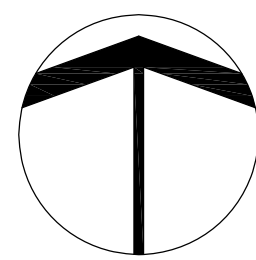


Site Development Plans For:
"The Overlook Section Three"
Section 20, Township 16 North, Range 6 East
Sugar Creek Township, Hancock County, IN
September, 2018



LOCATION MAP



DEVELOPER
STEVEN R. REILLY
HANCOCK LAND CO., LLC
1111 W. MAIN ST., SUITE K
GREENFIELD, IN 46140
(317) 462-7797

NOTES: THESE DOCUMENTS, PLANS, AND SPECIFICATIONS ARE SUBJECT TO PERIODIC UPDATES AND REVISIONS. THE CONTRACTOR, OWNER, AND SUPPLIERS ARE RESPONSIBLE FOR VERIFICATION OF THE MOST CURRENT ISSUE AND REVISION, PRIOR TO ANY USE.

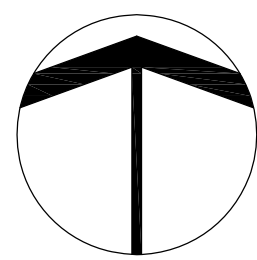
CONSULTANT
COOR CONSULTING & LAND
SERVICES, CORPORATION
303 WEST MAIN STREET
KNIGHTSTOWN, IN 46148
(765) 345-5943

SHEET INDEX

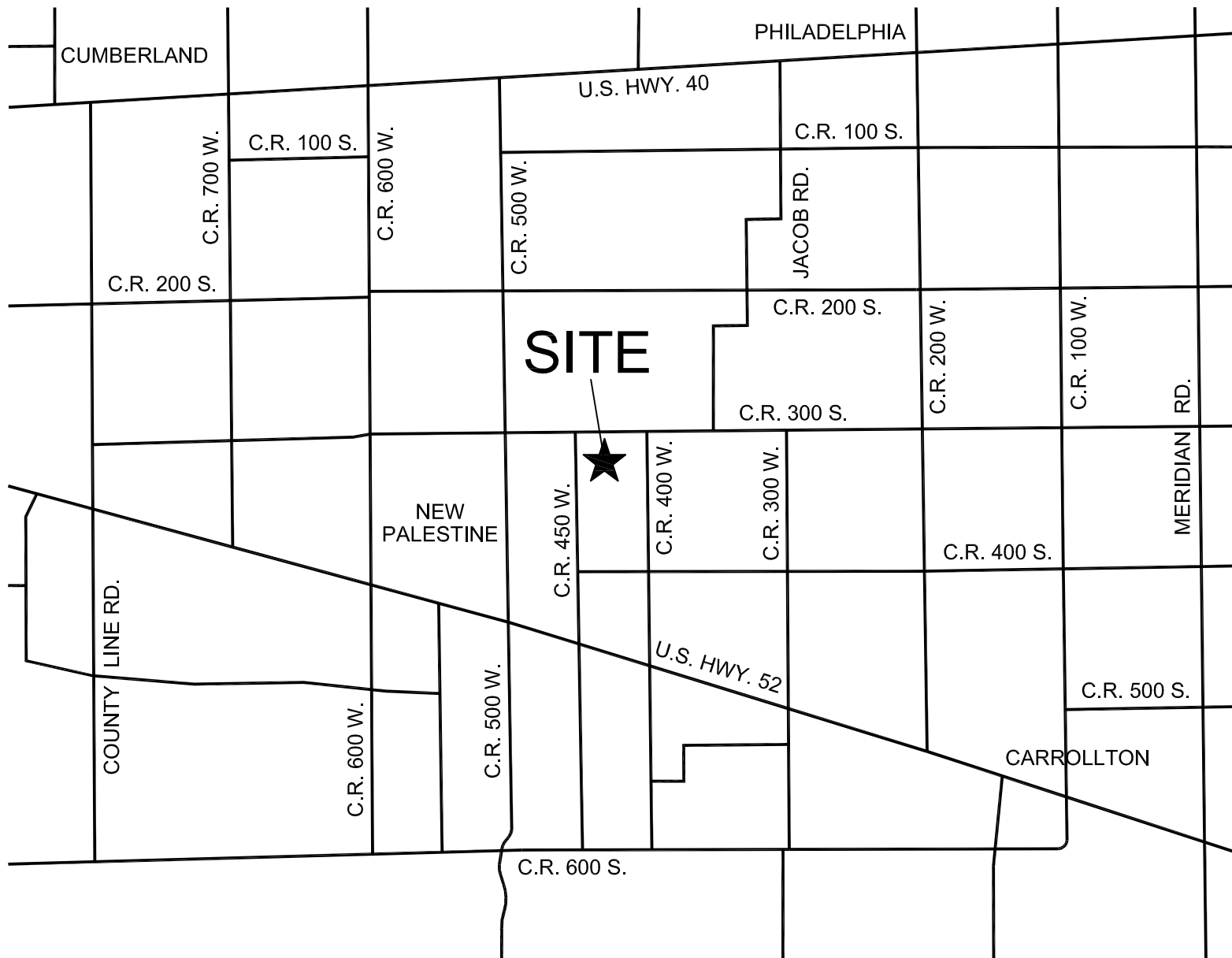
DESCRIPTION	SHEET NO.
Title Sheet	C1.0
Existing Conditions Plan	C2.0
Development Plan	C3.0 - C3.1
Utility Plan	C4.0 - C4.1
Street Plan & Profile	C5.0 - C5.1
Sanitary Sewer Plan & Profile	C6.0
Storm Sewer Plan & Profile	C7.0 - C7.2
Pond Detail	C7.3
Water Distribution Plan	C8.0
Erosion Control Plan	C9.0
General Construction Details	C10.0 - C10.1
Cumberland Water Details	C10.2
Cumberland Sanitary Sewer Details	C10.3
Cumberland Sanitary Sewer Specifications	C10.4

NOTES: THESE DOCUMENTS, PLANS, AND SPECIFICATIONS ARE SUBJECT TO PERIODIC UPDATES AND REVISIONS. THE CONTRACTOR, OWNER, AND SUPPLIERS ARE RESPONSIBLE FOR VERIFICATION OF THE MOST CURRENT ISSUE AND REVISION, PRIOR TO ANY USE.

NO.	REVISION:	DATE:	AUTH.



VICINITY MAP



GENERAL NOTES

Covenant Note: The within project is subject to the declaration of covenants, conditions and restrictions for "The Overlook" as recorded in Instrument Number 030020064 in the Office of the Recorder of Hancock County, Indiana.

The within project is based in part upon the following: The Original Primary Plat dated December 26, 2001; the Amended Primary Plat dated April 23, 2002; The Overlook Section One as recorded in Plat Cabinet "C", Slide 133, Instrument Number 030020065; The Overlook Section One Certificate of Correction for lots 16-23 as recorded in Plat Cabinet "C", Slide 152, Instrument Number 040001558; The Overlook Section Two as recorded in Plat Cabinet "C", Slide 170, Instrument Number 040012915; and a Boundary Survey for "Hancock Land Company LLC." prepared by Gibson Surveying Group, dated May 22, 2002 and recorded in Instrument Number 0206316.

Basis of Bearings: The basis of bearings for this survey is an assumed bearing of North 00 degrees 03 minutes 40 seconds West along the West line of the Northeast Quarter of Section 20 per the aforementioned plats of "The Overlook".

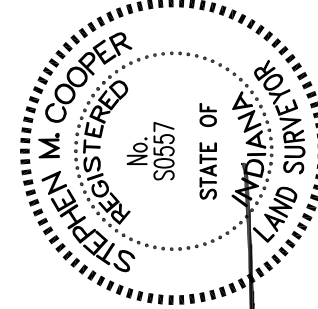
Theory of Location: The lines and corners as established this survey are based upon monuments found marking the Quarter Section corners of the subject Section and monuments found at or near the corners of various lots within the subject plats and monuments found at or near the various corners of said prior survey and deeds of record.

SECTION THREE LAND DESCRIPTION

(A part of Instrument Number 030002243)
A part of the West Half of the Northeast Quarter of Section 20, Township 15 North, Range 6 East, in Sugar Creek Township, Hancock County, Indiana, being more particularly described as follows: BEGINNING at the Northwest corner of said Northeast Quarter Section; thence North 89 degrees 53 minutes 48 seconds East along the North line thereof a distance of 488.03 feet; thence South 00 degrees 06 minutes 12 seconds East a distance of 66.50 feet; thence South 55 degrees 52 minutes 37 seconds West a distance of 211.56 feet; thence South 42 degrees 10 minutes 11 seconds West a distance of 142.29 feet; thence South 15 degrees 48 minutes 36 seconds West a distance of 110.41 feet; thence South 74 degrees 11 minutes 24 seconds East a distance of 340.00 feet; thence North 15 degrees 48 minutes 36 seconds East a distance of 27.16 feet; thence North 89 degrees 53 minutes 48 seconds East a distance of 307.91 feet to the West line of a tract of land described in Deed Record 137, Page 204 in the Office of the Recorder of Hancock County, Indiana; thence South 01 degrees 11 minutes 24 seconds East along the West line thereof a distance of 278.48 feet to the Southwest corner of said tract; thence North 67 degrees 59 minutes 27 seconds East along the South line thereof a distance of 46.18 feet to the West line of a tract of land described in Instrument Number 201702178 in said Recorder's Office; thence South 15 degrees 48 minutes 36 seconds West along the West line thereof a distance of 530.33 feet; thence South 05 degrees 41 minutes 24 seconds East along the West line thereof a distance of 83.76 feet to the Northeast corner of The Overlook Section One, as recorded in Plat Cabinet "C", Slide 133, Instrument Number 030020065 and the Certificate of Correction as recorded in Plat Cabinet "C", Slide 152, Instrument Number 040001558 in said Recorder's Office; thence South 88 degrees 19 minutes 07 seconds West along the North line thereof a distance of 15.04 feet to the Southeast corner of a tract of land described in Instrument Number 110007759 in said Recorder's Office; thence North 05 degrees 41 minutes 24 seconds West along the East line thereof a distance of 30.07 feet to the Northeast corner of said tract; thence South 88 degrees 19 minutes 07 seconds West along the North line thereof a distance of 192.39 feet to the Northwest corner of said tract, said point being on a curve having a radius of 263.00 feet, the radius point of which bears South 86 degrees 17 minutes 50 seconds East; thence Southerly along said curve to the left an arc distance of 30.04 feet to a point which bears South 87 degrees 09 minutes 36 seconds West from said radius point, said point being on the North line of said plat of The Overlook Section One; thence South 45 degrees 47 minutes 15 seconds West along the North line thereof a distance of 62.93 feet; thence North 74 degrees 50 minutes 24 seconds West continuing along the North line thereof a distance of 193.41 feet; thence North 01 degrees 03 minutes 40 seconds West a distance of 65.35 feet; thence North 15 degrees 48 minutes 36 seconds East a distance of 192.15 feet; thence North 74 degrees 11 minutes 24 seconds West a distance of 20.00 feet; thence North 15 degrees 48 minutes 36 seconds East a distance of 570.00 feet; thence North 74 degrees 11 minutes 24 seconds West a distance of 320.00 feet; thence South 15 degrees 48 minutes 36 seconds West a distance of 30.87 feet; thence South 88 degrees 56 minutes 20 seconds West a distance of 155.60 feet to the West line of said Northeast Quarter; thence North 01 degrees 03 minutes 40 seconds West along the West line thereof a distance of 480.00 feet to the POINT OF BEGINNING. Containing 11.715 acres, more or less.



Judith M. Cleland
Cleland Environmental Engineering, Inc.
6308 Thum Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper
Stephen M. Cooper, P.S. #50557
Dated: 9/24/18

JOB #: 2017-124
FILE #: 2017-124-BASE.DWG
DATE: 9/24/18
APPROVED BY: SMC
DRAWN BY: WTL

TITLE SHEET
Prepared For: HANCOCK LAND CO., LLC
Project Location: PART OF W. 1/2 - N.E. 1/4
S 20 - T 15 N - R 06 E
SUGAR CREEK TOWNSHIP
HANCOCK COUNTY, INDIANA



Sheet Number

C1.0

1.) These documents are subject to periodic revisions per requests of the client and or governing agencies. It is the holder's responsibility to verify the most current issue prior to any use.

3.) Per Indiana State law (IS-69-1991), it is against the law to excavate without notification 2 working days prior to commencing work.

BENCHMARK INFORMATION

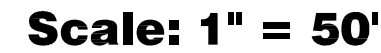
Various structures per the "The Overlook Section Two" Record Drawings as follows:

- Various structures per the "The Overlook Section Two" Record
- Top of casting of sanitary sewer structure number 10 = 831.69
 - Top of curb inlet structure number 73 = 830.08
 - Top of curb inlet structure number 74 = 830.07

T.B.M. #2: Top of casting of an existing storm sewer manhole structure number "ST-9" near the Northeast corner of the proposed
Section 3 as shown hereon. Elevation=826.12

The accuracy of the flood hazard information shown or identified hereon is subject to map scale uncertainty and to any other uncertainty in location or elevation on the referenced Flood Insurance Rate Map. The within described tract of land lies within Flood Hazard Zone AE and X as said tract plots by scale on Community Panel Number 18059C0207E of the Flood Insurance Rate Maps for Hancock County, Indiana (maps dated March 17, 2014).

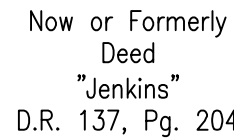
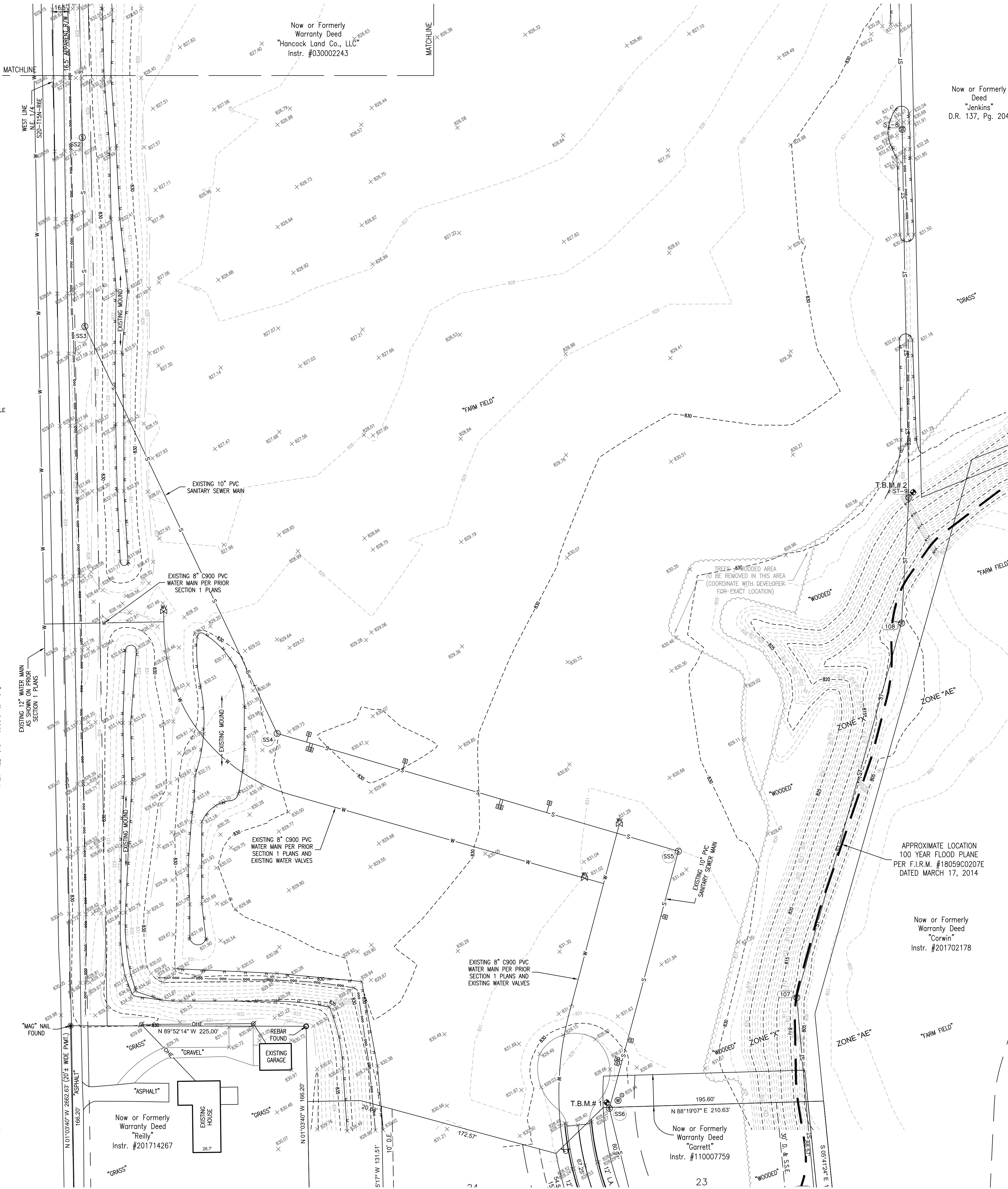
To the best of my knowledge and belief the within survey represents a survey made under my supervision. The fieldwork for this survey was performed on December 12, 2017 and May 9, 2018 using standard surveying techniques. The topographic data was gathered using standard radial surveying techniques with an electronic total station, Global Positioning System, and data collector. Elevations on hard surfaces or structures are accurate to within 0.05 feet; elevations on natural surfaces are accurate to within 0.1 feet. The subsurface elevation data was obtained from ground level, the accuracy of measurements is relative to the depth (no confined entry permits were obtained) and/or Record Drawings. Contours are plotted based upon interpolation of spot elevations shown herein and are accurate to generally within one half contour interval.




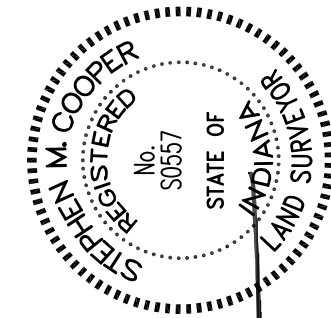
CALL BEFORE YOU D

Call 811 or 800-382-5544 Before you Dig!

— OHE —	— OVERHEAD UTILITY LINE	⊙	— "MAC" NAIL
— S —	— SANITARY SEWER	○	— REBAR/PIPE FOUND
— ST —	— STORM SEWER	◆	— INDICATES 1/4 SECTION CORNER
— W —	— UNDERGROUND WATER MAIN	⊙	— STORM SEWER MANHOLE
~~~~~	— APPROX. EDGE OF WOODS	⊙	— SANITARY SEWER MANHOLE
(D)	— DEED DIMENSION	⊙	— STORM SEWER BEEHIVE
(M)	— MEASURED DIMENSION	⊙	— STORM SEWER INLET
(P)	— PLAT DIMENSION	⊙	— CURB INLET
⊙	— EXISTING UTILITY POLE	⊙	— SANITARY LATERAL
⊙	— EXISTING WATER VALVE	⊙	— BENCHMARK
⊙	— EXISTING WATER METER	⊙	— SPOT ELEVATION
⊙	— EXISTING WATER LATERAL	⊙	— EXISTING CONTOUR
⊙	— EXISTING FIRE HYDRANT		
⊙	— END SECTION		

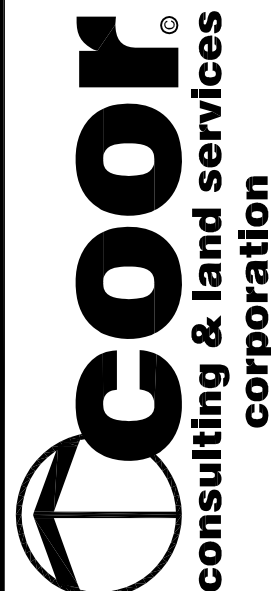


  
Judith M. Cleland  
Cleland Environmental Engineering, Inc.



Stephen M. Cooper  
Stephen M. Cooper, P.S. # S0557

<p><b>EXISTING CONDITIONS PLAN</b></p> <p>Prepared For: HANCOCK LAND CO., LLC</p> <p>Project Location: PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA</p>	JOB #: 2017-124
	FILE #: 2017-124.BASE.DWG
	DATE: 9/24/18
	APPROVED BY: SMC
DRAWN BY: MTL	



303 West Main Street, Knightstown, Indiana 46148  
Ph:(765)345-5943 Toll Free:(888)593-2667 Fax:(765)345-5692  
Web: [www.coorconsulting.com](http://www.coorconsulting.com) Email: [coorconsulting@aol.com](mailto:coorconsulting@aol.com)

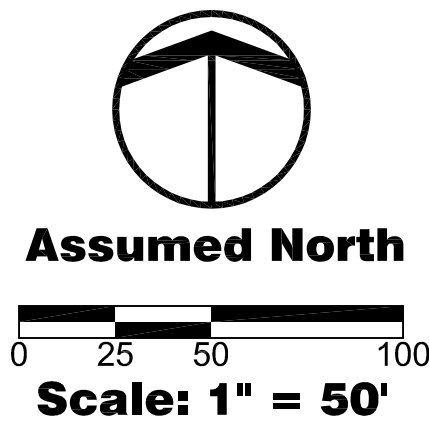
Sheet Number

# C2.0





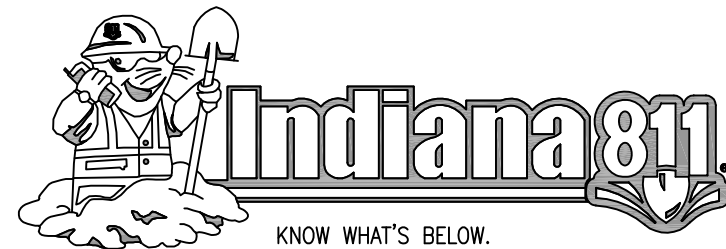




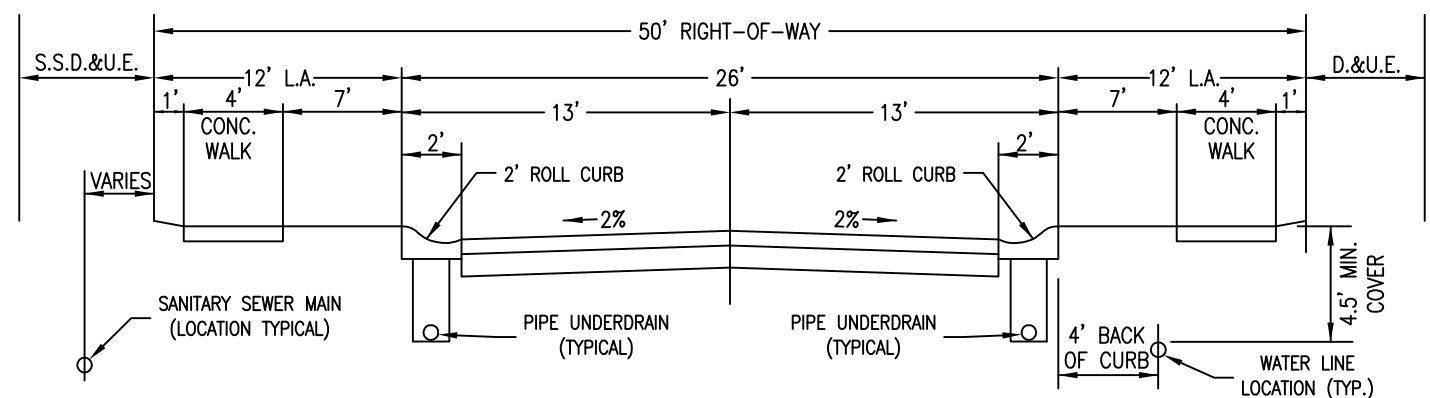
**SIDE AND REAR YARD RESTRICTIONS**  
REAR YARD SETBACK 15' MIN.  
SIDE YARD SETBACK 7' MIN. WITH 19' TOTAL AGG.  
MIN. DISTANCE BETWEEN STRUCTURES 19'

**STREET INFORMATION**  
ALL STREETS WITHIN BLOCK "K" ARE PRIVATE. THE OVERLOOK HOMEOWNERS ASSOCIATION WILL MAINTAIN STREETS. APPARENT ACREAGE WITHIN BLOCK "K" IS 1.224 ACRES (54,138 SQ. FT.). THE AFOREMENTIONED BLOCKS CONTAIN 12' WIDE LANDSCAPE AREAS (12' L.A.) AS SHOWN HEREON.

**COVENANT NOTE:**  
THE WITHIN PLAT IS SUBJECT TO THE DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR "THE OVERLOOK" AS RECORDED IN INSTRUMENT NUMBER 030020064 IN THE OFFICE OF THE RECORDER OF HANCOCK COUNTY, INDIANA.



CALL BEFORE YOU DIG.  
*Call 811 or 800-382-5544 Before you Dig!*



TYPICAL STREET SECTION  
(NO SCALE)

## GENERAL PLAN NOTES

- These documents are subject to periodic revisions per requests of the client and or governing agencies. It is the holder's responsibility to verify the most current issue prior to any use.
- Contractor shall recognize respective work and responsibility to verify location, size, and elevation of existing utilities, structures, pipes, pavements, etc. as related to their work. Notify architect/engineer of any conflict and/or discrepancies in the construction documents prior to the start of construction.
- The contractor shall be responsible for obtaining or verifying that all permits and approvals are obtained from the respective city, county, and state agencies prior to any construction activities.
- It is the contractor's responsibility to acquaint himself with subsurface conditions. Contractor is responsible for all cut/fill materials required to match compacted design subgrade. Topsoil removal limits to be determined by the contractor and/or owner.
- The plans show the location of all known utilities located within the limits of the contract according to information provided by the various utility companies, previous construction plans and as evidenced by observation of above ground conditions by the surveyor. The accuracy of this information is not guaranteed.
- All pavement patching due to utilities installation, construction of curbs, etc., or damage to existing pavement during construction shall be patched with a pavement section which meets or exceeds the specifications by the city or specifications by INDOT.
- All existing manholes, catch basin grates, water valves, gas valves, etc., shall be adjusted to proposed finish grade elevation as necessary.
- All pipe lengths shown on drawings are for hydraulic calculation purposes only. It is the responsibility of the contractor to determine exact lengths required for actual installation.
- Construction of all sewer lines and structures shall be in accordance with local and state code rules and regulations.
- Repair, replace or maintain any/all existing utilities within limits of construction.
- Handicapped ramps and signage shall be in accordance with federal, state, county, city and local codes whichever has jurisdiction. See site details for specifications.
- The contractor shall be responsible to provide at his expense all automobile and pedestrian traffic control devices required by federal, state, city or local agencies. The mount, location and size shall be per the direction of the governing agency.
- It is the responsibility of the contractor to remove all mud, dirt, gravel and other materials tracked onto any public or private streets or sidewalks. The contractor must clean these daily if necessary. The contractor must use water or other expectable methods to keep airborne dust to a required minimum.
- Coordinate all work with county, city or governing utility at least 48 hours prior to the start of work.
- All construction on this site to be performed in compliance with O.S.H.A. standards for worker safety.

## LEGEND:

- |         |                          |          |                                |
|---------|--------------------------|----------|--------------------------------|
| — OHE — | — OVERHEAD UTILITY LINE  | ⊗        | — "MAG" NAIL                   |
| — S —   | — SANITARY SEWER LINE    | ○        | — REBAR/PIPE FOUND             |
| — ST —  | — STORM SEWER LINE       | ◆        | — INDICATES 1/4 SECTION CORNER |
| — W —   | — UNDERGROUND WATER MAIN | ⊕        | — STORM SEWER MANHOLE          |
| —       | — APPROX. EDGE OF WOODS  | ⊕        | — SANITARY SEWER MANHOLE       |
| (D)     | — DEED DIMENSION         | ⊕        | — STORM SEWER BEEHIVE          |
| (M)     | — MEASURED DIMENSION     | ⊕        | — STORM SEWER INLET            |
| (P)     | — PLAT DIMENSION         | ⊕        | — CURB INLET                   |
| ⊕       | — EXISTING UTILITY POLE  | ⊕        | — SANITARY LATERAL             |
| ⊕       | — EXISTING WATER VALVE   | ⊕        | — BENCHMARK                    |
| ⊕       | — EXISTING WATER METER   | ⊕        | — SPOT ELEVATION               |
| ⊕       | — EXISTING WATER LATERAL | — 999.99 | — EXISTING CONTOUR             |
| ⊕       | — EXISTING FIRE HYDRANT  |          |                                |
| ⊕       | — END SECTION            |          |                                |

## PROPOSED LEGEND:

- |          |                                |
|----------|--------------------------------|
| — 999.99 | — PROPOSED CONTOUR             |
| ● SS4    | — PROPOSED SANITARY MANHOLE    |
| ⊕        | — PROPOSED STORM STRUCTURE NO. |
| ⊕        | — PROPOSED STORM INLET         |
| ⊕        | — PROPOSED STORM END SECTION   |
| 999.99   | — PROPOSED SPOT ELEVATION      |
| 999.99   | — PROPOSED PAVEMENT ELEVATION  |
| →        | — STORM SEWER OVERFLOW PATH    |
| A        | — A.D.A. HANDICAP RAMP         |
| B        | — 2' ROLL CURB                 |



16.) The proposed elevations depicted hereon are based upon existing surface conditions as of the date of the within survey. No information about fluctuating water tables, soil conditions, or soil types within the subject tract has been provided by client or others unless otherwise noted. If any groundwater is witnessed during the construction process, Coor Consulting & Land Services, Corp. should be notified immediately and additional construction techniques may be incorporated to allocate future problems.

17.) Provide positive drainage without ponding in all paved areas after installation of asphalt base. Contractor to test for and correct any ponding conditions prior to final coat.

18.) Match existing grade at boundary line.

19.) Fill material shall consist of earth obtained from cut areas, borrow pits or other approved sources. Earth shall be free from organic matter and other deleterious substances and large rocks. The fill material shall be placed in layers not to exceed six inches following compaction, proper moisture content of fill material will be such to achieve specified compaction density. All fill beneath paved areas, floor slabs and future buildings shall be compacted to at least 95% of the maximum dry density per ASTM D-1557. Field compaction test shall be run on each lift, in fill sections, and the required compaction on each lift shall be in accordance with INDOT Section 211.

20.) The contractor shall coordinate all earthwork quantities prior to the start of construction. If an excess or shortage of earth is encountered, the contractor shall coordinate with the owner and designer the requirements for stockpiling, removal or importing of earth.

21.) Verify existing inverts of storm sewer and adjust as required. Document any changes.

22.) Follow all local and state codes in reference to domestic line installation and sanitary lateral installation.

23.) The contractor shall field verify the location and the pipe invert depth where the proposed connection is made to the existing sanitary sewer.

24.) All water mains to be 54" minimum below grade.

25.) The contractor shall contact all applicable utilities and verify any and all fees associated with the installation of all utilities.

26.) Contractor to provide pipe bedding and compact to 95% density of standard proctor in paved areas. Pipe bedding in non-paved areas shall be compacted to 85% density of standard proctor.

27.) Coordinate location of electrical and telephone lines with local utilities and electrical drawings.

28.) Coordinate location and size of gas service connection and installation of service line and meter with gas company.

29.) Maintain a minimum of 10' horizontal clearance between sanitary lateral line and domestic line service.

30.) All construction specifications should comply with current specifications.

31.) Trenches under paved areas (excluding sidewalks) shall be backfilled with granular material and compacted in lifts. Granular material shall extend 5 feet beyond the limits of the paved area.

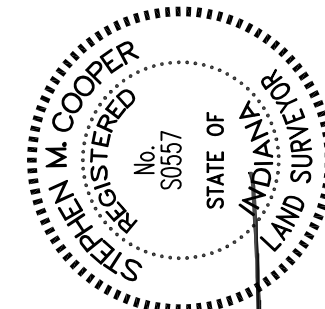
32.) See Plat for lot dimensions, building lines, and easements.

33.) Deep water signs to be placed as shown per development plan.

34.) All landscaping, buffering, and/or screening for the proposed development to match existing Section One, Section Two and County Specifications.



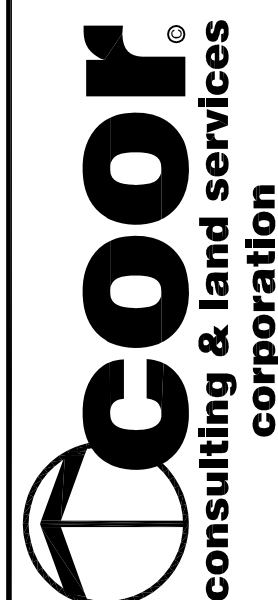
*Stephen M. Cooper*  
Stephen M. Cooper  
Cleveland Environmental Engineering, Inc.  
5305 Hum Bird Drive, Indianapolis, IN 46278



*Stephen M. Cooper*  
Stephen M. Cooper, P.E.  
Date: 9/24/16

JOB #: 2017-124  
FILE #: 2017-124-BASE DWG

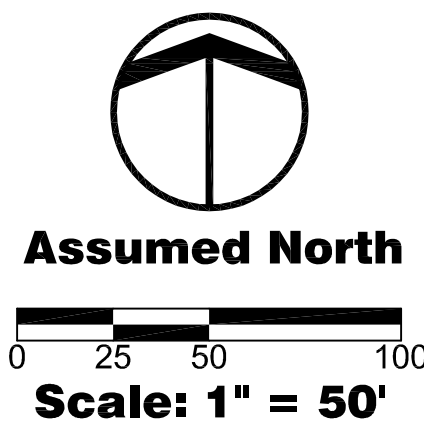
DEVELOPMENT PLAN  
Prepared For: HANCOCK LAND CO., LLC  
Project Location: PART OF W. 1/2 - N.E. 1/4  
S 20 - T 15 N - R 06 E  
SUGAR CREEK TOWNSHIP  
HANCOCK COUNTY, INDIANA



Sheet Number

C3.1





LEGEND:

—OHE—	— OVERHEAD UTILITY LINE	● — "MAG" NAIL
—S—	— SANITARY SEWER LINE	○ — REBAR/PIPE FOUND
—ST—	— STORM SEWER LINE	◆ — INDICATES 1/4 SECTION CORNER
—W—	— UNDERGROUND WATER MAIN	⊙ — STORM SEWER MANHOLE
~~~~~	— APPROX. EDGE OF WOODS	⊙ — SANITARY SEWER MANHOLE
(D) —	— DEED DIMENSION	⊙ — STORM SEWER BEEHIVE
(M) —	— MEASURED DIMENSION	⊙ — STORM SEWER INLET
(P) —	— PLAT DIMENSION	⊙ — STORM SEWER INLET
⊙ —	— EXISTING UTILITY POLE	⊙ — STORM SEWER INLET
⊙ —	— EXISTING WATER VALVE	⊙ — SANITARY LATERAL
⊙ —	— EXISTING WATER METER	⊙ — BENCHMARK
⊙ —	— EXISTING WATER LATERAL	⊙ — SPOT ELEVATION
⊙ —	— EXISTING FIRE HYDRANT	— 999 — EXISTING CONTOUR
⊙ —	— END SECTION	

