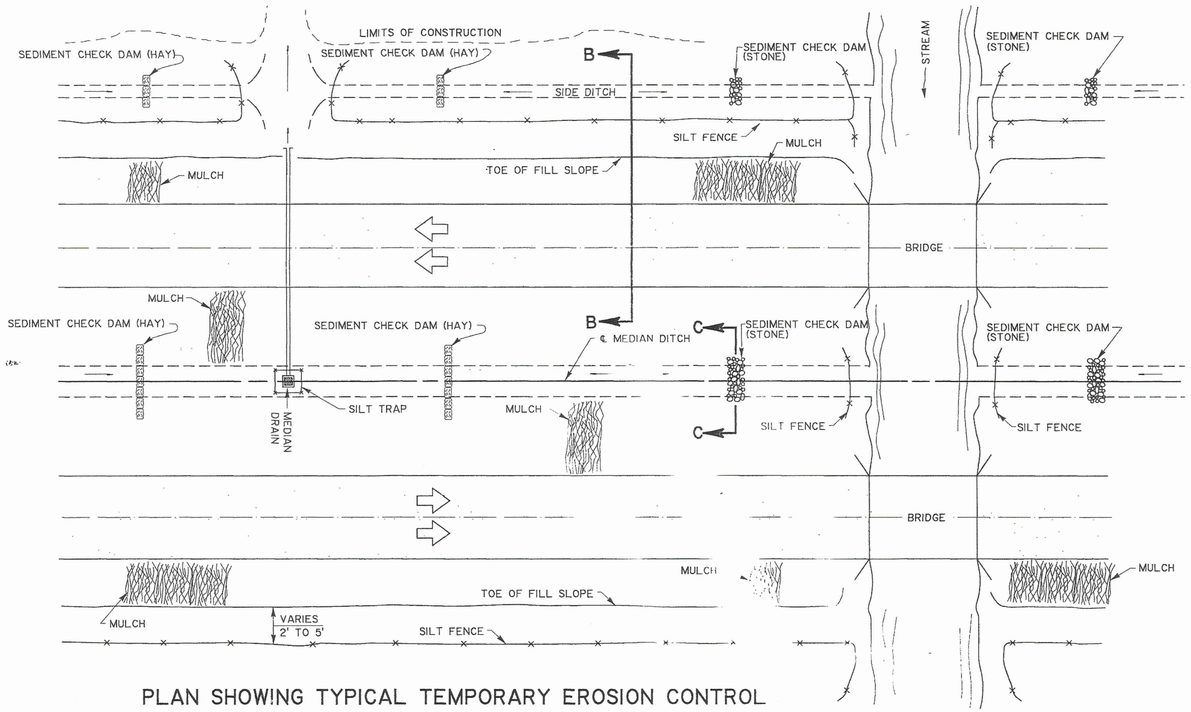
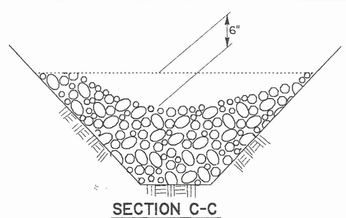


PLAN SHOWING TYPICAL TEMPORARY EROSION CONTROL

MULCHES

Mulches are the application of mats of material placed on the soil surface to prevent erosion by protecting the soil surface from raindrop impact and to reduce the velocity of overland flow. Mulches can be organic or synthetic. Mulches shall be in accordance with subsection 1018.19 of the LA DOTD Standard Specifications. A few guidelines for the use of Mulches are:

1. Use on cut and embankment slopes which have not been completed to plan grade or where the weather or soil conditions will not permit completing them within a reasonable time;
2. Use on cleared , grubbed, and scalped areas where soil erosion is likely to occur;
3. Use with temporary seeding.



SECTION C-C

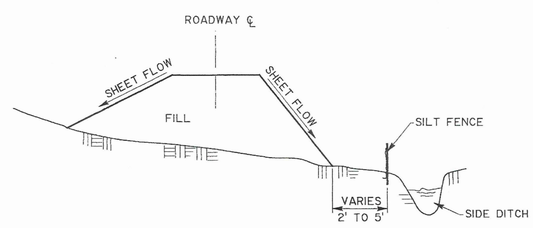
TEMPORARY SEDIMENT CHECK DAM (STONE)

PAY ITEM: 204(05)(B), TEMPORARY SEDIMENT CHECK DAM (STONE)

NOTES:

A stone check dam is a small temporary dam constructed across a swale or drainage ditch. The purpose of this measure is to reduce the velocity of concentrated stormwater flows, thereby reducing erosion of the swale or ditch. The stone check dam will trap small amounts of sediments generated in the ditch itself, however it should not be used as a sediment trapping device. A few basic design guidelines for the use of Stone Check Dams are:

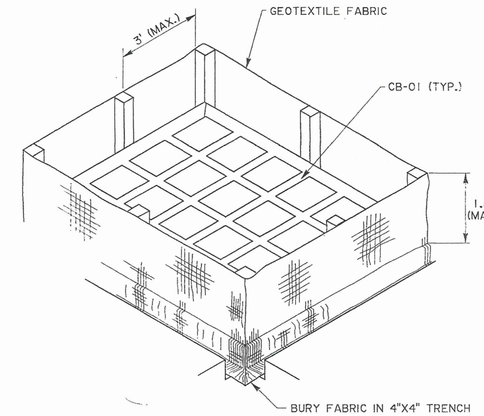
1. Use in small open channels which drain 10 acres or less;
2. Do not use in a live stream;
3. Use in a temporary ditch or swale which, because of their short length of service, cannot receive a non-erodible lining;
4. Use in permanent ditches or swales which will not receive a permanent lining for an extended period of time;
5. Use in temporary or permanent ditches or swales which need protection during the establishment of grass linings.
6. For stone specifications see subsection 711.02(a)(Class 2LB.) of the LA DOTD Standard Specifications.



SECTION B-B

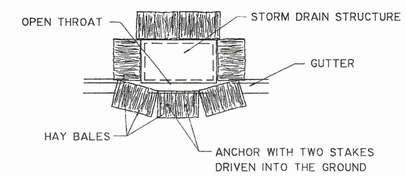
TEMPORARY SILT FENCE APPLICATION

(FOR CONSTRUCTION DETAILS AND SPECIFICATIONS SEE SHEET 2 OF 2.)



ISOMETRIC VIEW SHOWING GEOTEXTILE FABRIC

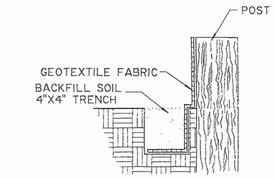
(BACKFILL SOIL NOT SHOWN)



PLAN SHOWING HAY BALES

PAY ITEM: 204(02), TEMPORARY BALED HAY OR STRAW

F.A.P.	STATE PROJECT	PARISH	SHEET NO.



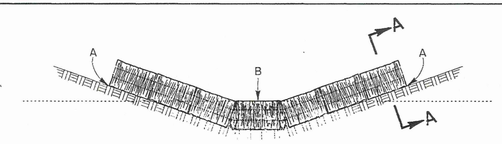
SECTION THRU TRENCH SHOWING GEOTEXTILE FABRIC

NOTES:

The temporary drop inlet silt trap is to be used for small drainage areas (less than 1 acre) where the storm drain is functional before the area is stabilized. The trap can be either geotextile fabric or hay bales.

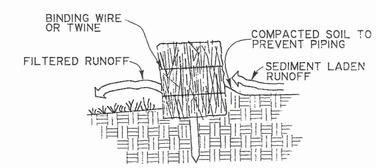
1. The geotextile fabric shall conform to Section 1019 (Type G) of the LA DOTD Standard Specifications.
2. Wooden stakes supporting the fabric shall be 2" x 2" or 2" x 4" with a minimum length of 3 feet. The stakes shall be spaced around the inlet at a maximum spacing of 3 feet.
3. The height of the fabric above the inlet shall be limited to 1.5' and the bottom of the fabric shall be buried in a trench approximately 4" wide by 4" deep. The fabric shall be stapled to the post with 1/2" staples.
4. The trap should be inspected regularly and after each storm. The sediment should be removed and make sure each stake is firmly in the ground.

TEMPORARY INLET SILT TRAP



POINTS A SHOULD BE HIGHER THAN POINT B.

ELEVATION



SECTION A-A

TEMPORARY SEDIMENT CHECK DAM (HAY)

PAY ITEM: 204(05)(A), TEMPORARY SEDIMENT CHECK DAM (HAY)

NOTES:

A hay bale barrier is a temporary sediment barrier consisting of a row of entrenched and anchored bales of straw or hay. The hay bale barrier is also used as a check dam to reduce the velocity in small ditches or swales. The hay bales shall be in accordance with LA DOTD Standard Specifications, Section 204. A few basic design guidelines for the use of a Hay Bale Barrier are:

1. Use where erosion would occur in the form of sheet and rill erosion;
2. Use in minor swales or ditches where the maximum drainage area is 2 acres;
3. Only use where the effectiveness is required for less than 3 months;
4. Do not use in live streams or in swales or ditches where there is a possibility of a washout.