EXISTING STORM SEWER STRUCTURE TABLE:

(ST-4) EXISTING STORM MANHOLE T.C.=827.80 N. INV.=820.20 (18" RCP) E. INV.=820.10 (18" RCP)	(ST-5) EXISTING STORM INLET T.C.=823.95 W. INV.=819.45 (18" RCP) E. INV.=819.45 (18" RCP)	(ST-7) EXISTING STORM MANHOLE T.C.=827.21 W. INV.=819.01 (18" RCP) S. INV.=818.91 (18" RCP)	(ST-8) EXISTING STORM MANHOLE T.C.=831.75 N. INV.=818.65 (18" RCP) S. INV.=818.55 (18" RCP)
--	--	--	--

(ST-9) EXISTING STORM MANHOLE T.C.=826.12 N. INV.=817.87 (18" RCP) S. INV.=809.87 (18" RCP)	(106) STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=806.50 N. INV.=801.04 (18" RCP) W. INV.=801.04 (18" RCP) S. INV.=800.94 (30" N-12)	(107) STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=806.50 N. INV.=799.83 (30" N-12) S. INV.=799.73 (30" N-12)	(108) STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=804.50 N. INV.=799.17 (30" N-12) S. INV.=799.07 (30" N-12) W. INV.=800.67
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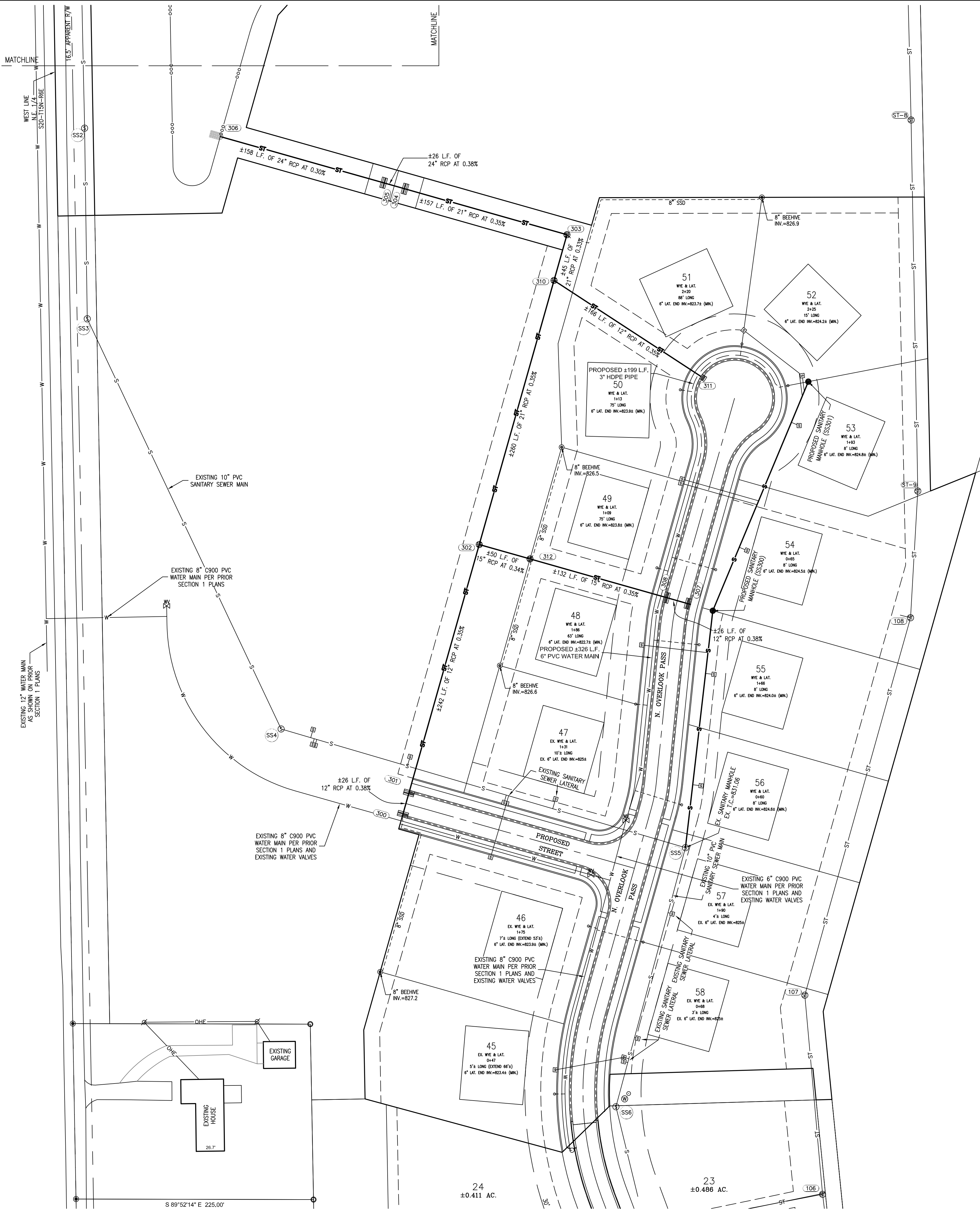
EXISTING SANITARY SEWER STRUCTURE TABLE:

(SS1) EXISTING SANITARY MANHOLE T.C.=828.25 S. INV.=811.35 (10" PVC) N. INV.=811.35 (10" PVC)	(SS2) EXISTING SANITARY MANHOLE T.C.=827.84 S. INV.=812.54 (10" PVC) N. INV.=812.49 (10" PVC)	(SS3) EXISTING SANITARY MANHOLE T.C.=828.08 S.E. INV.=813.28 (10" PVC) N. INV.=812.98 (10" PVC) APPARENT E. INV.=815.03	(SS4) EXISTING SANITARY MANHOLE T.C.=827.84 S.E. INV.=814.50 (10" PVC) N.W. INV.=814.50 (10" PVC)
(SS5) EXISTING SANITARY MANHOLE T.C.=831.06 N. INV.=822.46 (8" PVC) N. DROP INV.=816.36 N.W. INV.=815.86 (10" PVC) S.W. INV.=815.96 (10" PVC)	(SS6) EXISTING SANITARY MANHOLE T.C.=830.07 S. INV.=816.87 (10" PVC) N.E. INV.=816.67 (10" PVC)		

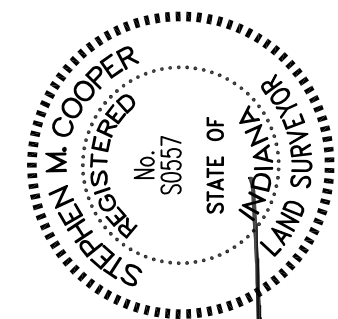
GENERAL PLAN NOTES

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- The contractor shall be responsible for obtaining or verifying that all permits and approvals are obtained from the respective city, county, and state agencies prior to any construction activities.
- It is the contractor's responsibility to acquaint himself with subsoil conditions. Contractor is responsible for all cut/fill materials required to match compacted design subgrade. Topsoil removal limits to be determined by the contractor and/or owner.
- The plans show the location of all known utilities located within the limits of the contract according to information provided by the various utility companies, previous construction plans and as evidenced by observation of above ground conditions by the surveyor. The accuracy of this information is not guaranteed.
- All pavement patching due to utilities installation, construction of curbs, etc., or damage to existing pavement during construction shall be patched with a pavement section which meets or exceeds the specifications by the city or specifications by INDOT.
- All existing manholes, catch basin grates, water valves, gas valves, etc., shall be adjusted to proposed finish grade elevation as necessary.
- All pipe lengths shown on drawings are for hydraulic calculation purposes only. It is the responsibility of the contractor to determine exact lengths required for actual installation.
- Construction of all sewer lines and structures shall be in accordance with local and state code rules and regulations.
- Repair, replace or maintain any/all existing utilities within limits of construction.
- Handicapped ramps and signage shall be in accordance with federal, state, county, city and local codes whichever has jurisdiction. See site details for specifications.
- The contractor shall be responsible to provide at his expense all automobile and pedestrian traffic control devices required by federal, state, city or local agencies. The mount, location and size shall be per the direction of the governing agency.
- It is the responsibility of the contractor to remove all mud, dirt, gravel and other materials tracked onto any public or private streets or sidewalks. The contractor must clean these daily if necessary. The contractor must use water or other expectable methods to keep airborne dust to a required minimum.
- Coordinate all work with county, city or governing utility at least 48 hours prior to the start of work.
- All construction on this site to be performed in compliance with O.S.H.A. standards for worker safety.

- The proposed elevations depicted hereon are based upon existing surface conditions as of the date of the within survey. No information about fluctuating water tables, soil conditions, or soil types within the subject tract has been provided by client or others unless otherwise noted. If any groundwater is witnessed during the construction process, Coor Consulting & Land Services, Corp. should be notified immediately and additional construction techniques may be incorporated to allocate future problems.
- Provide positive drainage without ponding in all paved areas after installation of asphalt base. Contractor to test for and correct any ponding conditions prior to final coat.
- Match existing grade at boundary line.
- Fill material shall consist of earth obtained from cut areas, borrow pits or other approved sources. Earth shall be free from organic matter and other deleterious substances and large rocks. The fill material shall be placed in layers not to exceed six inches following compaction, proper moisture content of fill material will be such to achieve specified compaction density. All fill beneath paved areas, floor slabs and future buildings shall be compacted to at least 95% of the maximum dry density per ASTM D-1557. Field compaction test shall be run on each lift, in fill sections, and the required compaction on each lift shall be in accordance with INDOT Section 211.
- The contractor shall coordinate all earthwork quantities prior to the start of construction. If an excess or shortage of earth is encountered, the contractor shall coordinate with the owner and designer the requirements for stockpiling, removal or importing of earth.
- Verify existing inverts of storm sewer and adjust as required. Document any changes.
- Follow all local and state codes in reference to domestic line installation and sanitary lateral installation.
- The contractor shall field verify the location and the pipe invert depth where the proposed connection is made to the existing sanitary sewer.
- All water mains to be 54" minimum below grade.
- The contractor shall contact all applicable utilities and verify any and all fees associated with the installation of all utilities.
- Contractor to provide pipe bedding and compact to 95% density of standard proctor in paved areas. Pipe bedding in non-paved areas shall be compacted to 85% density of standard proctor.
- Coordinate location of electrical and telephone lines with local utilities and electrical drawings.
- Coordinate location and size of gas service connection and installation of service line and meter with gas company.
- Maintain a minimum of 10' horizontal clearance between sanitary lateral line and domestic line service.
- All construction specifications should comply with current specifications.
- Trenches under paved areas (excluding sidewalks) shall be backfilled with granular material and compacted in lifts. Granular material shall extend 5 feet beyond the limits of the paved area.
- See Plat for lot dimensions, building lines, and easements.
- Deep water signs to be placed as shown per development plan.
- All landscaping, buffering, and/or screening for the proposed development to match existing Section One, Section Two and County Specifications.



Judith M. Cleland
Cleland Environmental Engineering, Inc.
5308 Thum Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper, P.E. #50557
Dated: 9/24/16

JOB #:	2017-124
FILE #:	2017-124-BASE.DWG
DATE:	9/24/18
APPROVED BY:	SMC
DRAWN BY:	MTL

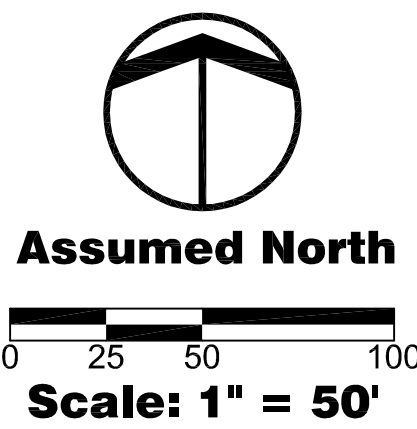
UTILITY PLAN	HANCOCK LAND CO., LLC
Prepared For:	HANCOCK LAND CO., LLC
Project Location:	PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA

coor
consulting & land services
corporation

303 West Main Street, Kingsbury, Indiana 46148
Ph: 765/345-5843, Fax: 765/345-5892
Web: www.coorconsulting.com Email: coorconsulting@aol.com

Sheet Number

C4.0



LEGEND:		
	OHE	OVERHEAD UTILITY LINE
	S	SANITARY SEWER LINE
	ST	STORM SEWER LINE
	W	UNDERGROUND WATER MAIN
		APPROX. EDGE OF WOODS
	(D)	DEED DIMENSION
	(M)	MEASURED DIMENSION
	(P)	PLAT DIMENSION
		EXISTING UTILITY POLE
		EXISTING WATER VALVE
		EXISTING WATER METER
		EXISTING WATER LATERAL
		EXISTING FIRE HYDRANT
		END SECTION
		"MAG" NAIL
		REBAR/PIPE FOUND
		INDICATES 1/4 SECTION CORNER
	SS	STORM SEWER MANHOLE
	SS	SANITARY SEWER MANHOLE
		STORM SEWER BEEHIVE
		STORM SEWER INLET
		EXISTING UTILITY POLE
		CURB INLET
		SANITARY LATERAL
		BENCHMARK
	X 999.99	SPOT ELEVATION
	999	EXISTING CONTOUR

EXISTING STORM SEWER STRUCTURE TABLE:

ST-4	ST-5	ST-7	ST-8
EXISTING STORM MANHOLE T.C.=827.80 N. INV.=820.20 (18" RCP) E. INV.=820.10 (18" RCP)	EXISTING STORM INLET T.C.=823.95 W. INV.=819.45 (18" RCP) E. INV.=819.45 (18" RCP)	EXISTING STORM MANHOLE T.C.=827.21 W. INV.=819.01 (18" RCP) S. INV.=818.91 (18" RCP)	EXISTING STORM MANHOLE T.C.=831.75 N. INV.=818.65 (18" RCP) S. INV.=818.55 (18" RCP)

ST-9	108	107	106
EXISTING STORM MANHOLE T.C.=826.12 N. INV.=817.87 (18" RCP) S. INV.=809.87 (18" RCP)	STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=806.50 N. INV.=801.04 (18" RCP) W. INV.=801.04 (18" RCP) S. INV.=800.94 (30" N-12)	STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=806.50 N. INV.=799.83 (30" N-12) S. INV.=799.73 (30" N-12)	STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=804.50 N. INV.=799.17 (30" N-12) S. INV.=799.07 (30" N-12) W. INV.=800.67

EXISTING SANITARY SEWER STRUCTURE TABLE:

SS1	SS2	SS3	SS4
EXISTING SANITARY MANHOLE T.C.=828.25 S. INV.=811.35 (10" PVC) N. INV.=811.35 (10" PVC)	EXISTING SANITARY MANHOLE T.C.=827.84 S. INV.=812.54 (10" PVC) N. INV.=812.49 (10" PVC)	EXISTING SANITARY MANHOLE T.C.=828.08 S.E. INV.=813.28 (10" PVC) N. INV.=812.98 (10" PVC) APPARENT E. INV.=815.03	EXISTING SANITARY MANHOLE T.C.=829.65 S.E. INV.=814.54 (10" PVC) N.W. INV.=814.50 (10" PVC)
SS5	SS6		
EXISTING SANITARY MANHOLE T.C.=831.06 N. INV.=822.44 (8" PVC) N. DROP INV.=816.36 N.W. INV.=815.86 (10" PVC) S.W. INV.=815.96 (10" PVC)	EXISTING SANITARY MANHOLE T.C.=830.07 S. INV.=816.87 (10" PVC) N.E. INV.=816.67 (10" PVC)		

PROPOSED LEGEND:

	999.99	PROPOSED CONTOUR
	SS	PROPOSED SANITARY MANHOLE
	111	PROPOSED STORM STRUCTURE NO.
		PROPOSED STORM INLET
		PROPOSED STORM END SECTION
	999.99	PROPOSED SPOT ELEVATION
	999.99	PROPOSED PAVEMENT ELEVATION
		STORM SEWER OVERFLOW PATH
	A	A.D.A. HANDICAP RAMP
	B	2' ROLL CURB

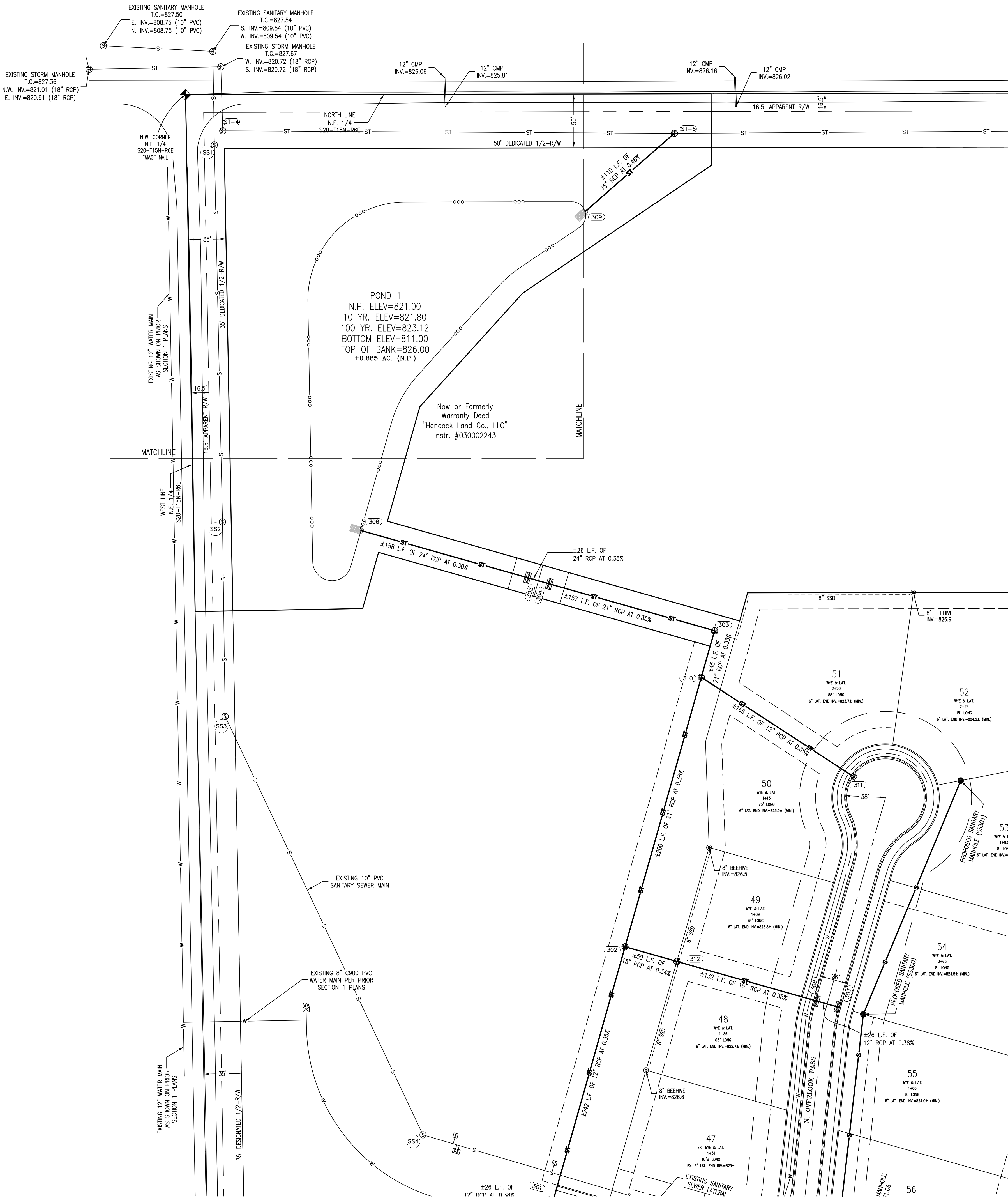


Call 811 or 800-382-5544 Before you Dig!

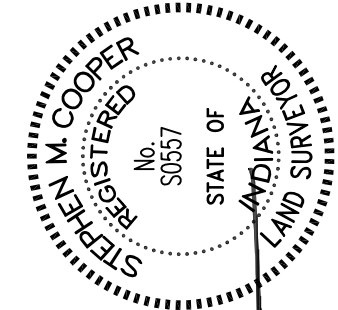
GENERAL PLAN NOTES

- These documents are subject to periodic revisions per requests of the client and or governing agencies. It is the holder's responsibility to verify the most current issue prior to any use.
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Stephen M. Cooper
Cleveland Environmental Engineering, Inc.
6308 Thum Bend Drive, Indianapolis, IN 46278

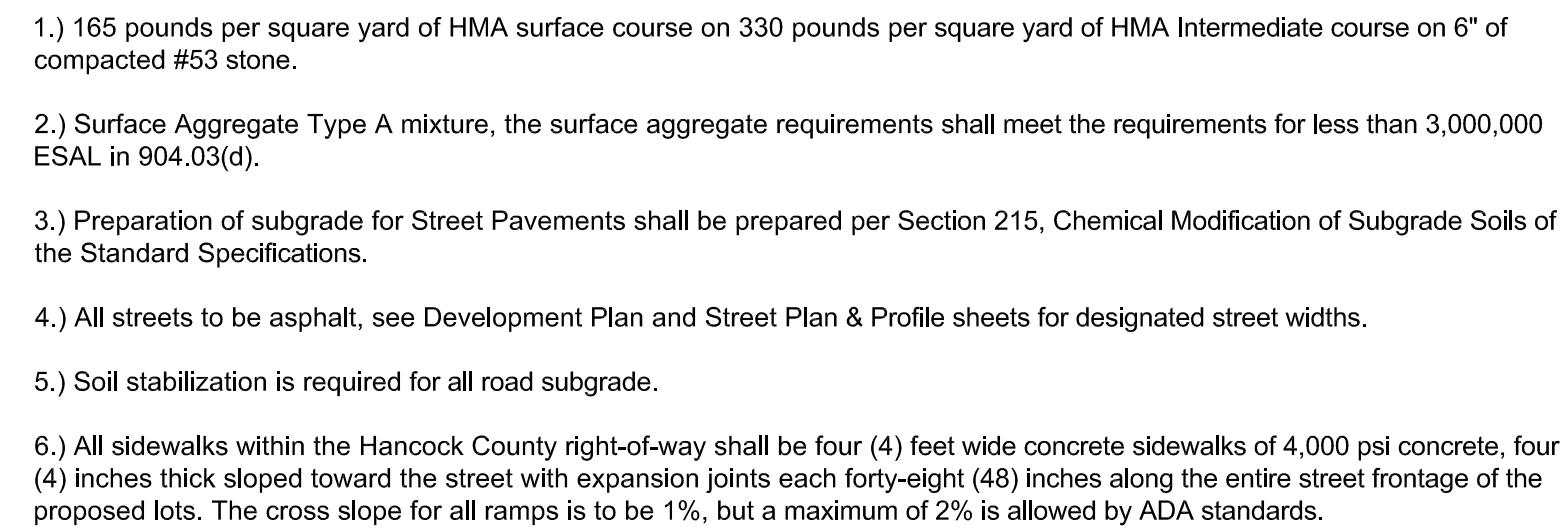
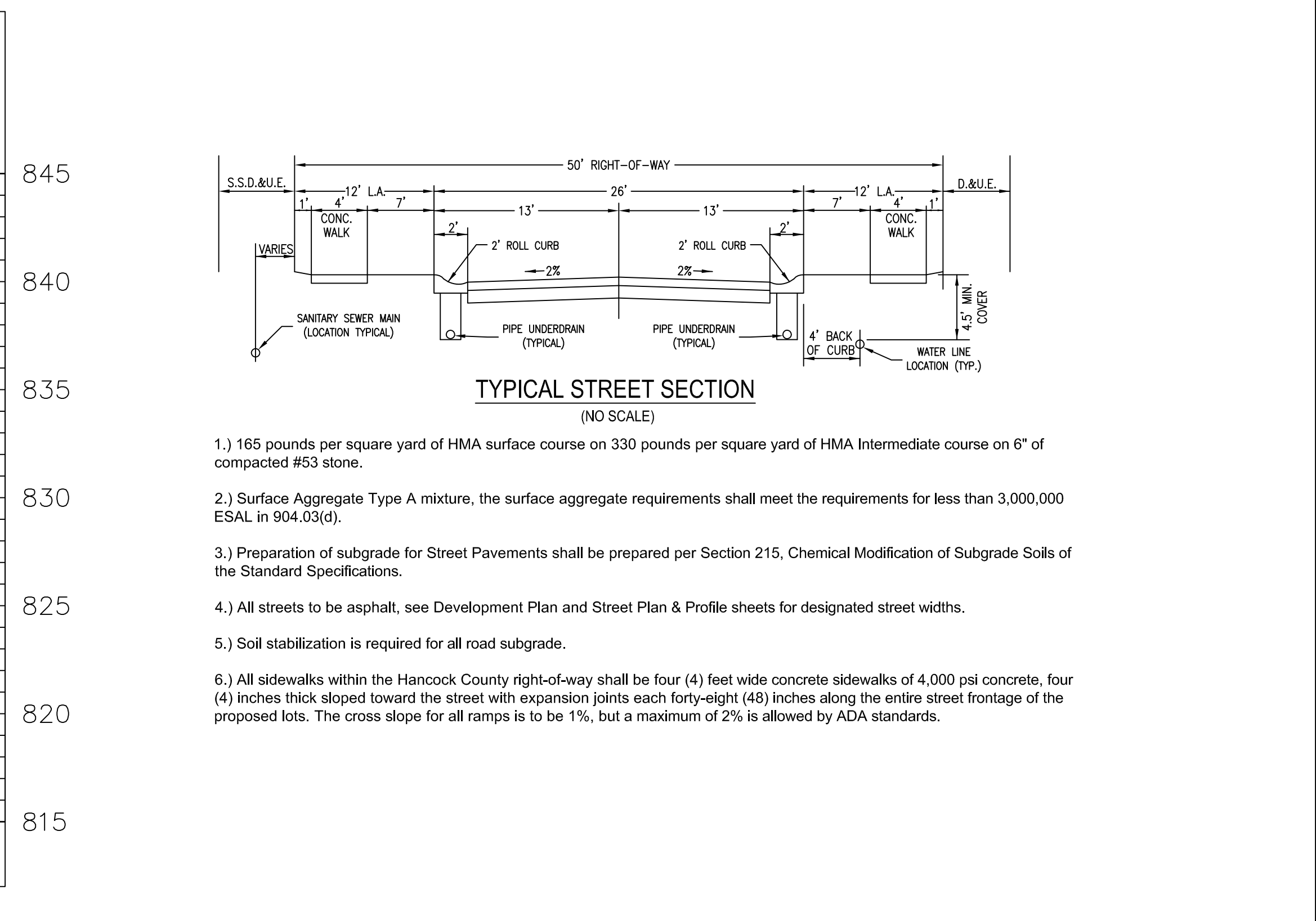
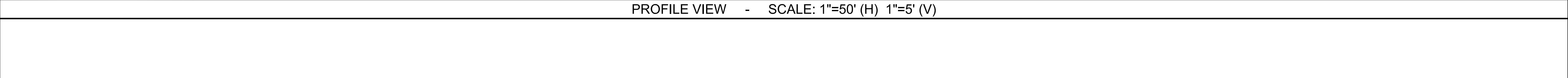



Stephen M. Cooper, P.E.
Dated: 9/24/16

JOB #: 2017-124	FILE #: 2017-124-BASE.DWG	DATE: 9/24/18	APPROVED BY: SMC	DRAWN BY: WTL
UTILITY PLAN	HANCOCK LAND CO., LLC	PART OF W. 1/2 - N.E. 1/4	S 20 - T 15 N - R 06 E	SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA
Prepared For:	HANCOCK LAND CO., LLC	Project Location:	S 20 - T 15 N - R 06 E	HANCOCK COUNTY, INDIANA
coor consulting & land services corporation	303 West Main Street, Indianapolis, Indiana 46148 Ph: (765) 345-5843, Toll Free: (888) 583-2667, Fax: (765) 345-5892 Web: www.coorconsulting.com, Email: coorconsulting@aol.com	Sheet Number	C4.1	

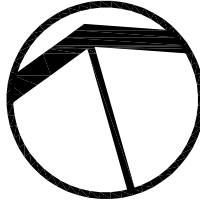
PLAN VIEW - SCALE: 1"=50' (H)