DATE	DESCRIPTION	BY
	REVISIONS	

STANDARD PLAN NO. EC-01 SHEET 1 OF 2

TEMPORARY EROSION CONTROL DETAILS

DATED January 14, 1994

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

DESIGNED JCM	DETAILED KAJ	DIR. cadd/dgn/stdplans
CHECKED	CHECKED JCM	FILENAME ec01.dgn

Approved By Chief Engineer Original Signed by Chief Engineer Date

THESE STANDARD PLANS HAVE BEEN PROPERLY EXAMINED BY ME, THE UNDERSIGNED PROFESSIONAL ENGINEER. I HAVE DETERMINED THAT THESE PLANS COMPLY WITH ALL APPLICABLE CODES AND HAVE BEEN PROPERLY ADAPTED TO USE ON THIS PROJECT.

STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING DISCIPLINE

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
for
CITY OF HAMMOND

Spangler Engineering, LLC
CONSULTING CIVIL ENGINEERS
214 S.W. RAILROAD AVENUE
P.O. BOX 1374
HAMMOND, LOUISIANA 70404
(985) 542-8665 FAX: (985) 542-0046

SHEET 40

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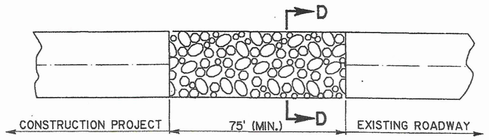


PLAN

SECTION D-D

TEMPORARY STONE CONSTRUCTION ENTRANCE

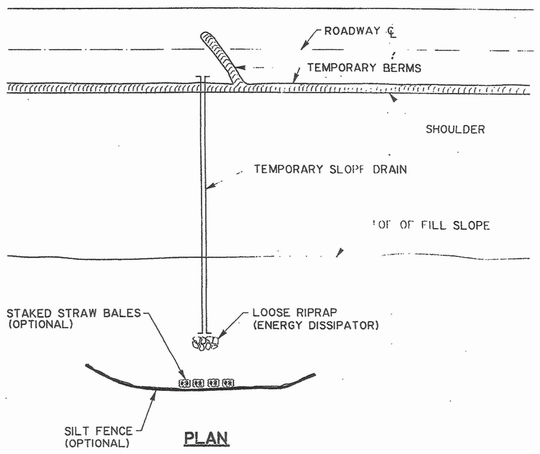
PAY AS "S - ITEM", TEMPORARY STONE CONSTRUCTION ENTRANCE

NOTES:

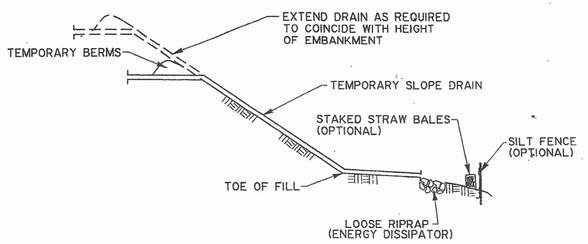
TEMPORARY STONE CONSTRUCTION ENTRANCE AND/OR WASH RACK

A stone stabilized pad located at points of vehicular ingress and egress on the construction site to reduce the amount of mud transported onto public roads. If the action of the vehicle traveling over the gravel pad is not sufficient to remove the majority of the mud, then the tires must be washed before the vehicle enters a public road. A few basic design guidelines for the use of a Stone Construction Entrance and/or Wash Racks are:

1. The stone layer must be at least 6 inches thick;
2. The stone shall conform to Section 711(02)(Class 2LB) of the LA DOTD Standard Specifications;
3. The length of the pad must be at least 75 feet and it must extend the full width of the vehicular ingress and egress;
4. A geotextile fabric underliner is required. The geotextile fabric shall be in accordance with Section 1019 (Type D); of the LA DOTD Standard Specifications;
5. If a wash rack is necessary, provisions must be made to intercept the wash water and trap the sediment before it is carried off-site.