LEGEND:		PROPOSED LEGEND:	
— OHE —	— OVERHEAD UTILITY LINE	— 999 —	— PROPOSED CONTOUR
— S —	— SANITARY SEWER LINE	— (SS#) —	— PROPOSED SANITARY MANHOLE
— ST —	— STORM SEWER LINE	— (HH) —	— PROPOSED STORM STRUCTURE NO.
— W —	— UNDERGROUND WATER MAIN	— (I) —	— PROPOSED STORM INLET
~~~~~	— APPROX. EDGE OF WOODS	— (P) —	— PROPOSED STORM END SECTION
(D) —	— DEED DIMENSION	— (999.9) —	— PROPOSED SPOT ELEVATION
(M) —	— MEASURED DIMENSION	— (999.99) —	— PROPOSED PAVEMENT ELEVATION
(P) —	— PLAT DIMENSION	— (A) —	— A.D.A. HANDICAP RAMP
Ø —	— EXISTING UTILITY POLE	— (B) —	— 2' ROLL CURB
⊕ —	— EXISTING WATER VALVE		
⊙ —	— EXISTING WATER METER		
○ —	— EXISTING WATER LATERAL		
⌂ —	— EXISTING FIRE HYDRANT		
⌂ —	— END SECTION		
⊙ —	— "MAG" NAIL		
⊙ —	— REBAR/PIPE FOUND		
⬢ —	— INDICATES 1/4 SECTION CORNER		
⊕ —	— STORM SEWER MANHOLE		
⊕ —	— SANITARY SEWER MANHOLE		
⊕ —	— STORM SEWER BEEHIVE		
⊕ —	— STORM SEWER INLET		
⊕ —	— CURB INLET		
⊕ —	— SANITARY LATERAL		
⊕ —	— BENCHMARK		
⊕ —	— SPOT ELEVATION		
⊕ —	— EXISTING CONTOUR		

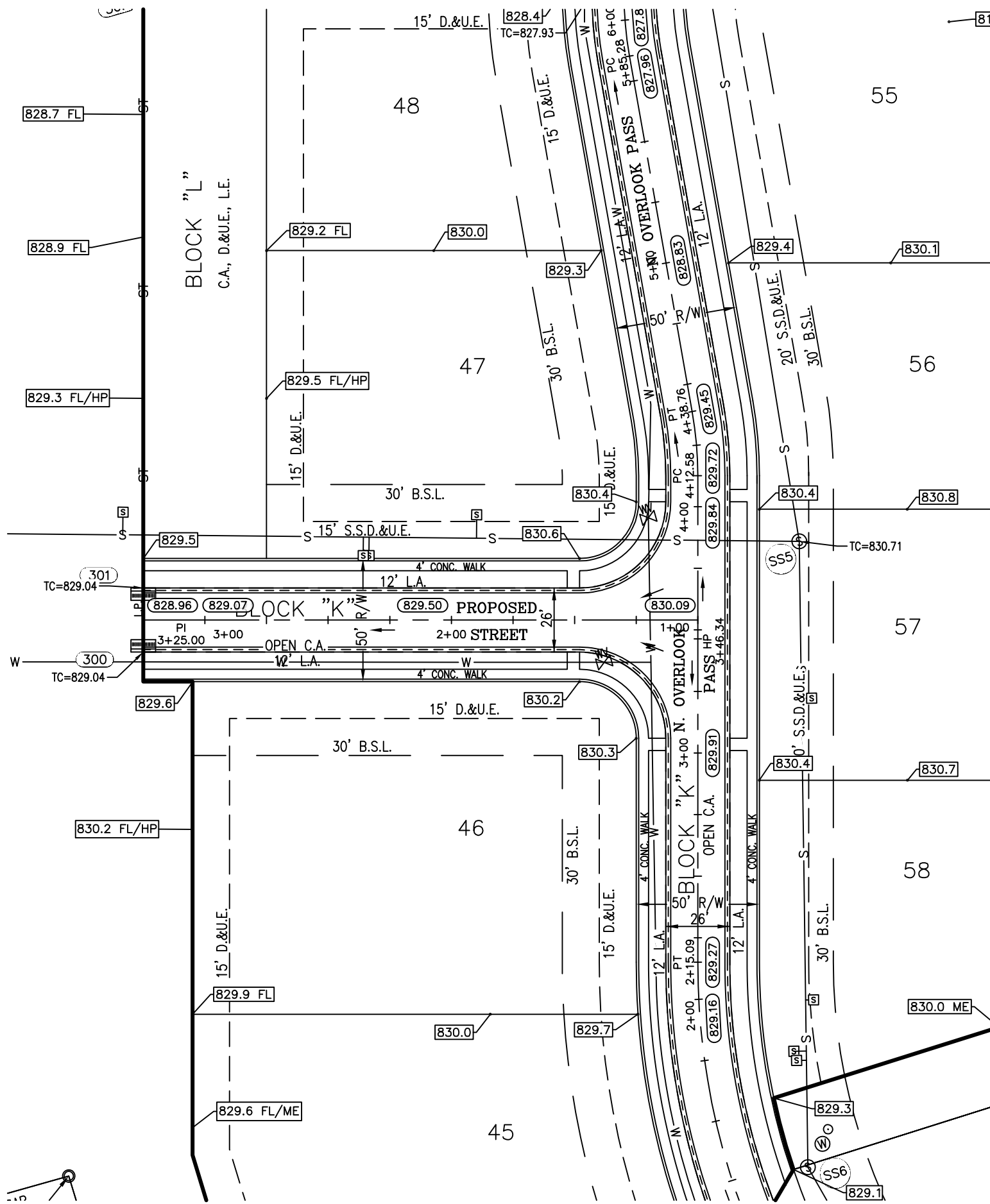


 <p><b>coor</b> consulting &amp; land services corporation</p> <p>303 West Main Street, Knightstown, Indiana 46148 Ph: (916) 661-1000 Fax: (916) 661-1009 Web: www.coorconsulting.com Email: coorconsulting@aol.com</p>	<p>Prepared For: HANCOCK LAND CO., LLC</p> <p>Project Location: PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA</p>		<p>JOB #: 2017-124</p> <p>FILE #: 2017-124.BASE.DWG</p> <p>DATE: 9/24/18</p> <p>APPROVED BY: SMC</p> <p>DRAWN BY: MITL</p>	<p>STEPHEN M. COOPER, P.E. REGISTERED PROFESSIONAL ENGINEER No. 50557 STATE OF INDIANA LAND SURVEYOR</p> <p><i>Stephen M. Cooper</i></p> <p>Stephen M. Cooper, P.E. # 50557 Dated: 9/24/18</p>	<p><i>Judith M. Cleland</i></p> <p>Judith M. Cleland Cleland Environmental Engineering, Inc. 8308 Thorn Bend Drive, Indianapolis, IN 46278</p> <p>W. CLELAND REGISTERED PROFESSIONAL ENGINEER No. 00018101 STATE OF INDIANA</p>
	<p>Sheet Number</p>				





Assumed North



- LEGEND:**
- OHE - OVERHEAD UTILITY LINE
  - S - SANITARY SEWER LINE
  - ST - STORM SEWER LINE
  - W - UNDERGROUND WATER MAIN
  - APPROX. EDGE OF WOODS
  - (D) - DEED DIMENSION
  - (M) - MEASURED DIMENSION
  - (P) - PLAT DIMENSION
  - Ø - EXISTING UTILITY POLE
  - WV - EXISTING WATER VALVE
  - WM - EXISTING WATER METER
  - WL - EXISTING WATER LATERAL
  - FH - EXISTING FIRE HYDRANT
  - END SECTION
  - "MAG" NAIL
  - REBAR/PIPE FOUND
  - INDICATES 1/4 SECTION CORNER
  - STORM SEWER MANHOLE
  - SANITARY SEWER MANHOLE
  - STORM SEWER BEEHIVE
  - STORM SEWER INLET
  - CURB INLET
  - SANITARY LATERAL
  - BENCHMARK
  - SPOT ELEVATION
  - EXISTING CONTOUR

**PROPOSED LEGEND:**

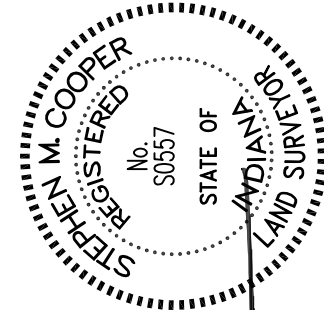
- PROPOSED CONTOUR
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM STRUCTURE NO.
- PROPOSED STORM INLET
- PROPOSED STORM END SECTION
- PROPOSED SPOT ELEVATION
- PROPOSED PAVEMENT ELEVATION
- STORM SEWER OVERFLOW PATH
- A.D.A. HANDICAP RAMP
- 2' ROLL CURB



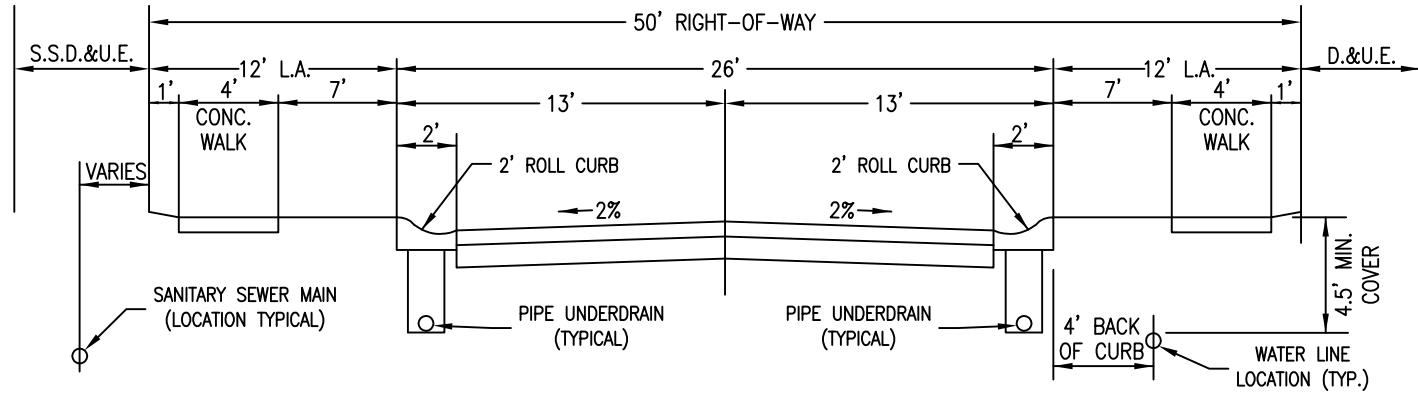
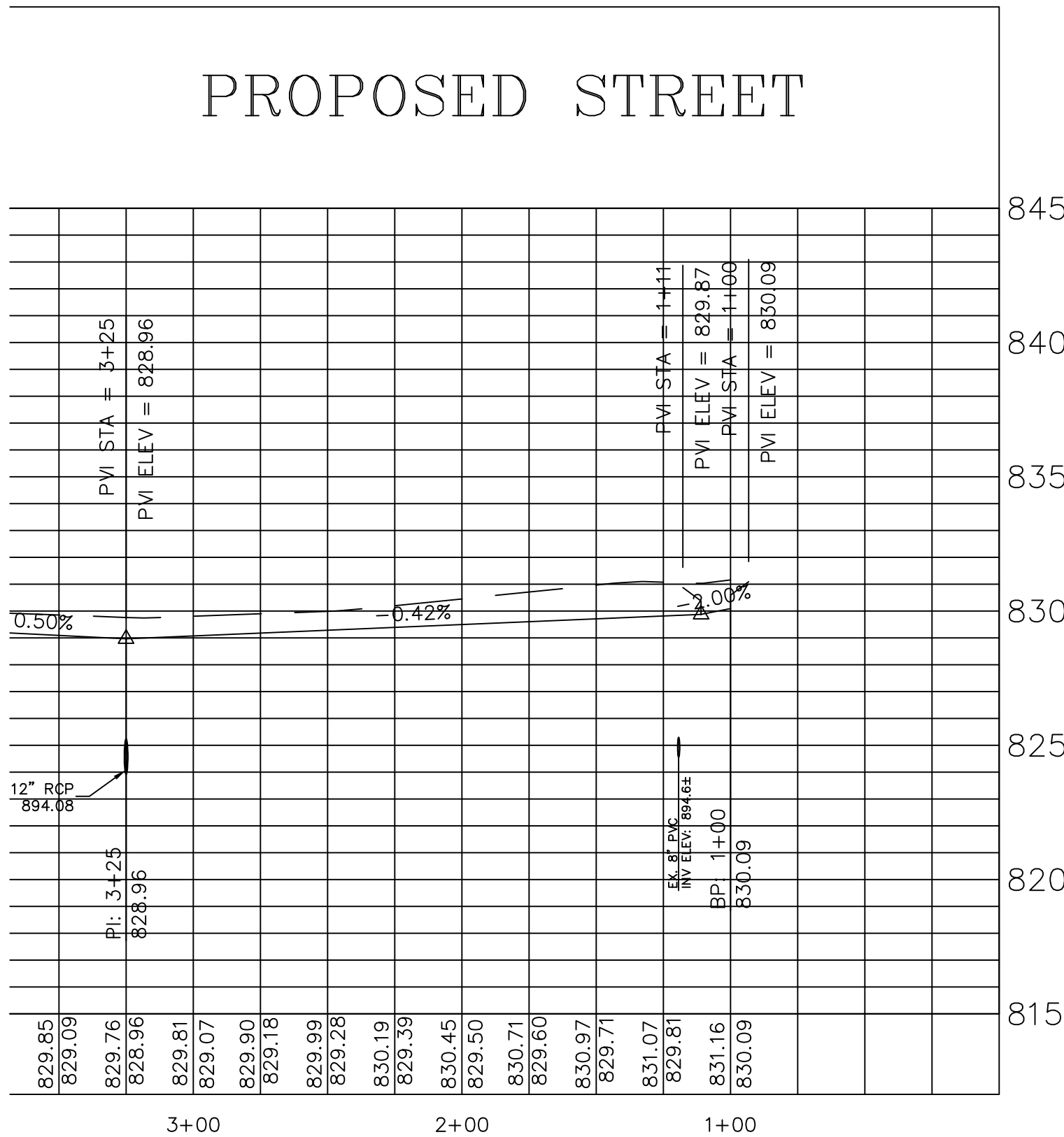
KNOW WHAT'S BELOW.  
CALL BEFORE YOU DIG.  
Call 811 or 800-382-5544 Before you Dig!



Stephen M. Cooper  
Cleveland Environmental Engineering, Inc.  
6308 Thum Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper  
P.S. # 50557  
Dated: 9/24/16



**TYPICAL STREET SECTION**  
(NO SCALE)

- 165 pounds per square yard of HMA surface course on 330 pounds per square yard of HMA Intermediate course on 6" of compacted #53 stone.
- Surface Aggregate Type A mixture, the surface aggregate requirements shall meet the requirements for less than 3,000,000 ESAL in 904.03(d).
- Preparation of subgrade for Street Pavements shall be prepared per Section 215, Chemical Modification of Subgrade Soils of the Standard Specifications.
- All streets to be asphalt, see Development Plan and Street Plan & Profile sheets for designated street widths.
- Soil stabilization is required for all road subgrade.
- All sidewalks within the Hancock County right-of-way shall be four (4) feet wide concrete sidewalks of 4,000 psi concrete, four (4) inches thick sloped toward the street with expansion joints each forty-eight (48) inches along the entire street frontage of the proposed lots. The cross slope for all ramps is to be 1%, but a maximum of 2% is allowed by ADA standards.

JOB #: 2017-124

FILE #: 2017-124-BASE.DWG

DATE: 9/24/18

APPROVED BY: SMC

DRAWN BY: WTL

**STREET PLAN & PROFILE**

Prepared For:

HANCOCK LAND CO., LLC

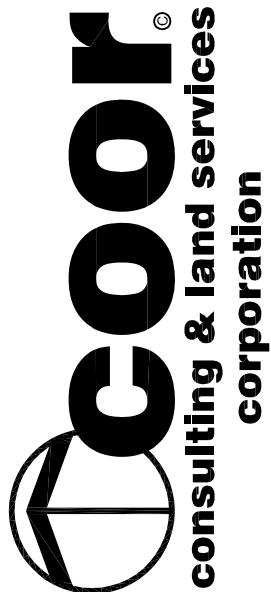
Project Location:

PART OF W. 1/2 - N.E. 1/4

S 20 - T 15 N - R 06 E

SUGAR CREEK TOWNSHIP

HANCOCK COUNTY, INDIANA



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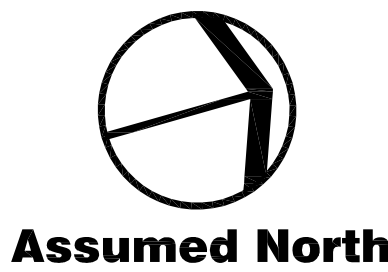
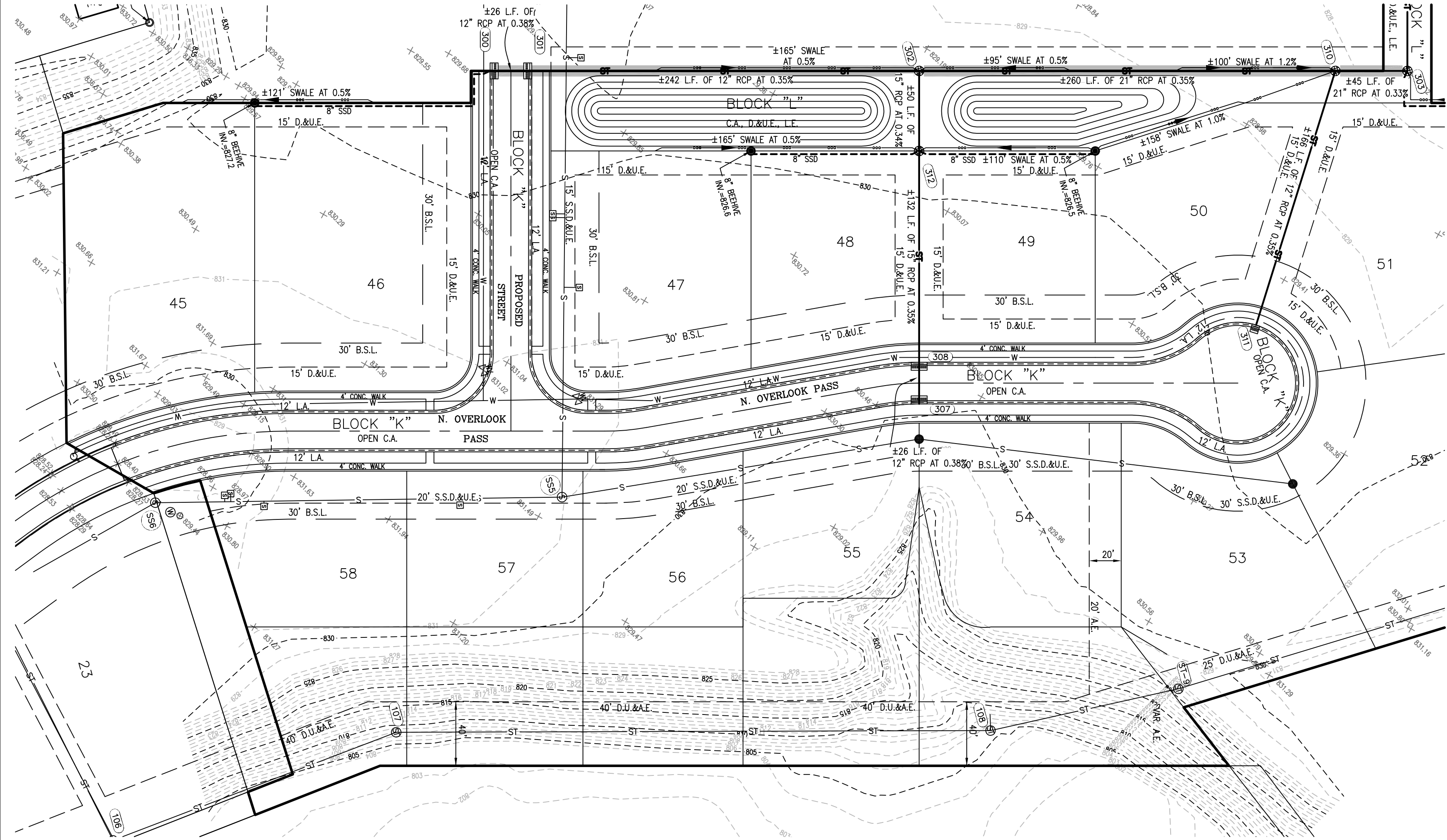
**C5.1**







PLAN VIEW - SCALE: 1"=50' (H)



- LEGEND:**
- OHE — OVERHEAD UTILITY LINE
  - S — SANITARY SEWER LINE
  - ST — STORM SEWER LINE
  - W — UNDERGROUND WATER MAIN
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  - (P) — PLAT DIMENSION
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  - — "MAG" NAIL
  - ◆ — REBAR/PIPE FOUND
  - ◊ — INDICATES 1/4 SECTION CORNER
  - ⊙ — STORM SEWER MANHOLE
  - ⊙ — SANITARY SEWER MANHOLE
  - ⊙ — STORM SEWER BEEHIVE
  - ⊙ — STORM SEWER INLET
  - ⊙ — CURB INLET
  - ⊙ — SANITARY LATERAL
  - ⊙ — BENCHMARK
  - × — SPOT ELEVATION
  - 999 — EXISTING CONTOUR

**PROPOSED LEGEND:**

- 999 — PROPOSED CONTOUR
- — PROPOSED SANITARY MANHOLE
- ⊙ — PROPOSED STORM STRUCTURE NO.
- ⊙ — PROPOSED STORM INLET
- ⊙ — PROPOSED STORM END SECTION
- ⊙ — PROPOSED SPOT ELEVATION
- ⊙ — PROPOSED PAVEMENT ELEVATION
- ➔ — STORM SEWER OVERFLOW PATH
- ⊙ — A.D.A. HANDICAP RAMP
- ⊙ — 2' ROLL CURB

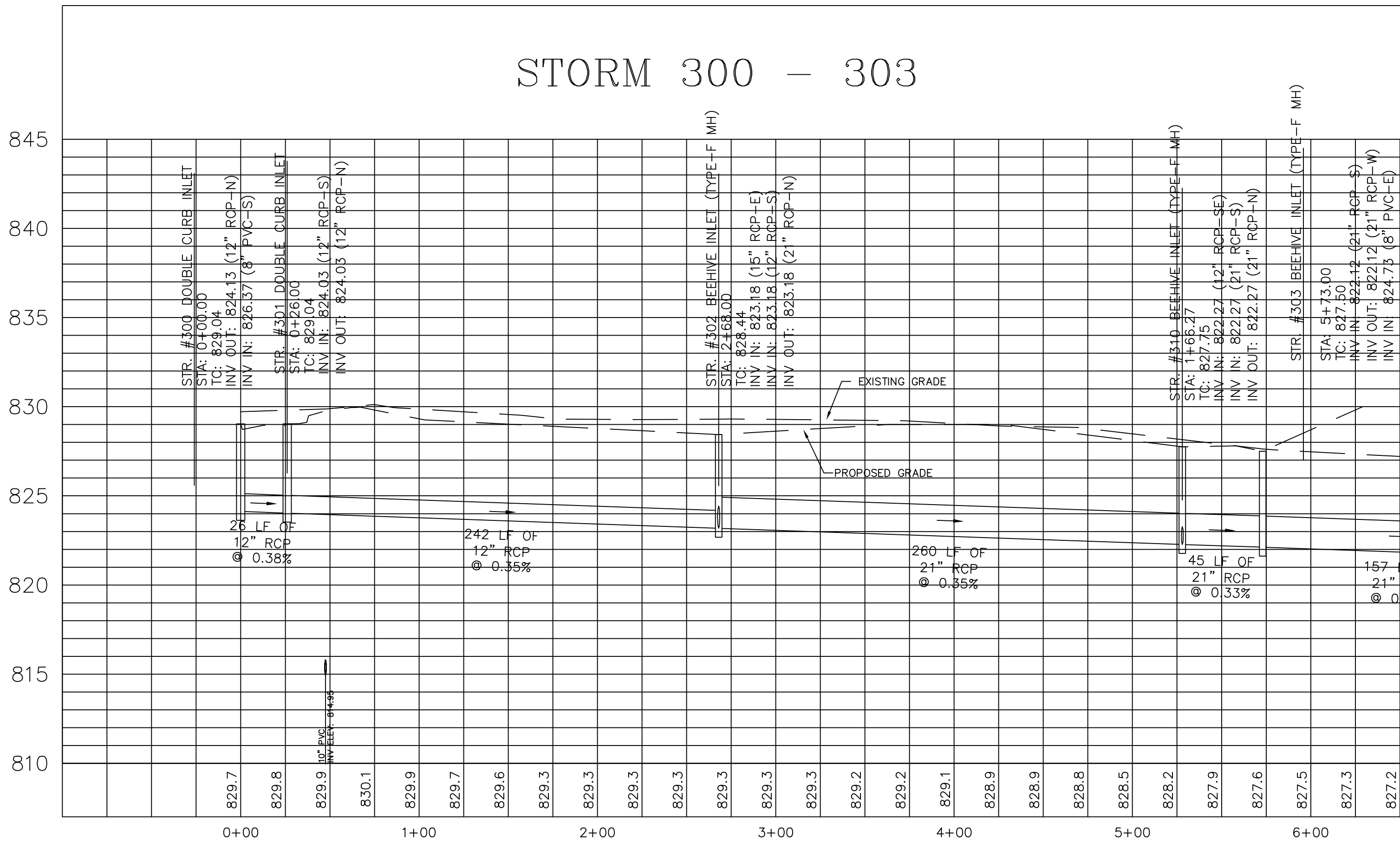
**EXISTING STORM SEWER STRUCTURE TABLE:**

<b>(ST-4)</b> EXISTING STORM MANHOLE T.C.=827.80 N. INV.=820.20 (18" RCP) E. INV.=820.10 (18" RCP)	<b>(ST-6)</b> EXISTING STORM INLET T.C.=823.95 W. INV.=819.45 (18" RCP) E. INV.=819.45 (18" RCP)	<b>(ST-7)</b> EXISTING STORM MANHOLE T.C.=827.21 W. INV.=819.01 (18" RCP) S. INV.=818.91 (18" RCP)	<b>(ST-8)</b> EXISTING STORM MANHOLE T.C.=831.75 N. INV.=818.55 (18" RCP) S. INV.=818.55 (18" RCP)
<b>(ST-9)</b> EXISTING STORM MANHOLE T.C.=826.12 N. INV.=817.87 (18" RCP) S. INV.=809.87 (18" RCP)	<b>(108)</b> STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=806.50 N. INV.=801.04 (18" RCP) W. INV.=801.04 (18" RCP) S. INV.=800.94 (30" N-12)	<b>(107)</b> STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=806.50 N. INV.=799.83 (30" N-12) S. INV.=799.73 (30" N-12)	<b>(106)</b> STORM MANHOLE PER PRIOR PROPOSED PLANS T.C.=804.50 N. INV.=799.17 (30" N-12) S. INV.=799.07 (30" N-12) W. INV.=800.67



Call 811 or 800-382-5544 Before you Dig!

PROFILE VIEW - SCALE: 1"=50' (H) 1"=5' (V)

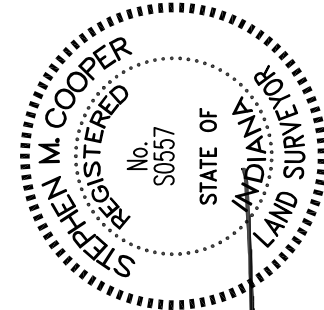


**STORM SEWER NOTES**

- These documents are subject to periodic revisions per requests of the client and or governing agencies. It is the holder's responsibility to verify the most current issue prior to any use.
- Contractor shall recognize respective work and responsibility to verify location, size, and elevation of existing utilities, structures, pipes, pavements, etc. as related to their work. Notify architect of any conflict and/or discrepancies in the construction documents prior to the start of construction.
- The contractor shall be responsible for obtaining or verifying that all permits and approvals are obtained from the respective city, county, and state agencies prior to any construction activities.
- It is the contractor's responsibility to acquaint himself with subsoil conditions. Contractor is responsible for all cut/fill materials required to match compacted design subgrade. Topsoil removal limits to be determined by the contractor and/or owner.
- The plans show the location of all known utilities located within the limits of the contract according to information provided by the various utility companies, previous construction plans and as evidenced by observation of above ground conditions by the surveyor. The accuracy of this information is not guaranteed.
- All pavement patching due to utilities installation, construction of curbs, etc., or damage to existing pavement during construction shall be patched with a pavement section which meets or exceeds the specifications by the governing agency or specifications by INDOT.
- All existing manholes, catch basin grates, water valves, gas valves, etc., shall be adjusted to proposed finish grade elevation.
- All pipe lengths shown on drawings are for hydraulic calculation purposes only. It is the responsibility of the contractor to determine exact lengths required for actual installation.
- Construction of all sewer lines and structures shall be in accordance with local and state code rules and regulations.
- The contractor shall be responsible to provide at his expense all automobile and pedestrian traffic control devices required by federal, state, city or local agencies. The mount, location and size shall be per the direction of the governing agency.
- It is the responsibility of the contractor to remove all mud, dirt, gravel and other materials tracked onto any public or private streets or sidewalks. The contractor must clean these daily if necessary. The contractor must use water or other expectable methods to keep airborne dust to a required minimum.
- Coordinate all work with county, city or governing utility at least 48 hours prior to the start of work.
- Contractor to provide pipe bedding and compact to 95% density of standard proctor in paved areas. Pipe bedding in non-paved areas shall be compacted to 85% density of standard proctor.
- The contractor shall contact all applicable utilities and verify any and all fees associated with the installation of all utilities.
- A minimum of 18" vertical and 10' horizontal separation to be maintained between the water mains, hydrants and sanitary and storm sewers.
- Trenches under paved areas (excluding sidewalks) shall be backfilled with granular material and compacted in lifts. Granular material shall extend 5 feet beyond the limits of the paved area.
- The contractor shall field verify the location and the pipe invert depth where the proposed connection is made to the existing sewer.
- Verify existing inverts of storm sewer and adjust as required. Document any changes.
- Structures receiving sub-surface drain (SSD) shall have both ports core drilled. "T" or "Y" blind connections are not allowed.
- All storm sewer castings shall be labeled "Dump No Waste - Drains To Waterway".



Judith M. Cleland  
Cleland Environmental Engineering, Inc.  
5308 Thum Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper, P.E. #50557  
Dated: 9/24/16

JOB #: 2017-124  
FILE #: 2017-124-BASE.DWG  
DATE: 9/24/18  
APPROVED BY: SMC  
DRAWN BY: WTL

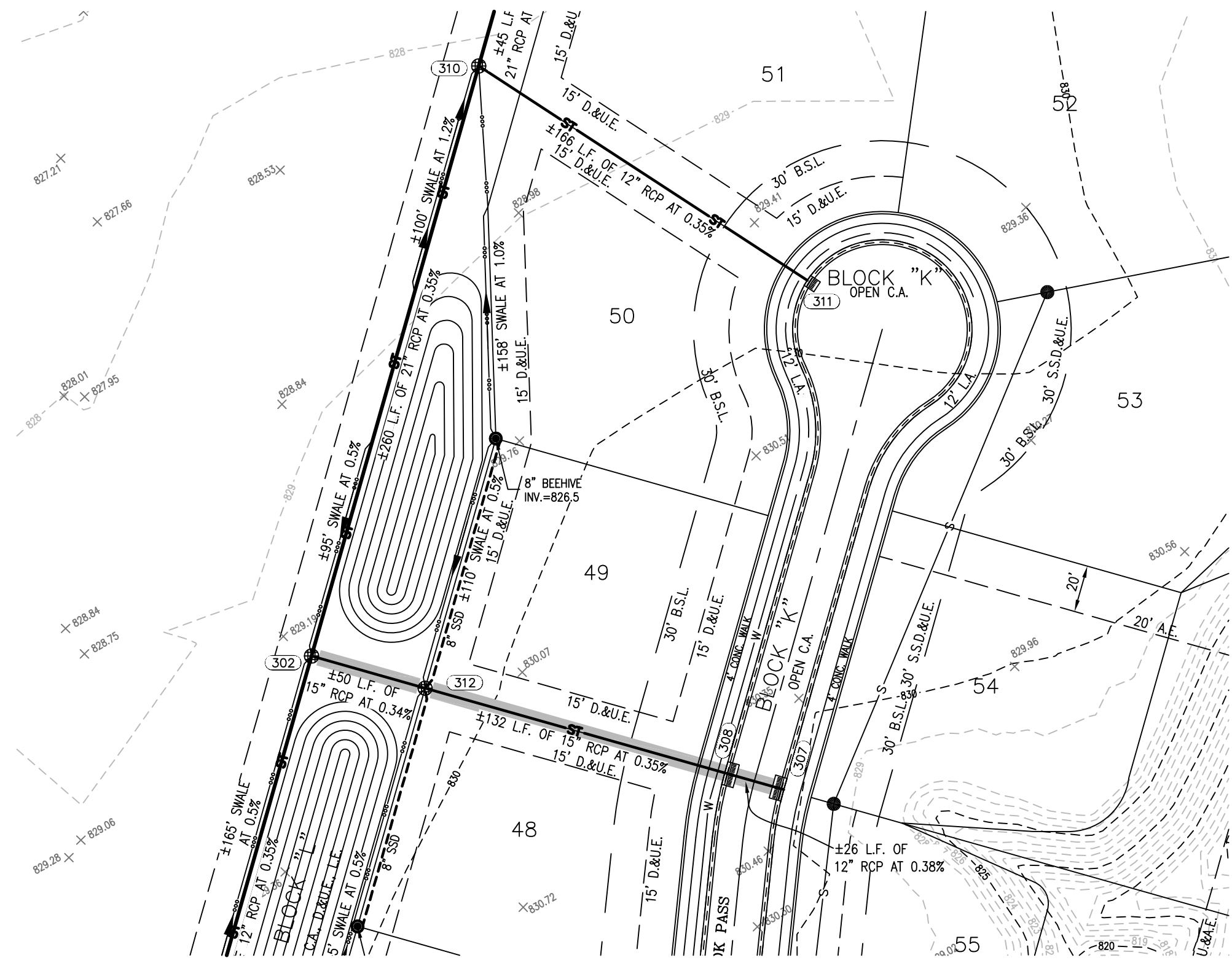
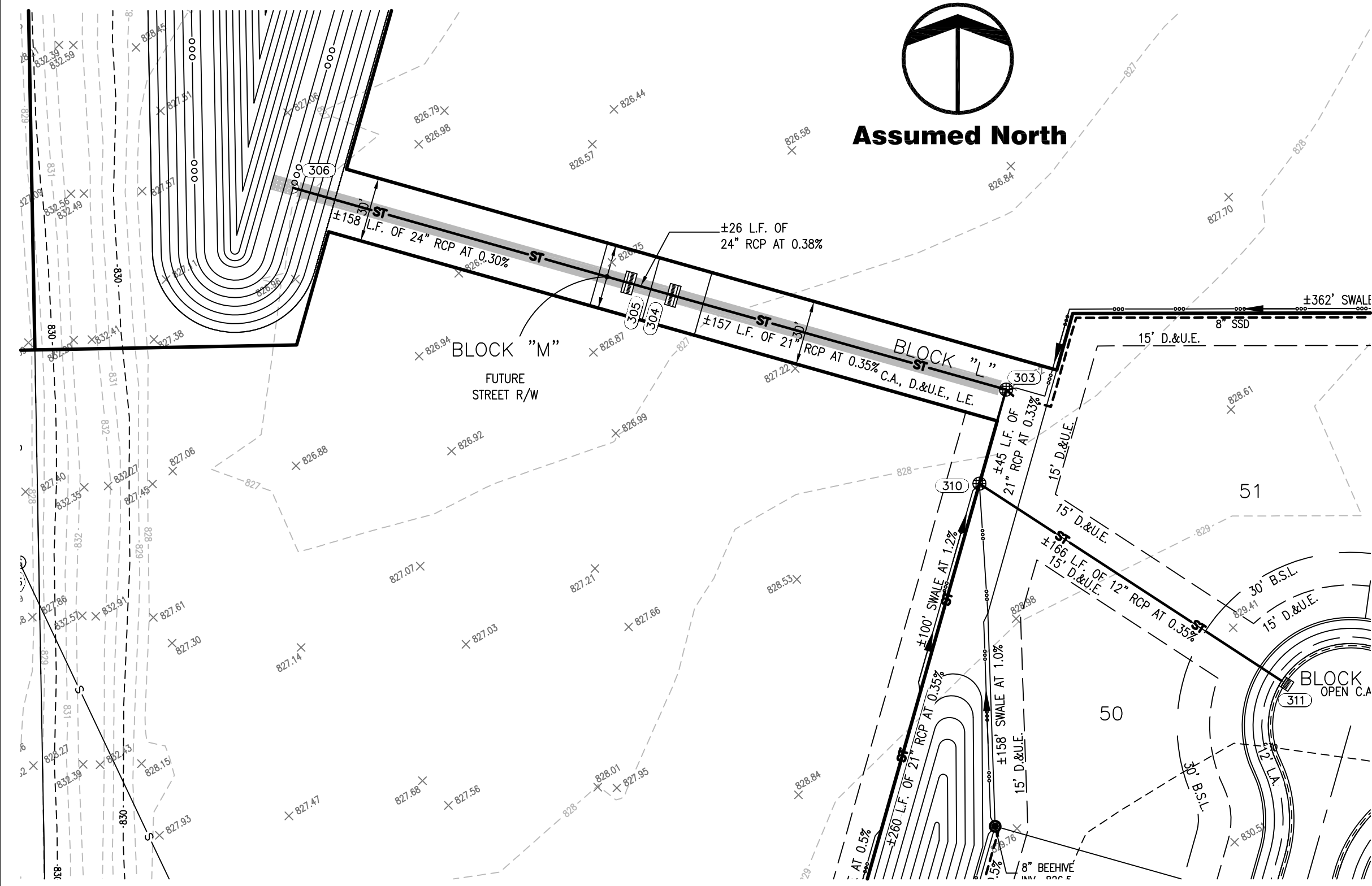
STORM SEWER  
PLAN & PROFILE  
Prepared For: HANCOCK LAND CO., LLC  
Project Location: PART OF W. 1/2 - N.E. 1/4  
S 20 - T 15 N - R 06 E  
SUGAR CREEK TOWNSHIP  
HANCOCK COUNTY, INDIANA



Sheet Number

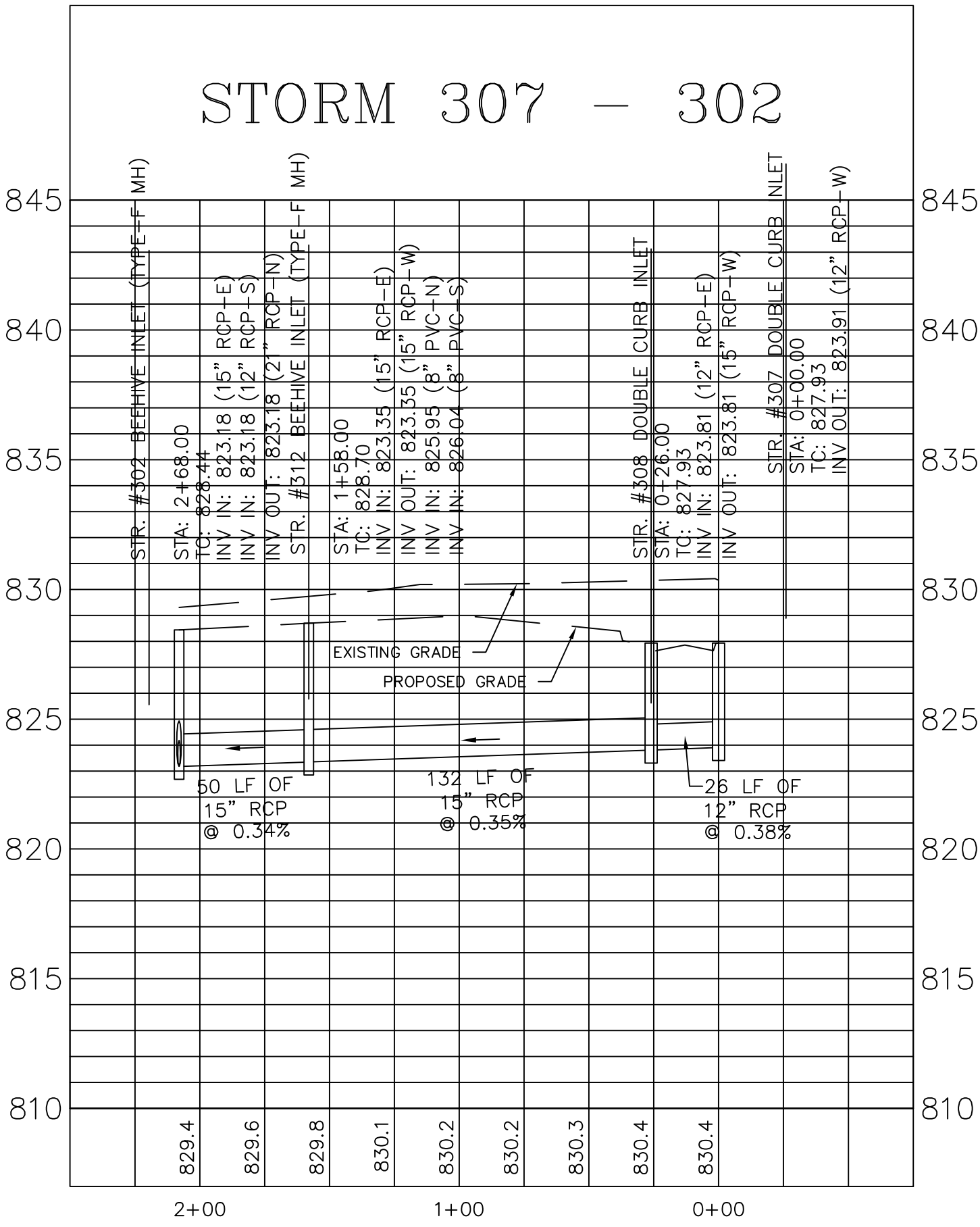
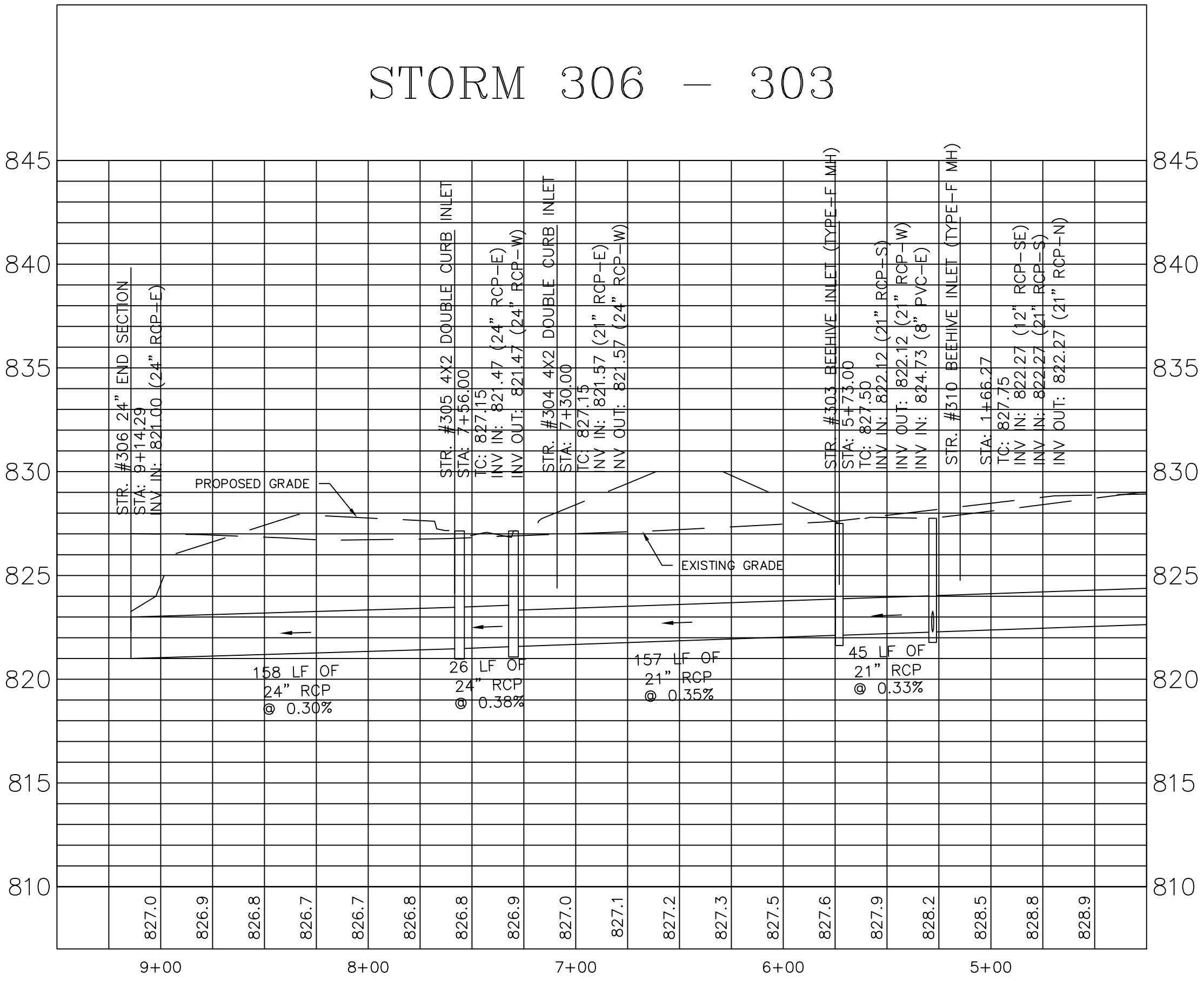
**C7.0**





- LEGEND:**
- OHE - OVERHEAD UTILITY LINE
  - S - SANITARY SEWER LINE
  - ST - STORM SEWER LINE
  - W - UNDERGROUND WATER MAIN
  - APPROX. EDGE OF WOODS
  - (D) - DEED DIMENSION
  - (M) - MEASURED DIMENSION
  - (P) - PLAT DIMENSION
  - Ø - EXISTING UTILITY POLE
  - ⊕ - EXISTING WATER VALVE
  - ⊗ - EXISTING WATER METER
  - ⊙ - EXISTING WATER LATERAL
  - ⊕ - EXISTING FIRE HYDRANT
  - ▽ - END SECTION
  - ⊙ - "MAG" NAIL
  - ⊙ - REBAR/PIPE FOUND
  - ⬢ - INDICATES 1/4 SECTION CORNER
  - ⊕ - STORM SEWER MANHOLE
  - ⊕ - SANITARY SEWER MANHOLE
  - ⊕ - STORM SEWER BEEHIVE
  - ⊕ - STORM SEWER INLET
  - ⊕ - CURB INLET
  - ⊕ - SANITARY LATERAL
  - ⊕ - BENCHMARK
  - ⊕ - SPOT ELEVATION
  - 999 --- EXISTING CONTOUR

- PROPOSED LEGEND:**
- 999 --- PROPOSED CONTOUR
  - ⊕ - PROPOSED SANITARY MANHOLE
  - ⊕ - PROPOSED STORM STRUCTURE NO.
  - ⊕ - PROPOSED STORM INLET
  - ⊕ - PROPOSED STORM END SECTION
  - 999.9 - PROPOSED SPOT ELEVATION
  - 999.99 - PROPOSED PAVEMENT ELEVATION
  - - STORM SEWER OVERFLOW PATH
  - ⊕ - A.D.A. HANDICAP RAMP
  - ⊕ - 2' ROLL CURB



**EXISTING STORM SEWER STRUCTURE TABLE:**

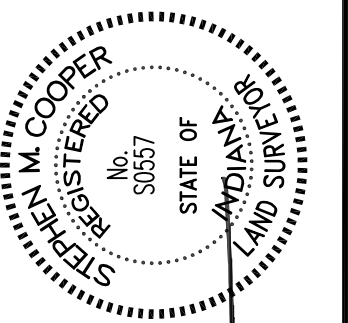
STRUCTURE NO.	STRUCTURE TYPE	INVERT ELEVATION	STRUCTURE SIZE
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ST-5	EXISTING STORM INLET	N. INV.=823.95 W. INV.=819.45 (18" RCP) E. INV.=819.45 (18" RCP)	18" RCP
ST-7	EXISTING STORM MANHOLE	N. INV.=827.21 W. INV.=819.01 (18" RCP) S. INV.=818.91 (18" RCP)	18" RCP
ST-8	EXISTING STORM MANHOLE	N. INV.=831.75 W. INV.=818.65 (18" RCP) S. INV.=818.55 (18" RCP)	18" RCP
ST-9	EXISTING STORM MANHOLE	N. INV.=826.12 W. INV.=817.87 (18" RCP) S. INV.=809.97 (18" RCP)	18" RCP
106	STORM MANHOLE PER PRIOR PROPOSED PLANS	N. INV.=801.04 (18" RCP) W. INV.=801.04 (18" RCP) S. INV.=800.94 (30" N-12)	18" RCP
107	STORM MANHOLE PER PRIOR PROPOSED PLANS	N. INV.=799.83 (30" N-12) S. INV.=799.73 (30" N-12)	30" N-12
108	STORM MANHOLE PER PRIOR PROPOSED PLANS	N. INV.=799.17 (30" N-12) S. INV.=799.07 (30" N-12) W. INV.=800.67	30" N-12

**STORM SEWER NOTES**

- See Sheet C7.0 for all storm sewer notes.



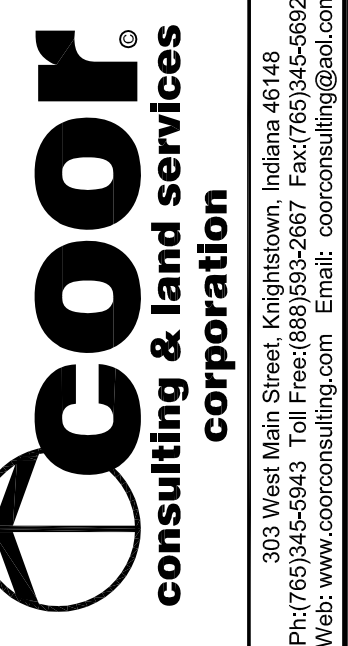
Judith M. Ciland  
Ciland Environmental Engineering, Inc.  
5308 Tumn Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper, P.E.  
Dated: 9/24/16

JOB #: 2017-124  
FILE #: 2017-124-BASE DWG  
DATE: 9/24/18  
APPROVED BY: SMC  
DRAWN BY: WTL

STORM SEWER PLAN & PROFILE  
Prepared For: HANCOCK LAND CO., LLC  
Project Location: PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA



Sheet Number

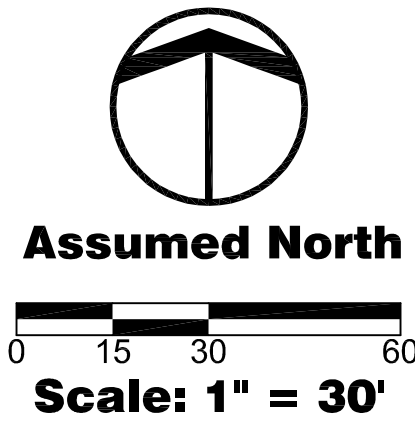
**C7.1**







- LEGEND:**
- OHE — OVERHEAD UTILITY LINE
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  - EXISTING WATER VALVE
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  - STORM SEWER INLET
  - CURB INLET
  - SANITARY LATERAL
  - BENCHMARK
  - SPOT ELEVATION
  - EXISTING CONTOUR



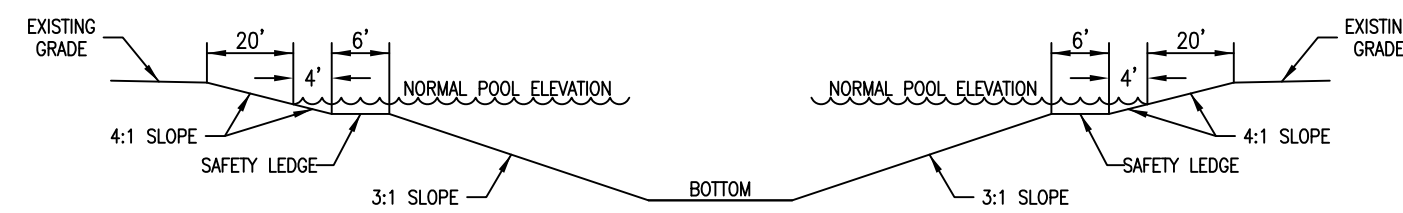
Call 811 or 800-382-5544 Before you Dig!

**PROPOSED LEGEND:**

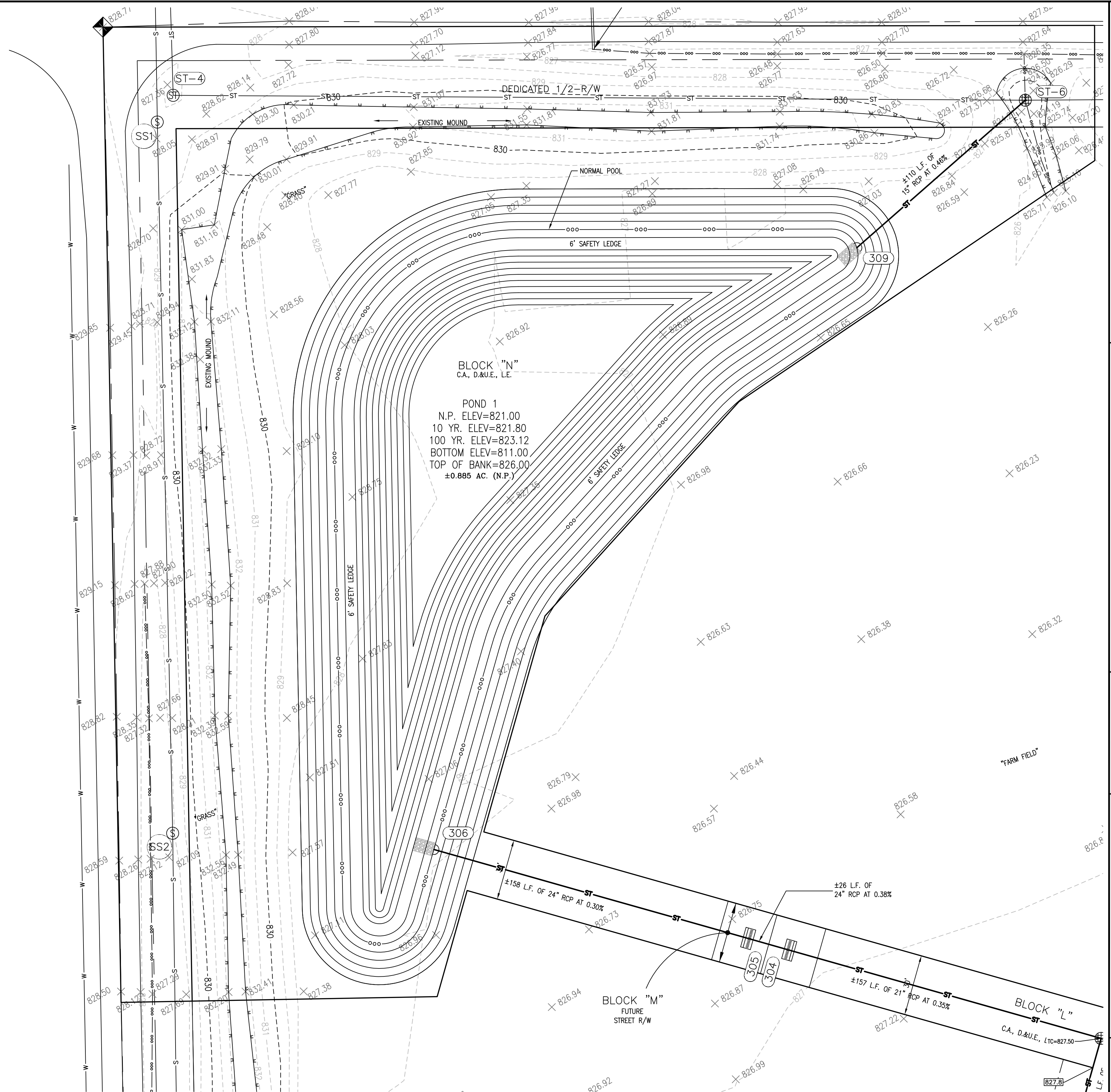
- 999.99 — PROPOSED CONTOUR
- (SS4) — PROPOSED SANITARY MANHOLE
- (III) — PROPOSED STORM STRUCTURE NO.
- — PROPOSED STORM INLET
- — PROPOSED STORM END SECTION
- 999.99 — PROPOSED SPOT ELEVATION
- 999.99 — PROPOSED PAVEMENT ELEVATION
- — STORM SEWER OVERFLOW PATH
- (A) — A.D.A. HANDICAP RAMP
- (B) — 2' ROLL CURB

**EXISTING STORM SEWER STRUCTURE TABLE:**

<b>ST-4</b> EXISTING STORM MANHOLE T.C.=827.80 N. INV.=820.20 (18" RCP) E. INV.=820.10 (18" RCP)	<b>ST-5</b> EXISTING STORM INLET T.C.=823.95 W. INV.=819.45 (18" RCP) E. INV.=819.45 (18" RCP)	<b>ST-7</b> EXISTING STORM MANHOLE T.C.=827.21 W. INV.=819.01 (18" RCP) S. INV.=818.91 (18" RCP)	<b>ST-8</b> EXISTING STORM MANHOLE T.C.=831.75 N. INV.=818.65 (18" RCP) S. INV.=818.55 (18" RCP)
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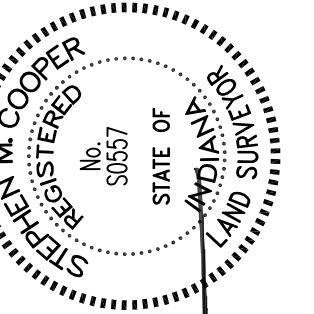
DETENTION BASIN CROSS-SECTION  
NO SCALE



**STORM SEWER NOTES**  
- See Sheet C7.0 for all storm sewer notes.



Judith M. Cleland  
Cleland Environmental Engineering, Inc.  
8308 Thum Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper  
P.S. #50557  
Dated: 9/24/16

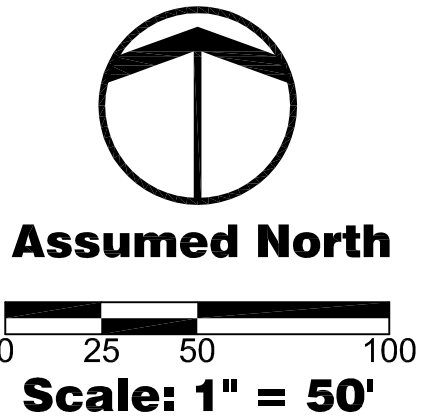
JOB #: 2017-124	FILE #: 2017-124-BASE DWG	DATE: 9/24/18	APPROVED BY: SMC	DRAWN BY: WTL
<b>DETENTION BASIN DETAIL</b>				
Prepared For: HANCOCK LAND CO., LLC	Project Location: PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA			



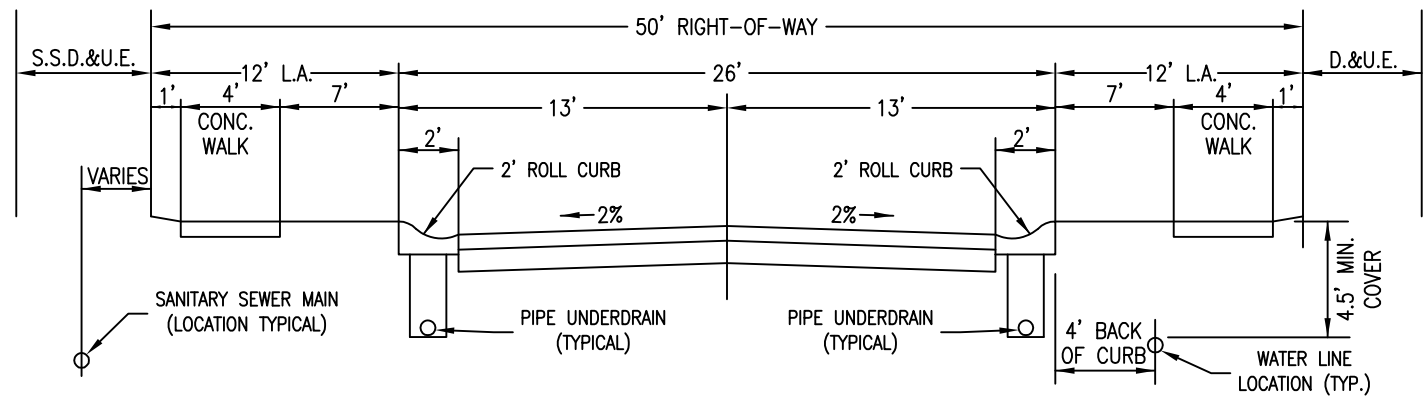
Sheet Number

**C7.3**

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Call 811 or 800-382-5544 Before you Dig!



TYPICAL STREET SECTION  
(NO SCALE)

### GENERAL PLAN NOTES

- 1.) These documents are subject to periodic revisions per requests of the client and or governing agencies. It is the holder's responsibility to verify the most current issue prior to any use.
- 2.) Contractor shall recognize respective work and responsibility to verify location, size, and elevation of existing utilities, structures, pipes, pavements, etc. as related to their work. Notify architect/engineer of any conflict and/or discrepancies in the construction documents prior to the start of construction.
- 3.) The contractor shall be responsible for obtaining or verifying that all permits and approvals are obtained from the respective city, county, and state agencies prior to any construction activities.
- 4.) It is the contractor's responsibility to acquaint himself with subsoil conditions. Contractor is responsible for all cut/fill materials required to match compacted design subgrade. Topsoil removal limits to be determined by the contractor and/or owner.
- 5.) The plans show the location of all known utilities located within the limits of the contract according to information provided by the various utility companies, previous construction plans and as evidenced by observation of above ground conditions by the surveyor. The accuracy of this information is not guaranteed.
- 6.) All pavement patching due to utilities installation, construction of curbs, etc., or damage to existing pavement during construction shall be patched with a pavement section which meets or exceeds the specifications by the city or specifications by INDOT.
- 7.) All existing manholes, catch basin grates, water valves, gas valves, etc., shall be adjusted to proposed finish grade elevation.
- 8.) All pipe lengths shown on drawings are for hydraulic calculation purposes only. It is the responsibility of the contractor to determine exact lengths required for actual installation.
- 9.) Repair, replace or maintain any/all existing utilities within limits of construction.
- 10.) Coordinate all work with county, city or governing utility at least 48 hours prior to the start of work.
- 11.) All construction on this site to be performed in compliance with O.S.H.A. standards for worker safety.
- 12.) The proposed elevations depicted hereon are based upon existing surface conditions as of the date of the within survey. No information about fluctuating water tables, soil conditions, or soil types within the subject tract has been provided by client or others unless otherwise noted. If any groundwater is witnessed during the construction process, Coor Consulting & Land Services, Corp. should be notified immediately and additional construction techniques may be incorporated to allocate future problems.
- 13.) Fill material shall consist of earth obtained from cut areas, borrow pits or other approved sources. Earth shall be free from organic matter and other deleterious substances and large rocks. The fill material shall be placed in layers not to exceed six inches following compaction, proper moisture content of fill material will be such to achieve specified compaction density. All fill beneath paved areas, floor slabs and future buildings shall be compacted to at least 95% of the maximum dry density per ASTM D-1557. Field compacting test shall be run on each lift, in fill sections, and the required compaction on each lift shall be in accordance with INDOT Section 211.
- 14.) Follow all local and state codes in reference to domestic line installation and sanitary lateral installation.
- 15.) All water mains to be 54" minimum below grade.

### LEGEND:

- |         |                          |         |                                |
|---------|--------------------------|---------|--------------------------------|
| — OHE — | — OVERHEAD UTILITY LINE  | ⊙       | — "MAG" NAIL                   |
| — S —   | — SANITARY SEWER LINE    | ⊙       | — REBAR/PIPE FOUND             |
| — ST —  | — STORM SEWER LINE       | ⬢       | — INDICATES 1/4 SECTION CORNER |
| — W —   | — UNDERGROUND WATER MAIN | ⊙       | — STORM SEWER MANHOLE          |
| ~~~~~   | — APPROX. EDGE OF WOODS  | ⊙       | — SANITARY SEWER MANHOLE       |
| (D)     | — DEED DIMENSION         | ⊙       | — STORM SEWER BEEHIVE          |
| (M)     | — MEASURED DIMENSION     | ⊙       | — STORM SEWER INLET            |
| (P)     | — PLAT DIMENSION         | ⊙       | — CURB INLET                   |
| ∅       | — EXISTING UTILITY POLE  | ⊙       | — SANITARY LATERAL             |
| ⊙       | — EXISTING WATER VALVE   | ⊙       | — BENCHMARK                    |
| ⊙       | — EXISTING WATER METER   | ⊙       | — SPOT ELEVATION               |
| ⊙       | — EXISTING WATER LATERAL | — 999 — | — EXISTING CONTOUR             |
| ⊙       | — EXISTING FIRE HYDRANT  |         |                                |
| ▽       | — END SECTION            |         |                                |

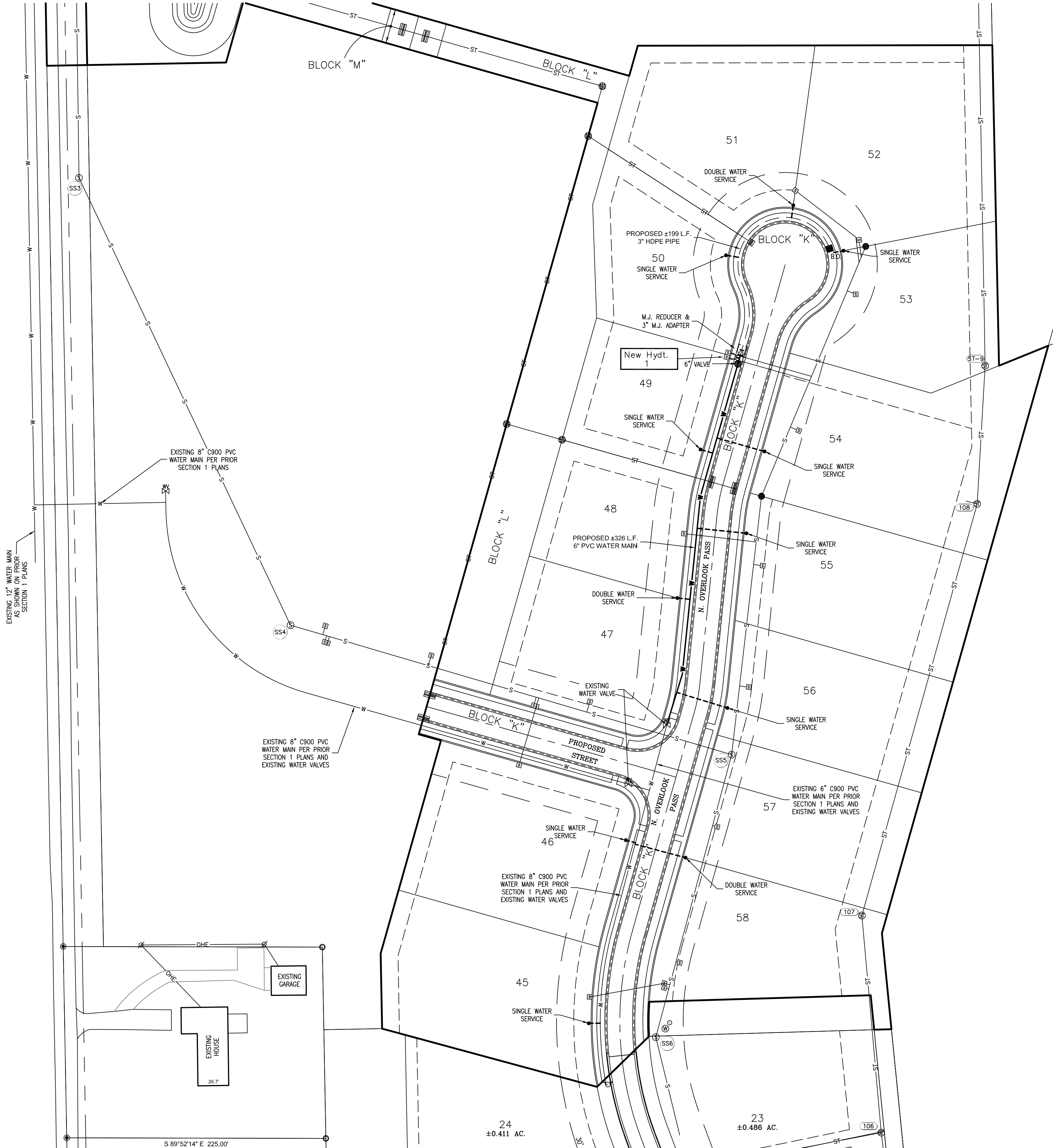
### PROPOSED LEGEND:

- |   |                                |
|---|--------------------------------|
| ● | — PROPOSED SANITARY MANHOLE    |
| ⬢ | — PROPOSED STORM STRUCTURE NO. |
| ⊙ | — PROPOSED STORM INLET         |
| ⊙ | — PROPOSED STORM END SECTION   |
| ⊙ | — PROPOSED STORM END SECTION   |
| ⊙ | — PROPOSED STORM END SECTION   |
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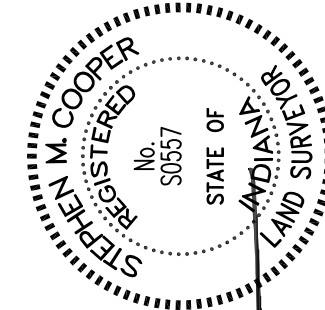
- 16.) The contractor shall contact all applicable utilities and verify any and all fees associated with the installation of all utilities.
- 17.) Contractor shall coordinate with water company and architectural plans for fire protection line and domestic service line installation.
- 18.) Contractor to provide pipe bedding and compact to 95% density of standard proctor in paved areas. Pipe bedding in non-paved areas shall be compacted to 85% density of standard proctor.
- 19.) Maintain a minimum of 10' horizontal clearance between sanitary lateral line and domestic line service.
- 20.) All construction specifications should comply with current specifications.
- 21.) Trenches under paved areas (excluding sidewalks) shall be backfilled with granular material and compacted in lifts. Granular material shall extend 5 feet beyond the limits of the paved area.
- 22.) See Plat for lot dimensions, building lines, and easements.
- 23.) No foundry sand is allowed for any construction purposes, per Hancock County ordinance.

### WATER PLAN NOTES

- 1.) Town of Cumberland Water System Construction Standards, Specifications and Details were used for existing water main construction and are to be used for all new water main and service construction.
- 2.) The material of the existing water main shall be verified and if PVC or HDPE, saddles shall be provided for all water service connections.
- 3.) Any "live taps" are to be coordinated with Town of Cumberland Water Department.
- 4.) Adjust hydrants so the centerline of hydrant outlet nozzles are not less than 18 inches nor more than 20 inches above finished grade. Provide hydrant extensions where required to obtain proper elevation.
- 6.) Service line shall be HDPE or Type "K" copper per Section 02661 of the Town's Standards. Diameter of service line shall be 1-inch for both single meter and double meter locations.
- 7.) Service line installation shall be per Section 02661 of the Town's Standards.



Judith M. Cleland  
Cleland Environmental Engineering, Inc.  
5308 Thum Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper  
Stephen M. Cooper, P.S. # 50557  
Dated: 9/24/16

JOB #:	2017-124
FILE #:	2017-124-BASE.DWG
DATE:	9/24/18
APPROVED BY:	SMC
DRAWN BY:	WTL

### WATER DISTRIBUTION PLAN

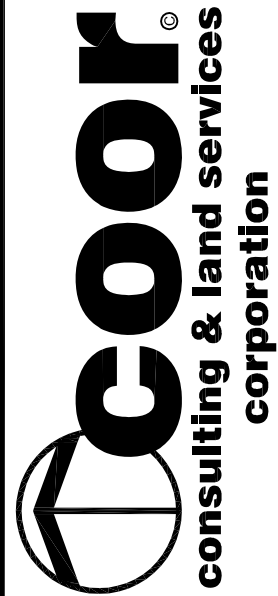
Prepared For: HANCOCK LAND CO., LLC

Project Location: PART OF W. 1/2 - N.E. 1/4

S 20 - T 15 N - R 08 E

SUGAR CREEK TOWNSHIP

HANCOCK COUNTY, INDIANA



303 West Main Street, Kingshewtown, Indiana 46148  
Ph: 765/345-5843, Toll Free: 888/583-2867, Fax: 765/345-5892  
Web: www.coorconsulting.com Email: coorconsulting@aol.com

Sheet Number

C8.0

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ASSESSMENT OF CONSTRUCTION PLAN ELEMENTS (SECTION A):

- A1) Index showing locations of required Plan Elements. See Erosion Control Plan.  
A2) 11-inch by 17-inch plot showing building lot numbers/boundaries and road layout/names. Attached.  