PLAN



ELEVATION

TEMPORARY SLOPE DRAIN

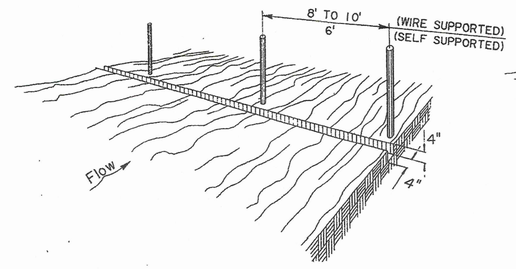
NOTES:

A temporary slope drain is a device used to carry water from the construction work area to a lower elevation. Slope drains may be plastic sheets, metal or plastic pipe, stone gutters, fiber mats, or concrete or asphalt ditches. A few basic design guidelines for the use of a Temporary Slope Drain are:

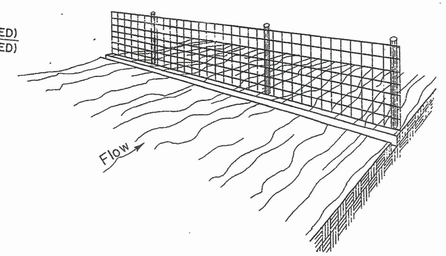
1. The spacing of the slope drains varies with the road grade.
   For Grades: 0.0% - 2.0% use 500' spacing
   2.1% - 5.0% use 200' "
   Greater than 5.0% use 100' "
2. Slope drain material: Smooth pipe - 8" minimum
   Corrugated pipe - 12" minimum
   Plastic sheeting - 4' wide minimum
   " " - 3 mils thick min.
3. Plastic sheeting can be staked down or weighted with rocks or logs. The area under the sheeting should be shaped to provide an adequate channel.
4. The outlet end should be protected or have some means of dissipating energy. The flow should be directed through a sediment trap such as a silt fence or hay bales.
5. To insure proper operation, temporary slope drains should be inspected regularly and after each storm, for clogging or displacement. Erosion at the outlet should be checked and the silt traps cleaned if necessary.

F.A.P.	STATE PROJECT	PARISH	SHEET NO.

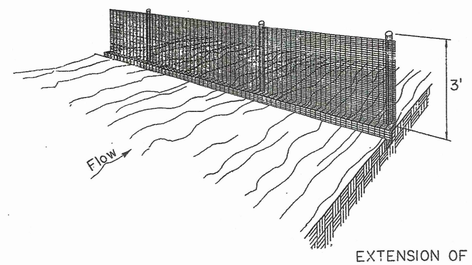
1. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.



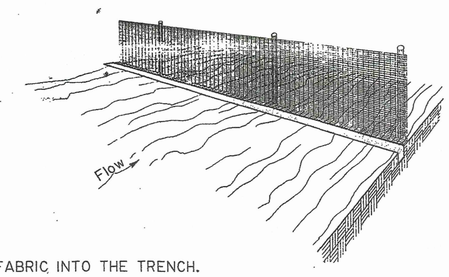
2. STAPLE WIRE FENCING TO THE POSTS.



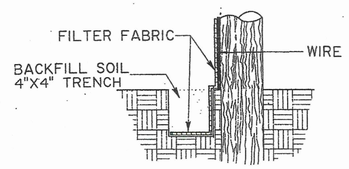
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT EXCAVATED SOIL.



EXTENSION OF FABRIC INTO THE TRENCH.



CONSTRUCTION OF TEMPORARY SILT FENCING

(WIRE SUPPORTED SILT FENCE IS SHOWN. SELF SUPPORTED SILT FENCE WILL BE CONSTRUCTED ACCORDING TO MANUFACTURERS SPECIFICATIONS.)

NOTES:

Silt fencing is a temporary sediment barrier consisting of a filter fabric supported by post and stretched across an area to intercept and detain small amounts of sediment. The silt fencing shall be in accordance with Section 204 of the LA DOTD Standard Specifications. A few basic guidelines for the use of Silt Fencing are:

1. Use where erosion would occur in the form of sheet and rill erosion;
2. Use where the maximum drainage area behind the silt fence is 1/4 acre per 100 feet of silt fence length;
3. Use where the maximum slope length behind the barrier is 100 feet;
4. Use where the maximum gradient behind the barrier is 2:1;
5. Do not use silt fences in live streams or in ditches or swales where flows exceed one cubic foot per second.

DATE	DESCRIPTION	BY
	REVISIONS	

STANDARD PLAN NO. EC-01 — SHEET 2 OF 2

CONTROL DETAILS

DATED January 14, 1994

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

DESIGNED JCM	DETAILED KAJ	DIR. /cadd/dgn/stdplans
CHECKED	CHECKED JCM	FILENAME ec01.dgn

Approved By Chief Engineer Original Signed by Chief Engineer Date

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STATE OF LOUISIANA
T. C. SPANGLER, JR.
REG. No. 20015
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

SCALE:	
DATE:	9/7/2023
DRAWN:	M.F.H.
CHECKED:	T.C.S.

STANDARD DETAILS

SEWER SYSTEM REHABILITATION
WATER SECTOR PROGRAM FY2022
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CITY OF HAMMOND

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