A3) Narrative describing the nature and purpose of the project. The within project consists of the proposed future sections of "The Overlook" and is based upon the recorded plats of "The Overlook Section One" and "The Overlook Section Two" as referenced herein. This project includes proposed residences, streets, curbs, walks, ponds, storm sewers, sanitary sewers and all other related underground utilities. See Site, Grading and Utility Plans.  
A4) Vicinity map showing project location. See Title Sheet.  
A5) Legal Description of the Project Site (Include Latitude and Longitude): See Title sheet for Land Description. Latitude (- 39° 44' 30" N) Longitude (- 85° 53' 05" W).  
A6) Location of all lots and proposed site improvements. See Development Plan.  
A7) Hydrologic unit code: 0512020406050.  
A8) Notation of any State or Federal water quality permits: None Required.  
A9) Specific points where storm water discharge will leave the site: Storm water will leave the site via the proposed storm pipe connection between the adjacent pond to the existing storm sewer line along the North side of the project. See Development Plan.  
A10) Location and name of all wetlands, lakes, and watercourses on and adjacent to the site: Sugar Creek exists along the East side of the plat of "The Overlook Section One" located Southeastern of the overall proposed site. See Development Plan.  
A11) Identification of all receiving waters: Sugar Creek.  
A12) Identification of potential discharges to ground water: None.  
A13) 100-year floodplains, floodways, and floodway fringes: The overall subject site is located within Zone AE and X per FIRM #18059C0207E, dated 3/17/14. See Development Plan.  
A14) Pre-construction and post-construction estimate of Peak Discharge: Reference Drainage Calculations.  
A15) Adjacent land use, including upstream watershed: Residential. See Development Plan and Erosion Control Plan.  
A16) Locations and approximate boundaries of all disturbed areas: See Erosion Control Plan.  
A17) Identification of existing vegetative cover: See Existing Conditions Plan and Erosion Control Plan.  
A18) Soils map including soil descriptions and limitations: See Erosion Control Plan.  
A19) Locations, size and dimensions of proposed storm water systems: See Development Plan and Storm Sewer Plan & Profile.  
A20) Plans for any off-site construction activities associated with this project: Temporary construction entrance as shown herein.  
A21) Locations of proposed soil stockpiles and/or borrow/disposal areas: See Erosion Control Plan.  
A22) Existing site topography at an interval appropriate to indicate drainage patterns: See Existing Conditions Plan or Erosion Control Plan.  
A23) Proposed final topography at an interval appropriate to indicate drainage patterns: See Development Plan.

ASSESSMENT OF STORMWATER POLLUTION PREVENTION PLAN (SECTIONS B & C):

- B1) Description of potential pollutant sources associated with construction activities: The possibility of leaking material or fuel storage areas, or a leaking vehicle or equipment, etc. from construction activities exists.  
B2) Sequence describing stormwater quality measure implementation relative to land disturbing activities: See Erosion Control Plan.  
B3) Stable construction entrance locations and specifications: See Erosion Control Plan.  
B4) Sediment control measures for sheet flow areas: Silt fence to be installed as depicted on the Erosion Control Plan.  
B5) Sediment control measures for concentrated flow areas: See Erosion Control Plan.  
B6) Storm sewer inlet protection measures locations and specifications: Inlet protection to be installed as depicted on the Erosion Control Plan.  
B7) Runoff control measures: See Erosion Control Plan.  
B8) Storm water outlet protection specifications: See Erosion Control Plan.  
B9) Grade stabilization structure locations and specifications: See Erosion Control Plan.  
B10) Location, dimensions, specifications, and construction details of each stormwater quality measure: See Erosion Control Plan and/or Detail Sheet.  
B11) Temporary surface stabilization methods appropriate for each season: See Figure 5.3 & 5.4 on Erosion Control Plan and/or Detail Sheet.  
B12) Permanent surface stabilization specifications: See Figure 5.2 & 5.4 on Erosion Control Plan and/or Detail Sheet.  
B13) Material handling and spill prevention plan: Contact the Environmental Management Department (888) 233-7745 at any time immediately after an emergency spill occurs. Contact the owner of the contaminated property. Review the Material handling and spill prevention plan on the Erosion Control Plan.  
B14) Monitoring and maintenance guidelines for each proposed stormwater quality measure: See Erosion Control Plan.  
B15) Erosion & sediment control specifications for individual building lots: See Erosion Control Plan.

- C1) Description of pollutants and their sources associated with the proposed land use: The possibility exists of stormwater contamination from vehicular discharges or other hydrocarbons, grit (sediment) from wearing of road surfaces and falling or washing off of vehicles, trash from littering, and other improper disposals or storage.  
C2) Sequence describing stormwater quality measure implementation: See Erosion Control Plan.  
C3) Description of proposed post construction stormwater quality measures: See Erosion Control Plan. The grass will help filter any potential pollution. The swales, storm inlets, and pavement will be kept clean of all trash, leaves, and debris at all times.  
C4) Location, dimensions, specifications, and construction details of each stormwater quality measure: See Erosion Control Plan.  
C5) Description of maintenance guidelines for post construction stormwater quality measures: All swales, storm inlets and pavement will be kept clean of all debris and trash at all times. All swales will be maintained with grass cover and will be replanted if required.

GENERAL NOTES:

- 1) These documents are subject to periodic revisions per requests of the client and/or governing agencies. It is the holder's responsibility to verify the most current issue prior to any use.  
2) All methods of controlling the erosion of soils and sediment on this site shall be performed in accordance with the City/Town, Indiana Department of Environmental Management, and Indiana Department of Natural Resources requirements.  
3) All land alterations, which strip the land of existing vegetation, including but not limited to regrading of a specific area, shall be done in such a way as to minimize erosion. Whenever feasible, natural or existing vegetation shall be retained, protected and supplemented.  
4) The duration of time in which an area is left exposed must be kept to a practical minimum. The area should be stabilized as quickly as feasibly possible.  
5) Temporary vegetation or other erosion control methods shall be used to protect exposed areas during development.  
6) All permanent erosion control measures, final vegetation, and structural erosion control devices shall be installed as soon as practical under development or site circumstances.  
7) Sediment in water run off shall be trapped by the use of approved methods such as debris basins, silt fence, and siltation sumps until the disturbed area is stabilized. These methods shall be in place prior to any land alterations commence.  
8) All installed trapping devices to be periodically inspected during dry periods and after each rainfall by site general contractor for performance of intended function. Any devices determined incapable of performing intended function shall be replaced.  
9) Site Contractor shall maintain erosion control measures and devices as required throughout construction until a vegetative cover has established sufficiently to prevent erosion of the soils.  
10) The site contractor shall have available on site a water source capable of applying water to dry exposed soil to prevent wind erosion. The application of water shall be at a rate that does not create surface run off.  
11) All graded grades at boundary lines shall match with the existing grades prior to construction.  
12) During all phases of construction of this site, the General Contractor, Site Contractor, Owner, and any and all Sub-Contractors shall practice measures to prevent and obstruct the erosion of soils due to the actions of water and wind. All erosion and sediment control measures shall be in place prior to any earth moving activity.  
13) It will be the responsibility of the contractor to verify the existence and condition of all utilities (aerial and subterranean) prior to and pertaining to their phase of the construction project. Any existing utilities or drain lines damaged during construction need to be replaced, repaired, or incorporated into the development.  
14) It shall be the contractors responsibility to contact the respective utility companies representatives for the proper locations of proposed utilities prior to construction or installation. The contractor shall notify in writing to the site designer and owner of any changes, omissions, or errors found within these documents or in the field before work is started or resumed.  
15) Per Indiana State Law (IS-68-1991), it is against the law to excavate without notification 2 working days prior to commencing work.  
16) Unless otherwise noted, the information pertaining to the size, location and disposition of existing utilities are as provided by the respective utility companies. Prior to any construction all utility companies should be contacted for field location of utility services.  
17) During construction activity, a linear straw bale dam (or equivalent) shall be placed across any portion of the property where storm drainage exits the property.  
18) At the time construction is to begin, the driveway shall be constructed and a gravel base shall be installed from the road to the work site to prevent carrying dirt onto the roadways. Any dirt deposited on the roadway must be removed by hand methods, such as shovel or broom, the same day. Flushing the surface with water will not be allowed.  
19) All storm sewer structures must be pre-stamped with appropriate "Clean Water" message.

IMPLEMENTATION SCHEDULE:

- 1) The contractor shall schedule a pre-construction meeting with the City/Town prior to any constructing on the site being started. The contractor and/or developer shall notify IDEM and the City/Town 48 hours prior to start of construction.  
2) Following the required pre-construction meeting the contractor shall construct the "posting information center" on site. The contractor shall proceed to construct the construction entrance after all posting requirements have been met.  
3) Immediately following the installation of the construction entrance, the contractor shall construct the maintenance and refueling area.  
4) After the maintenance and refueling area is constructed, the contractor shall construct the concrete washout area per the specifications on the Specifications/Details Sheet.  
5) Prior to any earth moving or demolition, the contractor shall install all silt fences as shown on the Erosion Control Plan. The details and specifications for all fences are located on the Erosion Control Sheet and/or Detail Sheet.  
6) The contractor shall protect all existing inlets with inlet protection as shown on the Erosion Control Plan and/or Detail Sheet.  
7) When the "existing" site/construction limits are completely stabilized, the contractor shall start striping the existing top soil within the construction limits and utilize in non-structural fill areas.  
8) The contractor shall proceed to grade the remainder of the site.  
9) Contractor shall excavate around existing manhole and expose the proposed connection point for the gravity sanitary sewer for this project. The contractor to keep all disturbances to the surrounding area to a minimum. Dirt, mud and debris shall be cleaned up and removed from the streets daily prior to the contractor leaving the site.  
10) The contractor shall continue construction the proposed sanitary sewer. The trench area shall be seeded and mulched immediately following the installation of the sewer.  
11) The proposed onsite storm sewer and sanitary sewer shall be installed concurrently with each other when crossings are encountered.  
12) The contractor shall prepare the sub-grade for the proposed road system. If lime stabilization is the method chosen, dust shall be kept at a minimum. Dust shall be removed from the construction vehicles prior to leaving the site.  
13) Contractor shall install all concrete curbing.  
14) Contractor shall install water main. The trench area shall be seeded and mulched immediately following the installation of the water main.  
15) Contractor shall have all other appropriate utilities installed. It is ultimately the contractor's responsibility to ensure that the trench area is seeded and mulched immediately following the installation of each utility.  
16) Contractor shall install all asphalt pavement and concrete walk.  
17) The contractor shall permanent seed all areas disturbed by earth moving on the site.  
18) The contractor shall schedule a site inspection with the City/Town to ensure the site is stabilized. After the inspector approves the site conditions the contractor shall remove all temporary erosion control practices.  
19) The post-construction erosion control practices then become the responsibility of the developer of this project.  
20) The developer of this project shall continue to monitor this site for good house keeping on the post-construction BMP's until a NOT is filed with IDEM.

CONTACT PERSON FOR EROSION CONTROL AND SEDIMENT PRACTICES

OWNER: STEVEN R. REILLY  
"HANCOCK LAND CO., LLC"  
1111 W. MAIN ST., SUITE K  
GREENFIELD, IN 46140  
(317) 462-7797

SEE DETAIL SHEETS FOR EROSION AND POLLUTION CONTROL DETAILS AS REFERENCED HEREON

SEEDING PREPARATION:

- 1) Apply lime to raise the pH to the level needed for species being seeded. Apply 2-3 pounds of 12-12-12 analysis fertilizer (or equivalent) per 100 sq. ft. (approximately 1000 lbs. per acre) or fertilizer according to test. Application of 150 lbs. of ammonium nitrate on areas low in organic matter and density will greatly enhance vegetative growth.  
2) Work the fertilizer and lime into the soil to a depth of 2-3 inches with a harrow, disk, or rake operated across the slope as much as possible.  
3) Select a seed mixture based on projected use of the area (figure 5-2) while considering best seeding dates see figure 5-3. If tolerances are a problem, such as soil tolerances adjacent to streets and highways, see figure 5-4 before final selection.

Section 23

- (a) An owner or operator shall report all spills of oil or saltwater as required by Table 1 below:

TABLE 1  
SPILL REPORTING REQUIREMENTS:

Size and Location of the Spill	IN Dept. of Natural Resources	IN Dept. of Env. Management
More than 2000 gallons of oil or saltwater that is contained in a secondary containment structure approved by the Dept. of Natural Resources	Not more than 48 hrs after discovery of spill	
More than 1000 gallons of oil or saltwater that is not contained in a secondary containment structure approved by the Dept. of Natural Resources		Not more than 2 hours after discovery of the spill
Less than 1000 gallons but more than 42 gallons of oil or saltwater that is not contained in a secondary containment structure approved by the Dept. of Natural Resources but is contained within the boundary of the facility.	Not more than 48 hours after the spill	
More than 55 gallons of oil that is not contained within the boundary of the facility.		Not more than 2 hours after discovery of the spill
Less than 55 gallons of oil or saltwater that is not contained within the boundary of a facility	Not more than 48 hours after the discovery of the spill	
Any spill of oil or saltwater that enters waters of the State.		Not more than 2 hours after discovery of the spill
Any spill of oil or saltwater: (1) that has not been cleaned up in accordance with section 24 of this rule; or (2) for which cleanup has not been started in accordance with Section 24 of this rule.		Not more than 2 hours after discovery of the spill
Any spill of less than 42 gallons of oil or saltwater that does not enter waters of the State.	No report required.	

- (b) Spills required by Table 1 to be reported to the Indiana Department of Natural Resources must be reported to the Evansville Field Office by telephone at (812)477-8773, or by facsimile at (812)477-8952.  
(c) Spills required by Table 1 to be reported to the Indiana Department of Environmental Management must be reported to the Office of Environmental Response at (317)233-7745 or (888)233-7745 (toll free in Indiana).  
(d) Each report of a spill must include all of the following information:  
1. The name, address, and telephone number of the person making the report.  
2. The name, address, and telephone number of a contact person, if different than the person making the report.  
3. The location of the spill, including lease name, township, range and section.  
4. The time of the spill.  
5. The identification of the substance spilled.  
6. The approximate quantity of the substance that has been spilled or may be spilled.  
7. The duration of the spill.  
8. The source of the spill.  
9. The name and location of waters damaged.  
10. The identity of any response organization responding to the spill.  
11. What measures have been or will be undertaken to perform a spill response.  
12. Any other information that may be significant to the response action.

(Natural Resources Commission; 312 IAC 16-5-23; filed Sept. 11, 2000, 3:31 PM; 24 IR 279)

312 IAC 16-5-23 Spill Cleanup  
Authority: IC 14-37-3  
Affected: IC 14-37

Section 24

- (a) An owner or operator shall clean up spills of oil, fluids contaminated with oil, or saltwater as required by this section.  
(b) Oil or fluid contaminated with oil that is confined within a secondary containment structure or collected as required by Section 22 of this rule must be:  
1. removed within seventy-two (72) hours;  
2. placed in a non-leaking storage tank; and  
3. managed or disposed of in accordance with Section 27(a) of this rule.  
(c) Saltwater that is confined within a secondary containment structure or collected as required by Section 22 of this rule must be:  
1. removed within seventy-two (72) hours;  
2. placed in a non-leaking storage tank; and  
3. disposed of in accordance with Section 27(b) of this rule.  
(d) Fluid placed in a non-leaking storage tank under subsection (b) or subsection (c) must be disposed of in accordance with Section 27 or this rule within thirty (30) days after discovery of the spill unless additional time is approved by the division.  
(e) Soils contaminated with more than one (1) gallon of oil must be cleaned up as follows:  
1. Soils that meet the conditions for remediation in Section 25(c) of this rule may be:  
a. remediate at the facility as required by Section 25 of this rule;  
b. applied to lease roads in accordance with Section 27(a)(1) of this rule; or  
c. excavated and disposed of as required by Section 27(c) of this rule.  
2. Soils that do not meet the conditions for remediation in Section 25(c) of this rule must be excavated and disposed of as required by Section 27(e) of this rule.  
(f) Soils contaminated with saltwater must be cleaned up as required by Section 26 of this rule.  
(g) Soils contaminated with oil that will be remediate under Section 25 of this rule must be managed to prevent discharge of oil to unaffected soil or waters of the State.

(Natural Resources Commission; 312 IAC 16-5-24; filed Sept. 11, 2000, 3:31 PM; 24 IR 280)

EMERGENCY RESPONSE NUMBERS:

INDIANA DEPARTMENT OF NATURAL RESOURCES: 812-477-8773  
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT: 317-233-7745

MATERIAL HANDLING AND SPILL PREVENTION PLAN:

In order to minimize the release of potential pollutants during construction, the contractor shall implement this material handling and spill prevention plan. The contractor shall review this plan with all subcontractors and require that they implement the plan as well.

1. CONSTRUCTION EQUIPMENT:

- a) Fueling, lubrication and fluids: All operations involving the addition of fluids to equipment should be done in one location, as designated by the general contractor, or developer/owner, so that spills are limited to one location on the site, which will facilitate the cleanup of spills. If an on-site-fueling tank is planned to be on site, it shall be double walled and stored in this designated area. This location is an area that will not allow spilled fluids to migrate into subsurface soils. In the event of a spill, the fluid shall immediately be cleaned up by removing the contaminated soil or stone, which shall be disposed of in an acceptable manner. Spills on road surfaces shall be soaked up by an acceptable material such as oil dry and the absorbent material disposed of in a proper manner. The spill shall also be reported immediately to the contractor's superintendent.  
b) Equipment repair, especially when fluids must be removed from the equipment or the possibility of fluid spills is high, should always be done offsite at a facility that is more suitable than a construction site to handle spills. When equipment must be repaired onsite it shall be moved to the maintenance/fueling area if possible. Otherwise, suitable on site containers should be placed under the equipment during repair to catch any spilled fluids and these fluids should be disposed of in a proper manner.

- c) All reusable fluid containers, such as gasoline cans, shall be inspected for leaks each time they are used. If leaks are found, the fluid shall be removed from the container in a proper manner and the container disposed of in an acceptable manner. Empty disposable container, such as grease tubes and lubricating oil and brake fluid containers, and their packaging, shall be disposed of in a proper manner and shall not be left on the ground or in the open on the construction site.

2. Construction materials and their packaging:

- a) Erosion control measures shown on the within plat shall be implemented prior to and during construction in the proper sequencing to minimize soil erosion. Erosion controls shall be inspected and maintained as described herein. Excessive dusting of soil on the site shall be minimized by reducing construction traffic across bare soil during dry and/or windy weather, and by applying water or other acceptable dust control measures to the soil. Upon completion of construction and suitable establishment of permanent vegetation, temporary erosion control measures such as silt fence, check dams and inlet protection devices shall be removed in a manner to minimize additional land disturbance. Any areas disturbed by these operations shall be properly revegetated.

- b) Large waste materials created by cutting, sawing, drilling, or other operations shall be properly disposed of in suitable waste containers. The site shall be checked at the end of the day, as a minimum, and all waste materials, including those blown across or off the site by wind shall be picked up and disposed of in suitable containers. Where possible, operations such as sawing that create small particles should be performed in one spot in an area protected from wind, and waste particles collected and disposed of frequently to minimize wind dispersal. Packaging used to transport materials to the site for construction shall be disposed of properly. Packaged materials stored onsite shall be inspected regularly and any loose packaging shall be repaired or disposed of properly.

- c) All dewatering of activities shall be done in accordance to good erosion control practices. These practices should include the use of dirt bags such as dandy dirt bags. The use of these types of dewatering devices will remove large quantities of silt, sediment, and dirt and prevent these materials to enter the storm sewer system.

- d) If the use of lime is used to stabilize the soil of the site then all construction equipment used shall be cleaned of all excess material with water in the maintenance and refueling area as shown within these plans.

- e) Nutrients and fertilizers shall only be used to establish rapid vegetation. When these products are utilized, the user should pay strict attention to the products recommended usage.

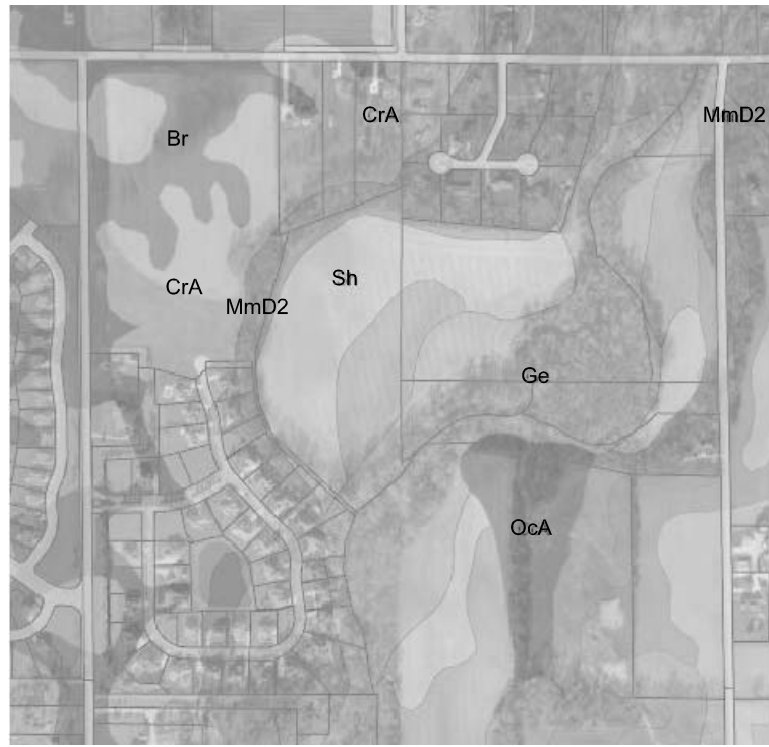
3. Concrete waste water:

- a) The washout shall be inspected daily and after each storm event and repaired as needed.  
b) Excess concrete should be removed when the washout system reaches 50 percent of the design capacity and repaired as needed.  
c) Dispose of or recycle all concrete in a legal manner.  
d) Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method.  
e) Inspect construction activities on a regular basis to ensure suppliers, contractors, and other are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify the violators and take appropriate action.  
f) When concrete washout systems are no longer required, the concrete washout system shall be closed. Dispose of all hardened concrete and other materials used to construct the system.  
g) Holes, depressions and other land disturbances associated with the system should be backfilled, grades, and stabilized.

4. Paint products:

- a) All excess paint and their related products shall be disposed of in the manner at which the manufacturer suggests. Under no circumstances will paint or their related products be cleaned or disposed of in soil, sanitary sewers, storm sewers or detention basins. Any violation of this shall be reported to the job superintendent.

In the event of accidental contamination, all efforts should be made to remove contaminants in an appropriate manner. The appropriate authorities should be contacted immediately to determine if further measures are needed.



SOILS MAP:

SOILS DESCRIPTION

CrA (Crosby silt loam)

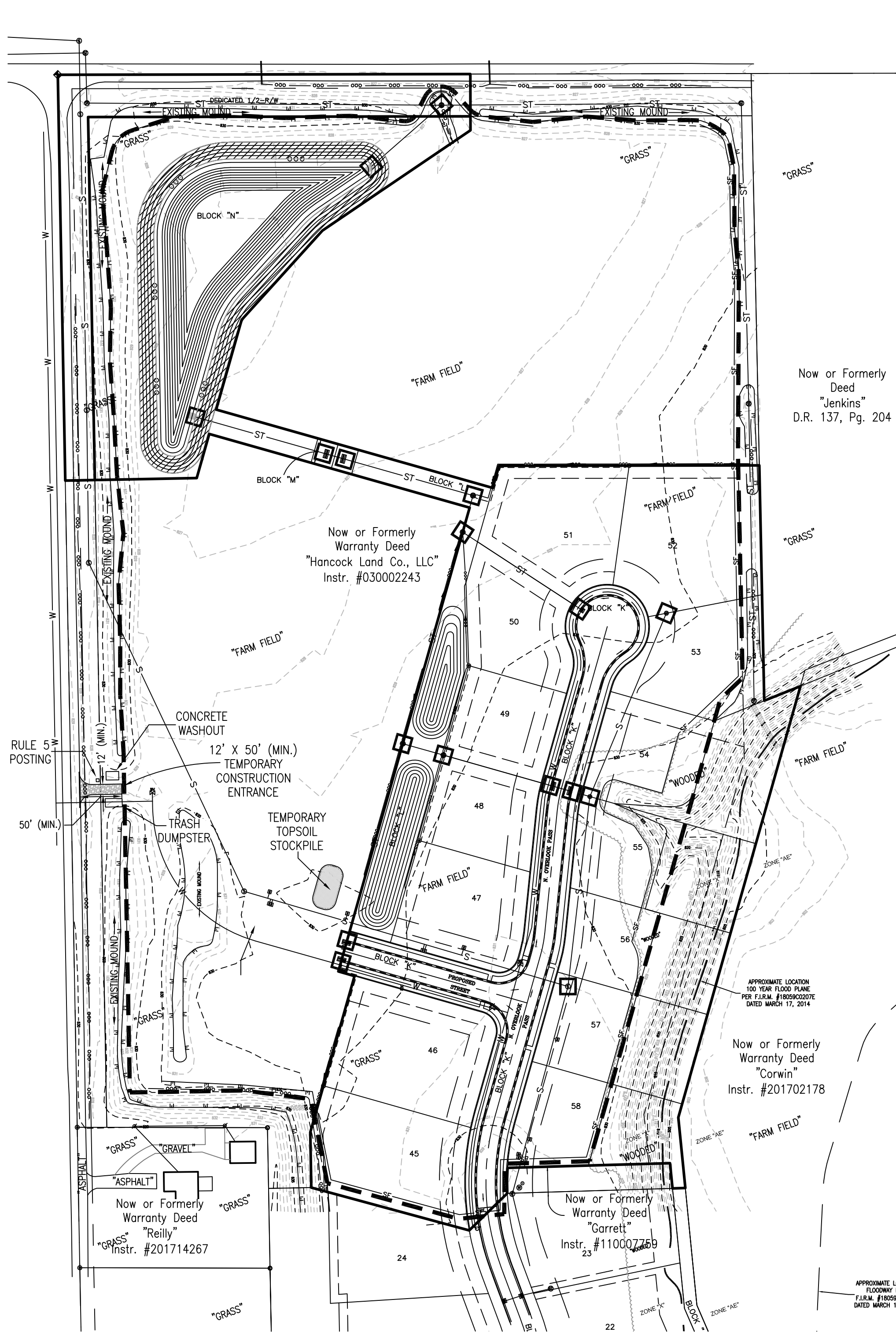
0 to 3 percent slopes. This nearly level soil is in slightly convex areas on uplands. Areas are irregular in shape and 2 to 250 acres in size. Slope is dominantly 1 to 3 percent. Runoff is slow.

Br (Brookston silty clay loam)

0 to 2 percent slopes. This nearly level soil is in depressions, swales, and narrow drainageways on uplands. Areas are irregular in shape and 2 to 400 acres in size. Because of continuous farming in some areas, the dark-colored surface layer is eroded and only 8 inches of it remains. Slope is dominantly less than 1 percent. Runoff is very slow or ponded.

MnD2 (Miami silt loam)

12 to 18 percent slopes. Eroded. This soil is along breaks between the uplands and the bottom lands. Areas are long, narrow, and winding in shape and 2 to 40 acres in size. The soil has a profile similar to the one described as representative of the series, but the combined thickness of the surface layer and subsoil is dominantly less than 26 inches. Runoff is rapid.



EROSION LEGEND:

- SF — — SILT FENCE  
— — — — — CONSTRUCTION LIMITS  
— — — — — INLET PROTECTION  
— — — — — EROSION CONTROL BLANKET

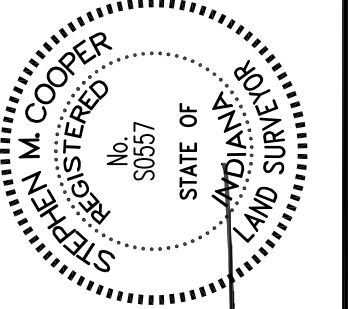
NOTE: ALL DISTURBED AREAS TO BE PERMANENTLY SEEDDED IMMEDIATELY AFTER CONSTRUCTION OF SITE.

LEGEND:

- OHE — — OVERHEAD UTILITY LINE  
— S — — SANITARY SEWER LINE  
— ST — — STORM SEWER LINE  
— W — — UNDERGROUND WATER MAIN  
— — — — — APPROX. EDGE OF WOODS  
(D) — — DEED DIMENSION  
(M) — — MEASURED DIMENSION  
(P) — — PLAT DIMENSION  
Ø — — EXISTING UTILITY POLE  
Ø — — EXISTING WATER VALVE  
Ø — — EXISTING WATER METER  
Ø — — EXISTING WATER LATERAL  
Ø — — EXISTING FIRE HYDRANT  
— — — — — END SECTION  
⊙ — — "MAG" NAIL  
⊙ — — REBAR/PIPE FOUND  
⬢ — — INDICATES 1/4 SECTION CORNER  
⊕ — — STORM SEWER MANHOLE  
⊕ — — SANITARY SEWER MANHOLE  
⊕ — — STORM SEWER BEEHIVE  
⊕ — — STORM SEWER INLET  
⊕ — — CURB INLET  
⊕ — — SANITARY LATERAL  
⊕ — — BENCHMARK  
⊕ — — SPOT ELEVATION  
— — — — — EXISTING CONTOUR



Judith M. Cleland  
Cleland Environmental Engineering, Inc.  
5308 Truman Bend Drive, Indianapolis, IN 46278



Stephen M. Cooper, P.E., S. 50557  
Dated: 9/24/16

Prepared For:	EROSION CONTROL PLAN	JOB #:	2017-124
Project Location:	HANCOCK LAND CO., LLC	FILE #:	2017-124/BASE DWG
	PART OF W. 1/2 - N.E. 1/4	DATE:	9/24/18
	S 20 - T 15 N - R 06 E	APPROVED BY:	S/MC
	SUGAR CREEK TOWNSHIP	DRAWN BY:	WTL
	HANCOCK COUNTY, INDIANA		

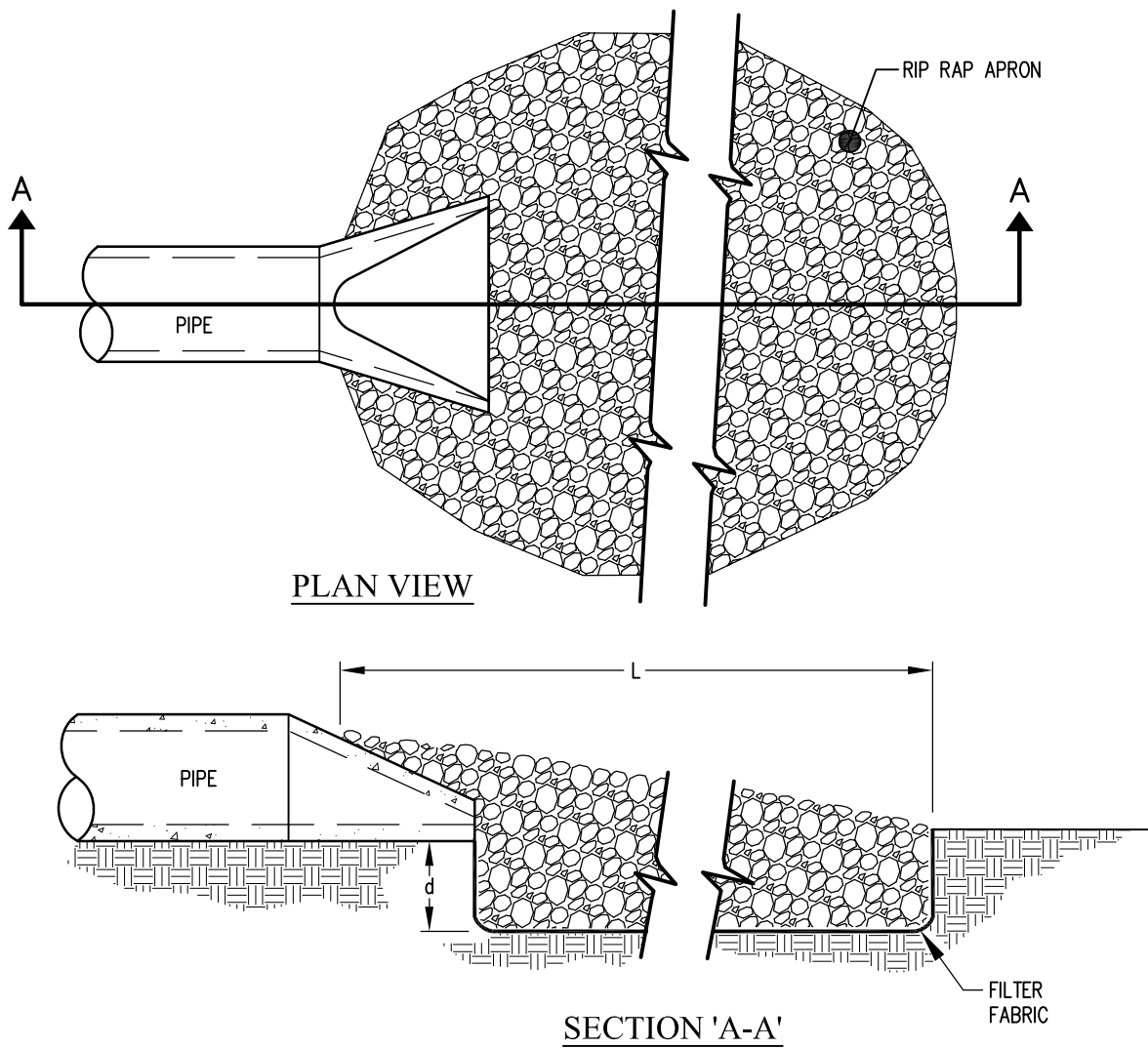
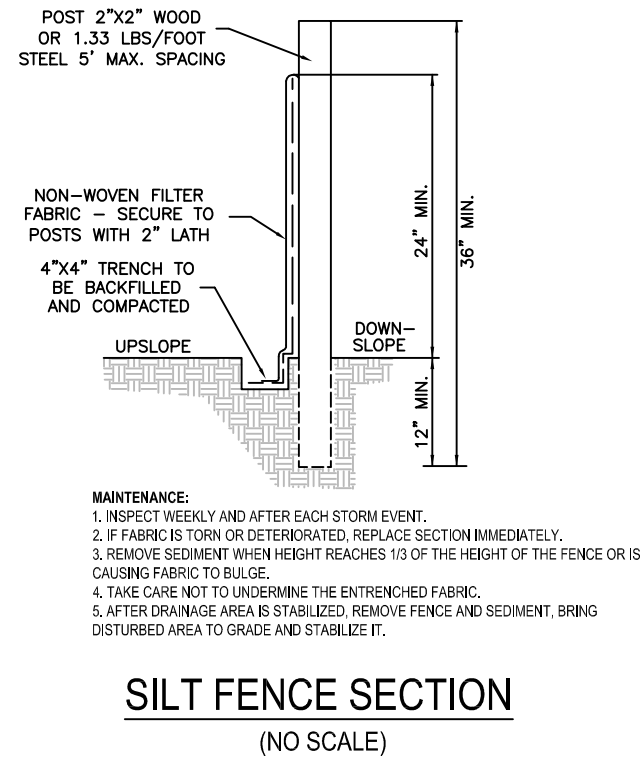
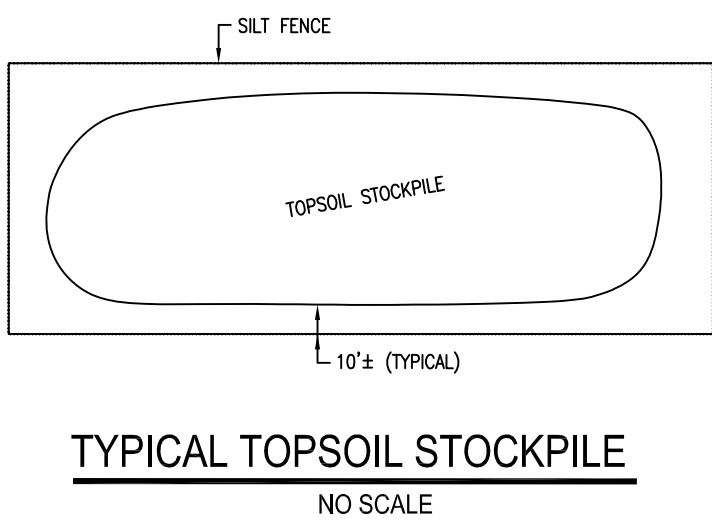
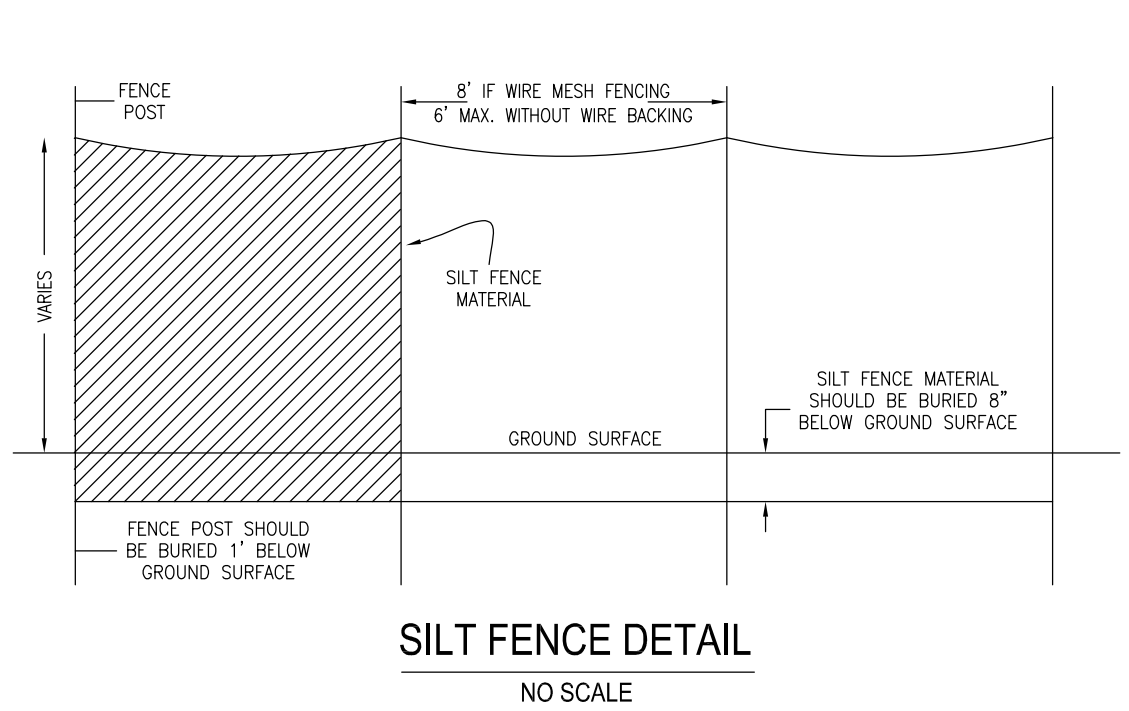


303 West Main Street, Kingsburg, Indiana 46148  
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Sheet Number

C9.0

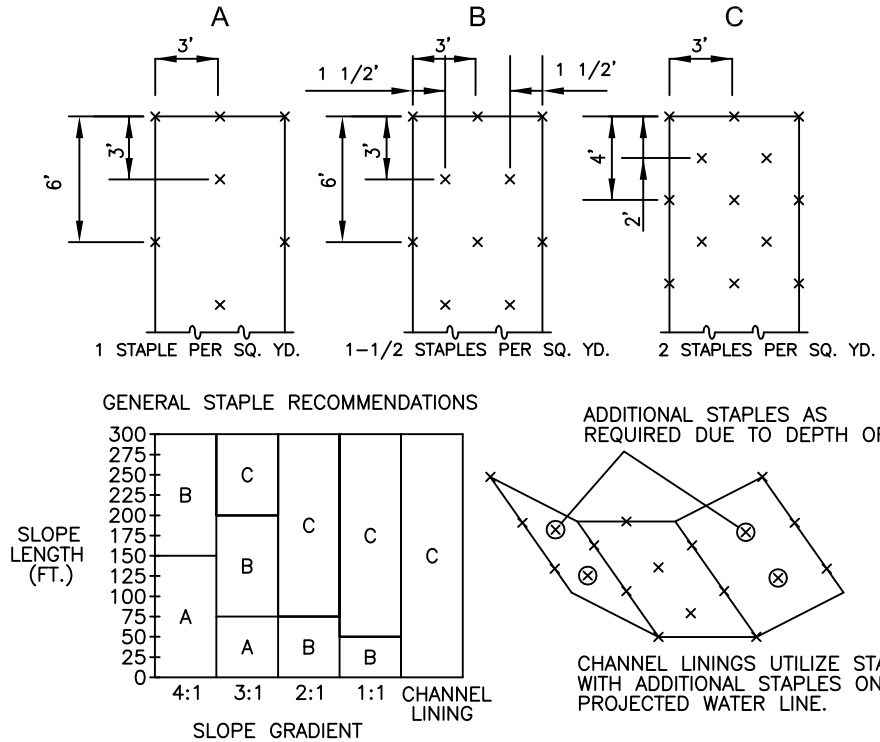




- NOTES:**
- 1) L = THE LENGTH OF THE RIPRAP APRON.
  - 2) d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (inches).
  - 3) IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (inches) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
  - 4) A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

#### RIPRAP INSTALLATION

NO SCALE



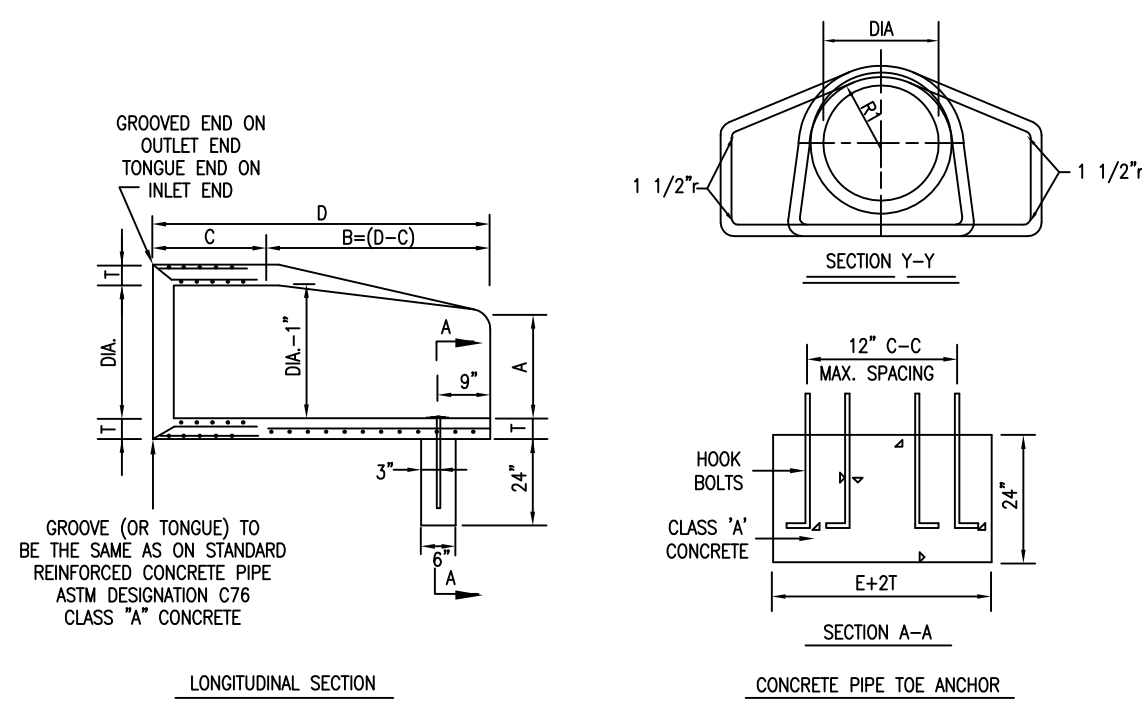
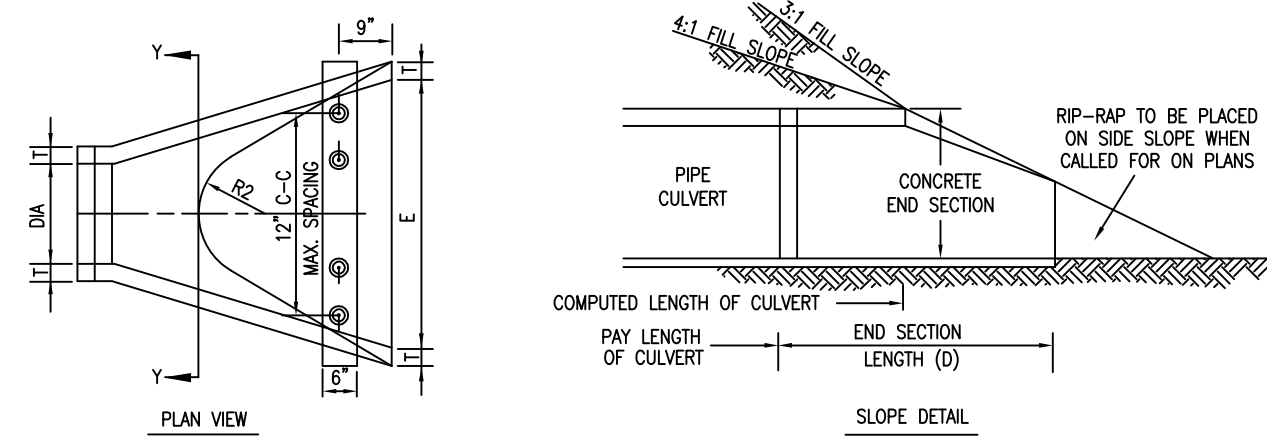
STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE ANNUAL RAINFALL.

AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.

- 1.) THE EDGES OF THE BLANKET SHOULD BE BUTTED AGAINST EACH OTHER, THE EDGES OF THE SCC225 SHOULD BE OVERLAPPED 2".
- 2.) ON SLOPE APPLICATIONS, THE TOP OF THE BLANKET SHOULD BE "SLOTTED IN" ABOVE THE BREAK OF THE SLOPE OR AT A MINIMUM, STAPLED IN PLACE WITH STAPLES 6" APART ON THE END OF THE BLANKET.
- 3.) THE BLANKET SHOULD NOT BE STRETCHED, BUT ALLOWED TO LAY LOOSELY ON THE SOIL SURFACE TO ACHIEVE MAXIMUM BLANKET TO SOIL CONTACT.
- 4.) ON LONG SLOPES, THE ENDS OF THE BLANKETS SHOULD BE OVERLAPPED 4 - 6" IN A "SHINGLE EFFECT".
- 5.) IN HIGH VELOCITY CHANNEL APPLICATIONS, CHECK SLOTS SHOULD BE ESTABLISHED EVERY 35 - 40'. THE SLOTS SHOULD BE 6" WIDE BY 6" DEEP WITH THE BLANKET STAPLED IN THE BOTTOM OF THE SLOT, THEN BACKFILLED AND SEEDED.
- 6.) PREPARATION OF THE SEED BED, INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED SHOULD BE CONDUCTED AS NORMAL PRIOR TO INSTALLATION OF BLANKET.

#### EROSION BLANKET INSTALLATION

NO SCALE

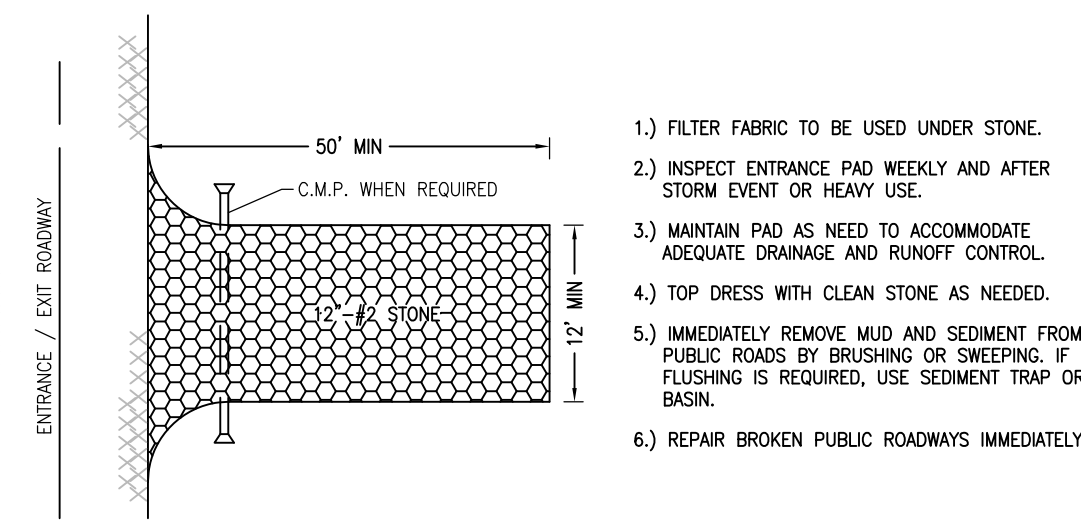


DIA	(MIN)	A *	C *	D *	E *	K	R ₁	R ₂	APPROX. WEIGHT
12"	2"	5"	4'-3"	6'-2"	2'-0"	1.3	10 1/8"	9"	800
15"	2 1/4"	7"	4'-0"	6'-3"	2'-0"	1.5	12 1/2"	11"	1,100
18"	2 1/2"	11"	4'-1"	6'-2"	3'-0"	1.8	15 1/2"	12"	1,300
21"	2 3/4"	11"	3'-6"	6'-3"	3'-0"	2.1	16 1/8"	13"	1,500
24"	3"	1'-0"	2'-8"	6'-3"	4'-0"	2.3	16 3/16"	14"	1,800
27"	3 1/4"	1'-1"	2'-5"	6'-3"	4'-6"	2.6	18 1/2"	14 1/2"	2,100
30"	3 1/2"	1'-2"	1'-10"	6'-3"	5'-0"	2.9	18 3/16"	15"	2,400
33"	3 3/4"	1'-3"	3'-6"	8'-3"	5'-6"	3.1	18 1/2"	17 1/2"	4,100
36"	4"	1'-5"	3'-1"	8'-3"	6'-0"	3.4	23 3/4"	20"	4,200
48"	5"	2'-0"	2'-2"	8'-2"	7'-0"		28 1/8"	22"	6,500

* TOLERANCE +/- 1"

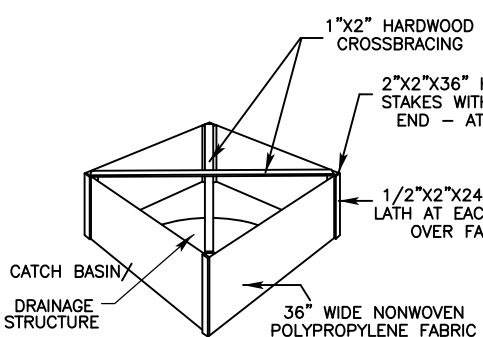
#### PRECAST CONCRETE END SECTION

NO SCALE



#### TEMPORARY GRAVEL CONSTRUCTION ENTRANCE / EXIT PAD DETAIL

NO SCALE



- NOTES:**
1. INSPECT WEEKLY AND AFTER EACH STORM EVENT. IF FABRIC IS TORN OR DETRIORATED, REPLACE SECTION IMMEDIATELY.
  2. REMOVE SEDIMENT WHEN HEIGHT REACHES 1/3 OF THE HEIGHT OF THE FENCE OR IS CAUSING FABRIC TO BULGE.
  3. TAKE CARE NOT TO UNDERMINE THE ENTRANCED FABRIC.
  4. AFTER DRAINAGE AREA IS STABILIZED, REMOVE FENCE AND SEDIMENT, SPRING DISTURBED AREA TO GRADE AND STABILIZE IT.
  5. REFER TO SILT FENCE SECTION FOR EMBEDMENT DETAIL.

#### SILT FENCE INLET PROTECTION DETAIL:

(NO SCALE)

Species	Seeding Rate lbs/acre	Suitable pH soil %	Site Suitability well Droughty/Drained	Notes
Level & Sloping (open areas)				
1) Tall Fescue	35	5.8	5.5-8.3	2
2) Tall Fescue Red Clover**	25 5	0.6 0.12	5.5-8.3	-
3) Kentucky Bluegrass Creeping Red Fescue	15 15	0.4 0.4	5.5-7.5	2
Shrub Banks & Cuts				
4) Tall Fescue Kentucky Bluegrass	15 25	0.4 0.6	5.8-7.5	2
5) Tall Fescue Extruded Groundcover**	35 10	0.8 0.02	5.5-8.3	2
Lawns & High Maintenance Areas				
6) Kentucky Bluegrass Creeping Red Fescue	40 40	0.9 0.9	5.8-7.5	2
7) Perennial Ryegrass (Turf Type)	170	4.0	5.0-7.5	-
8) Tall Fescue	170	4.0	5.5-8.3	2

* 1-Preferred 2-Variety Tolerance ** Inoculate with specific inoculants

Figure 5-2: Permanent Seed Mixtures

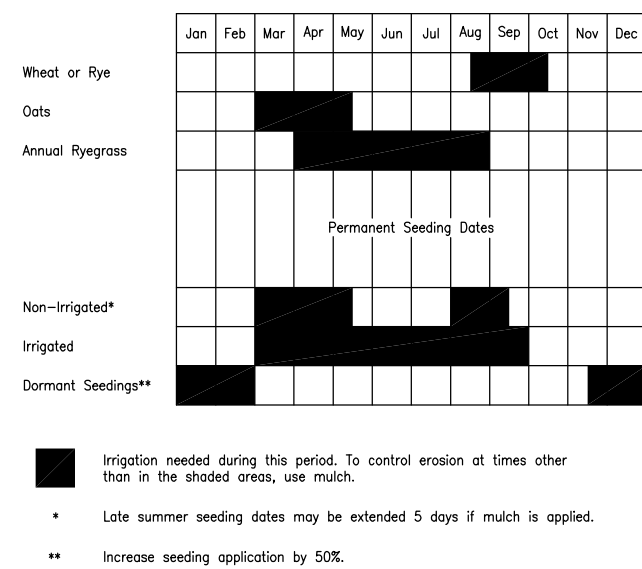
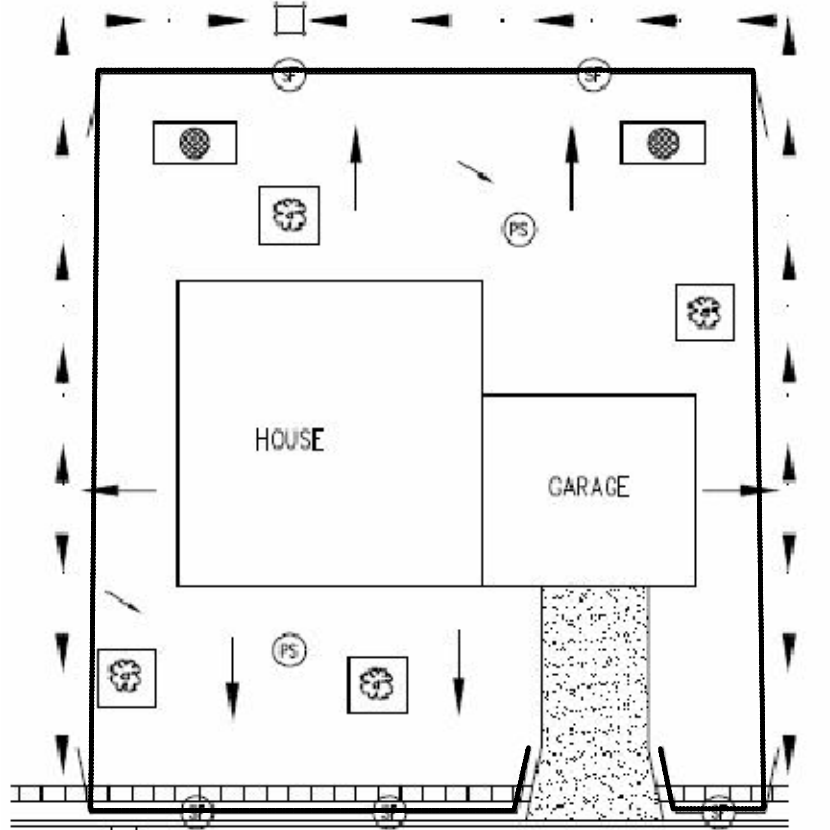


Figure 5-3: Temporary Seeding Dates

Soil Condition	Soil Type	Seeding Rate	Seeding Date	Seeding Method	Seeding Depth	Seeding Time	Seeding Location	Seeding Notes
Creeping Red Fescue Kentucky Bluegrass Pro sods	2	1	2	1	1	Med	1	20-25
Kentucky Bluegrass Pro sods	2	1	2	1	1	Med	1	20-25
Tall Fescue Festuca L. andersonii	2	1	1	1	1	Low	1	24-30
Perennial ryegrass Lolium perenne	2	1	2	-	1	Med	1	15-20
Creeping Red Fescue Kentucky Bluegrass	-	1	1	2	-	Low	1	5-10
Creeping Red Fescue Kentucky Bluegrass	-	1	1	2	-	Med	1	5-10
Creeping Red Fescue Kentucky Bluegrass	-	1	1	2	-	Med	1	5-10

Figure 5-4



#### INDIVIDUAL LOT STORM WATER POLLUTION & PREVENTION DETAIL

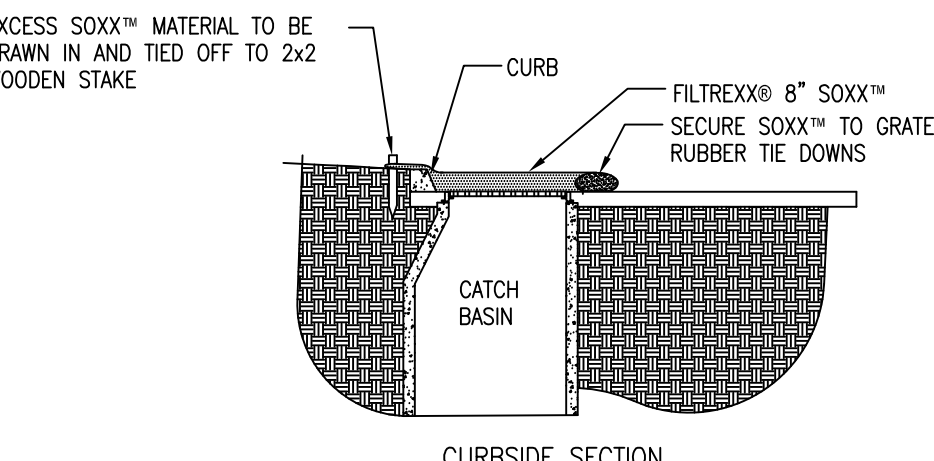
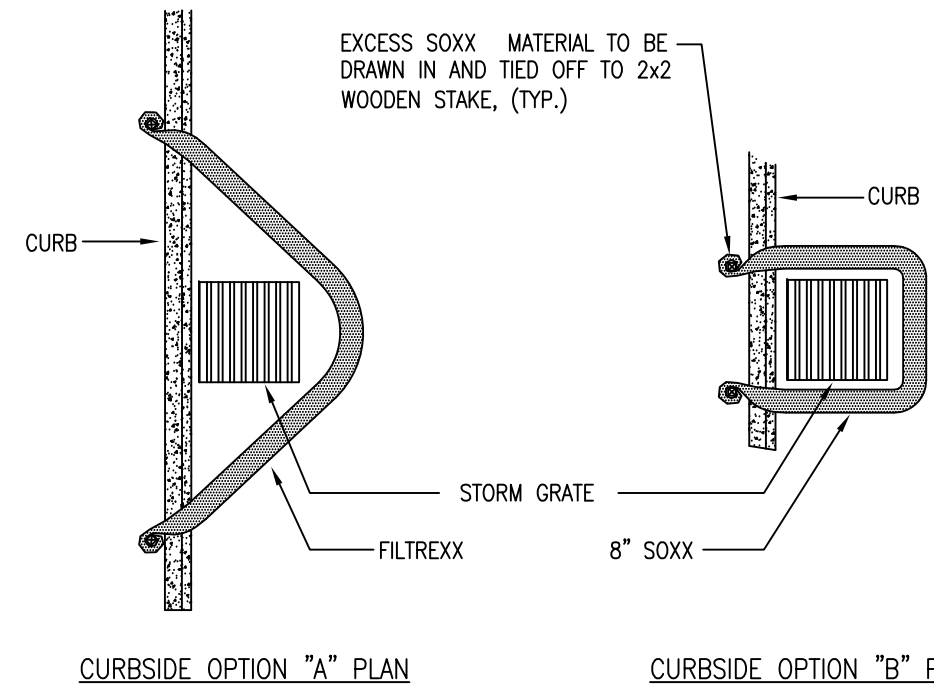
NO SCALE

- EROSION CONTROL PLAN LEGEND**
- PROPERTY LINE / DRAINAGE SWALE
  - EXISTING DRAINAGE
  - FINISHED DRAINAGE
  - TREE CONSERVATION
  - SILT FENCE
  - GRAVEL ENTRANCE / EXIT PAD
  - CURB INLET PROTECTION
  - DROP INLET PROTECTION
  - SOIL SALVAGE AND UTILIZATION
  - PERMANENT SEEDING

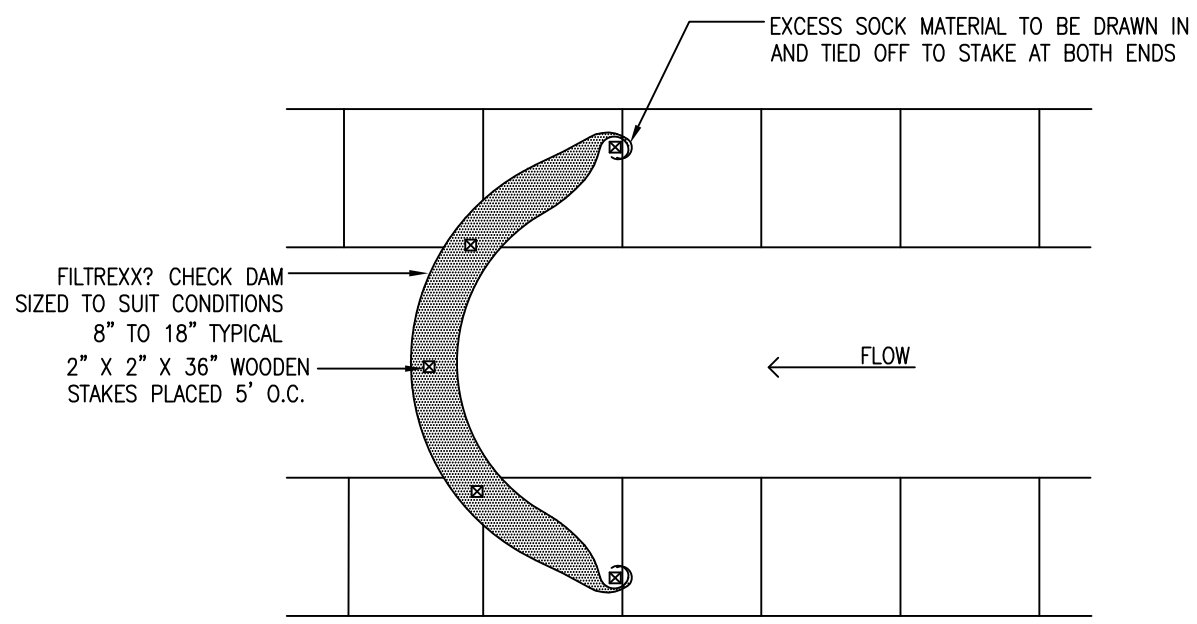
- NOTES:**
1. EROSION/SEDIMENT CONTROL MEASURES MUST BE FUNCTIONAL AND BE MAINTAINED THROUGHOUT CONSTRUCTION.
  2. MAINTAIN POSITIVE DRAINAGE FLOW AWAY FROM THE STRUCTURES.
  3. PERMANENT SEEDING AREAS TO BE TOP-SOILED, SEED, AND MULCHED BY OWNER AT COMPLETION OF CONSTRUCTION.

#### FILTREXX INLET PROTECTION

NO SCALE



- NOTES:**
1. ALL MATERIAL TO MEET FILTREXX™ SPECIFICATIONS.
  2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
  3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



- NOTES:**
1. ALL MATERIAL TO MEET FILTREXX™ SPECIFICATIONS.
  2. CHECK DAM SHOULD BE USED IN AREAS THAT DRAIN 10 ACRES OR LESS.
  3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED 1/2 THE HEIGHT OF THE CHECK DAM.
  4. CHECK DAM CAN BE DIRECT SEED AT THE TIME OF INSTALLATION.
  5. CONTRACTOR IS REQUIRED TO BE A FILTREXX CERTIFIED™ INSTALLER.

#### FILTREXX CHECK DAM

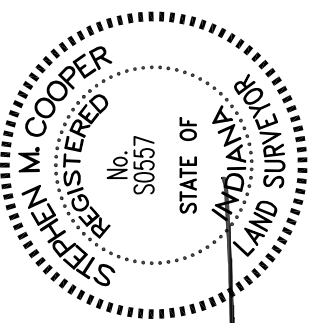
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Stephen M. Cooper, P.E. #50557  
Dated: 9/24/18

JOB #:	2017-124
FILE #:	2017-124_Standards.dwg
DATE:	9/24/18
APPROVED BY:	SMC
DRAWN BY:	WTL

Prepared For:	HANCOCK LAND CO., LLC
Project Location:	PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA

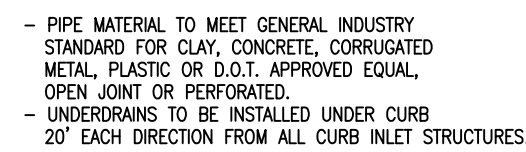
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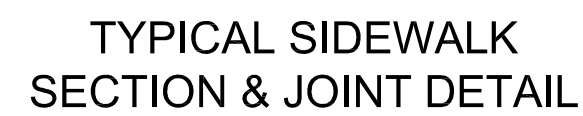




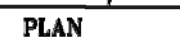
CURB UNDERDRAIN DETAIL

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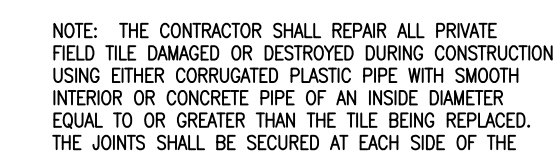
NO SCALE



TYPE "C" CONCRETE INLET  
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NO SCALE



TYPE "F" CONCRETE INLET  
(REFERENCE INDOT STANDARD DRAWING # E 720-INST-04)  
NO SCALE



PRIVATE TILE DRAIN CROSSING:  
NO SCALE



STATE SPEC.  
211.01-211.10  
715-BKFL-01

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Stephen M. Cooper, P.S. # S0557  
 Dated: 9/24/18

CONSTRUCTION DETAILS	JOB #: 2017-124
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Prepared For:	HANCOCK LAND CO, LLC	ELL E #: 2017-124 Standards due
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Project Location:	DATE: 01/24/18
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PAR1 OF W. 1/2 - N.E. 1/4  
S20 - T15N - R06E

SUGAR CREEK TOWNSHIP


## CONSTRUCTION DETAILS

Prepared For: HANCOCK I AND CO LLC

Project Location:

PART OF W. 1/2 - N.E. 1/4  
S 20 - T 15 N - R 06 E

SUGAR CREEK TOWNSHIP



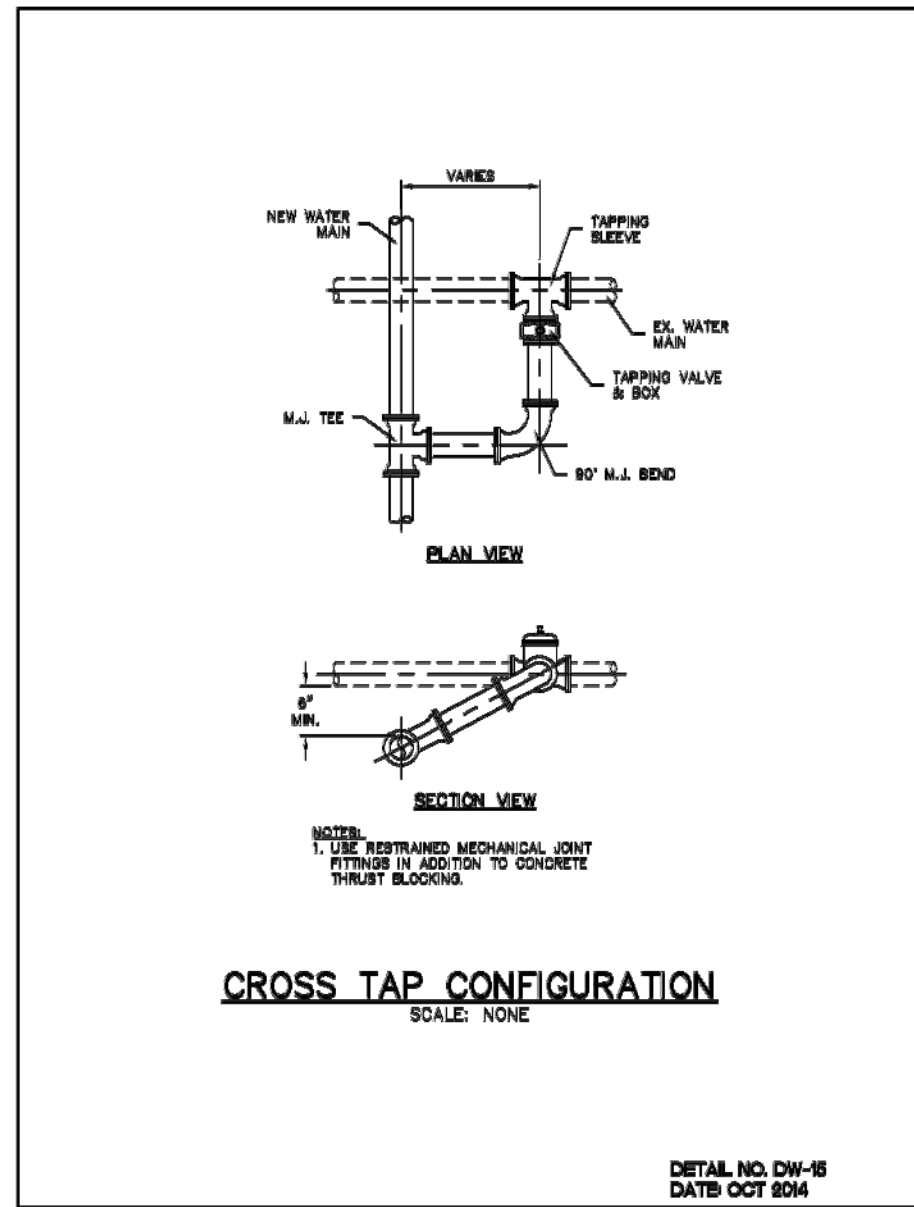
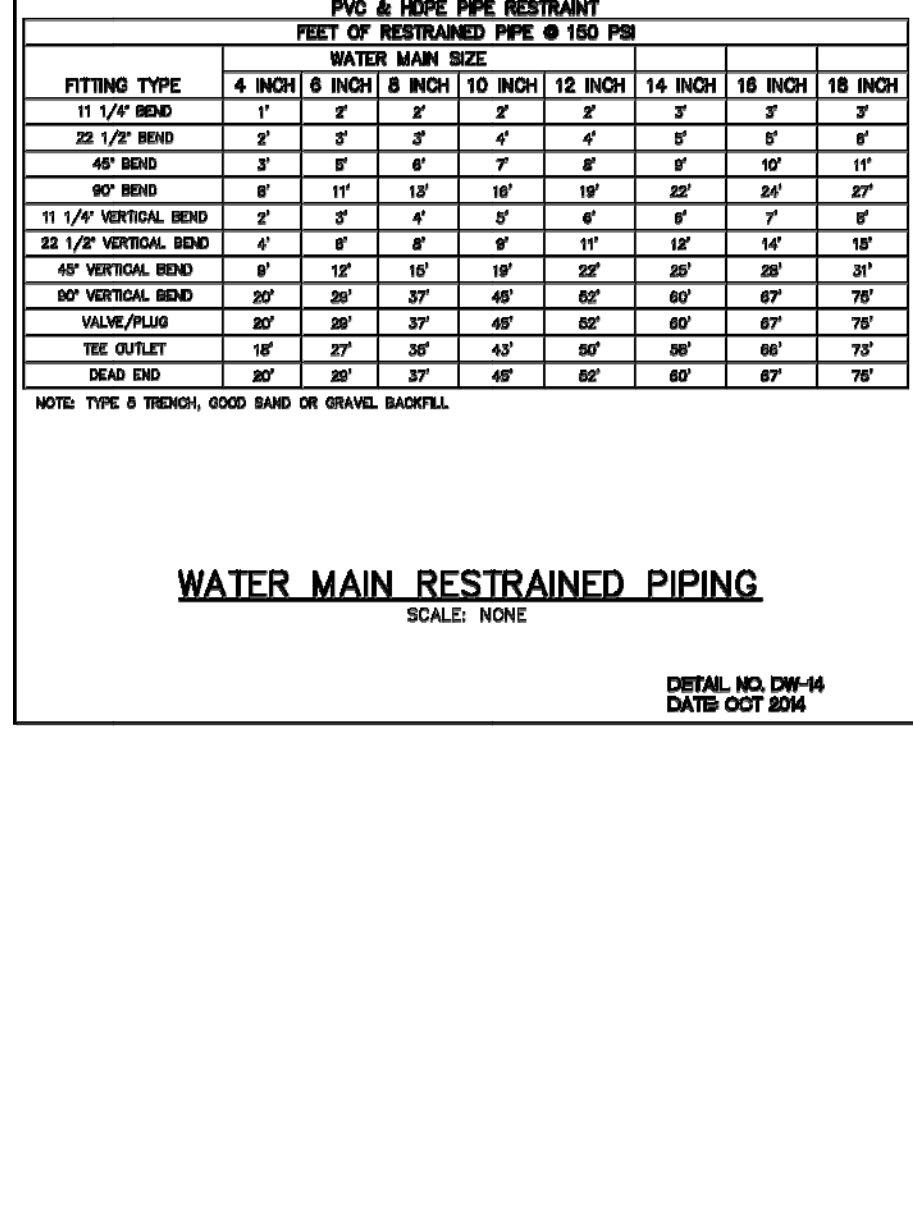
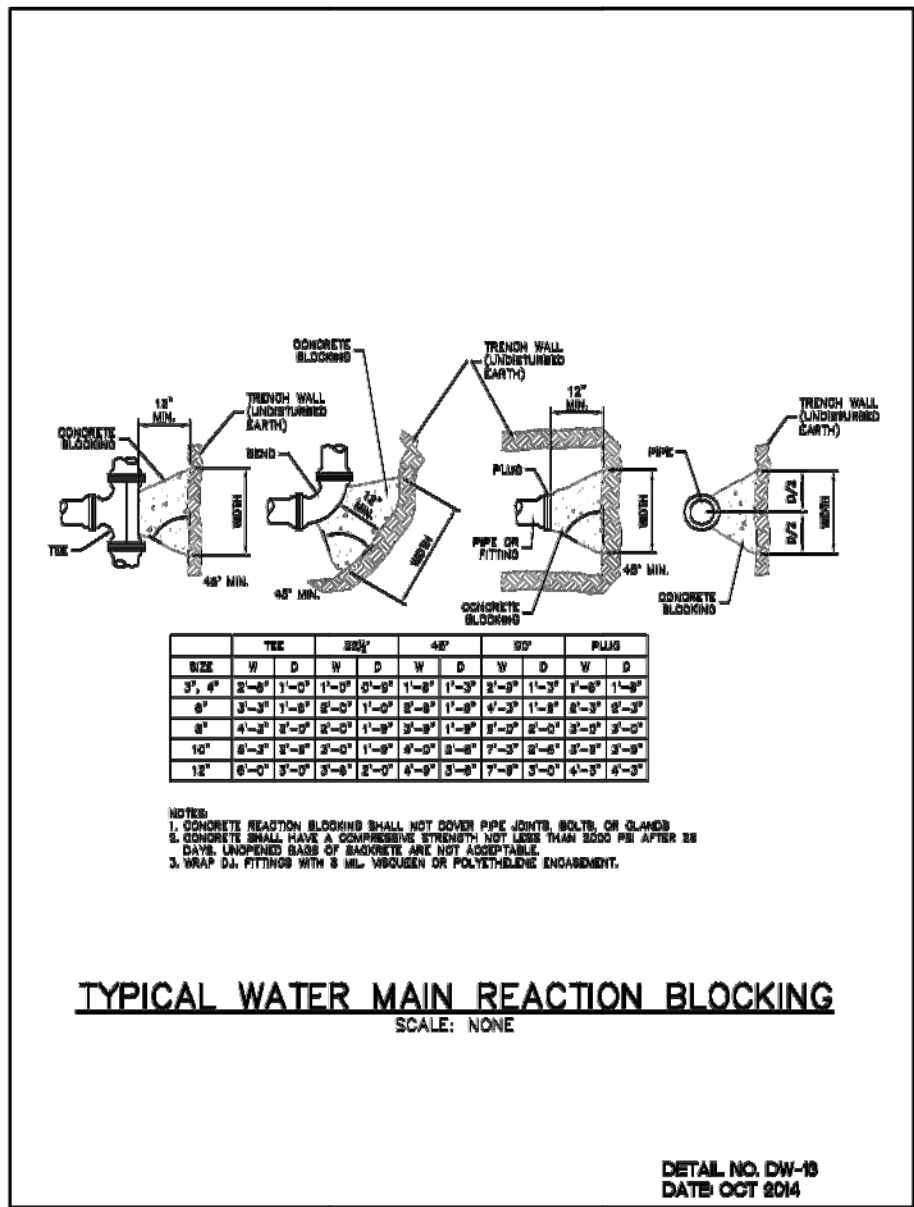
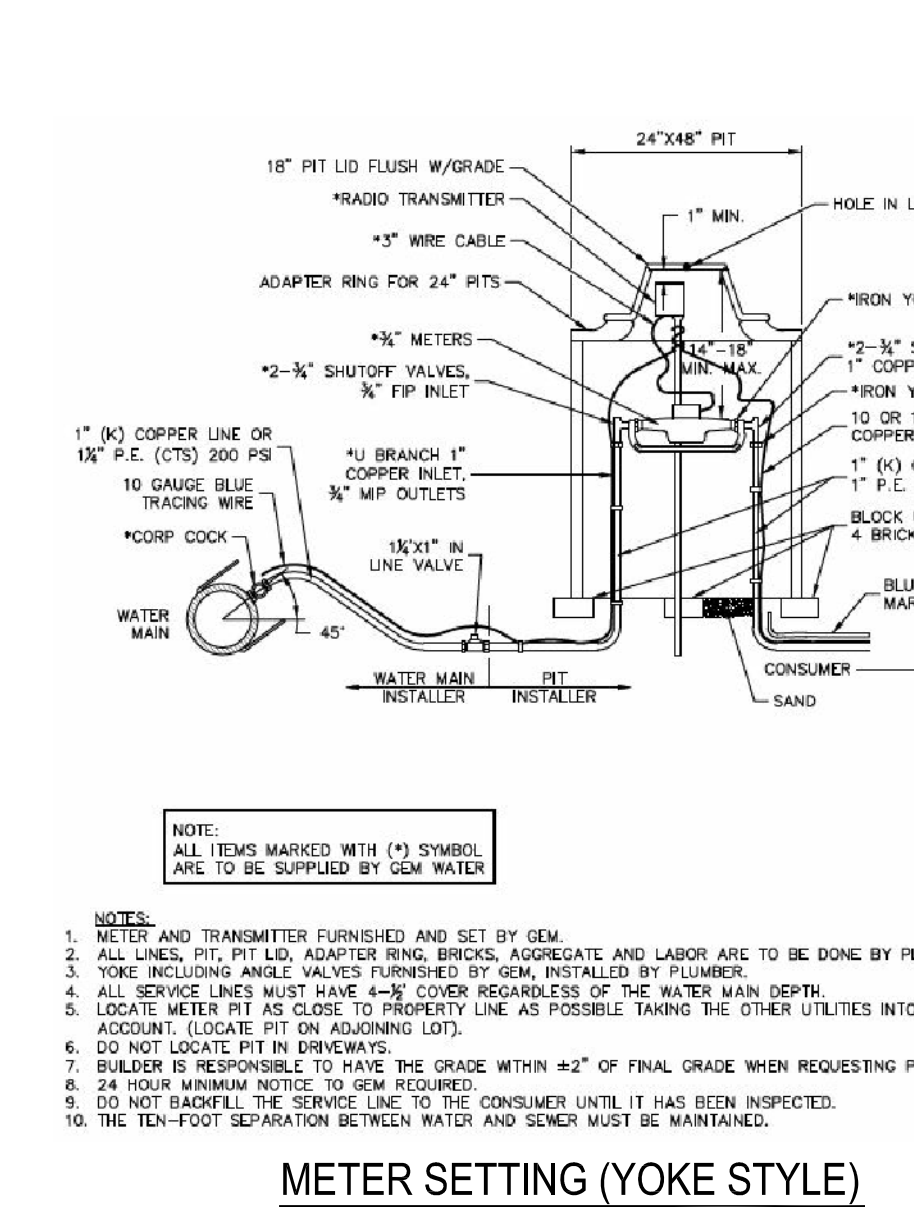
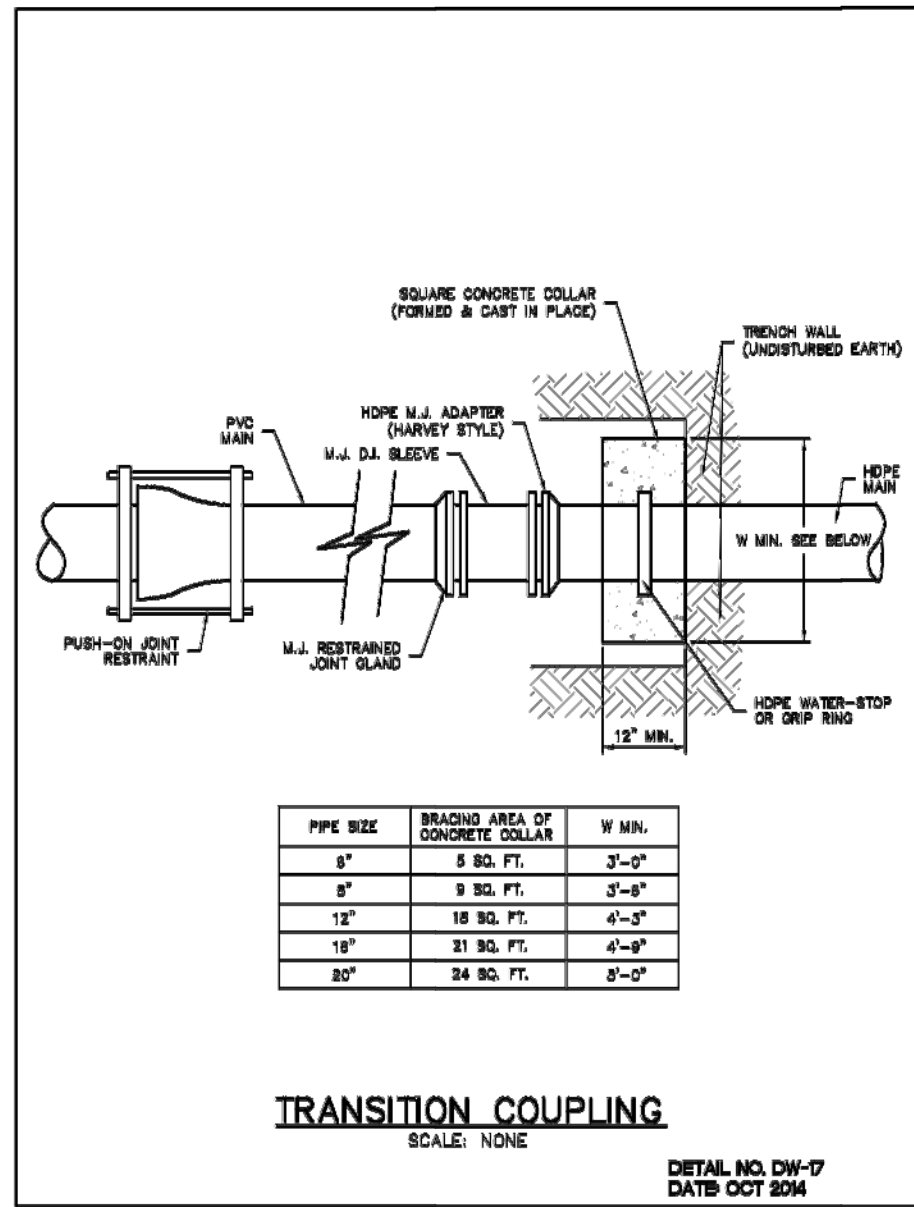
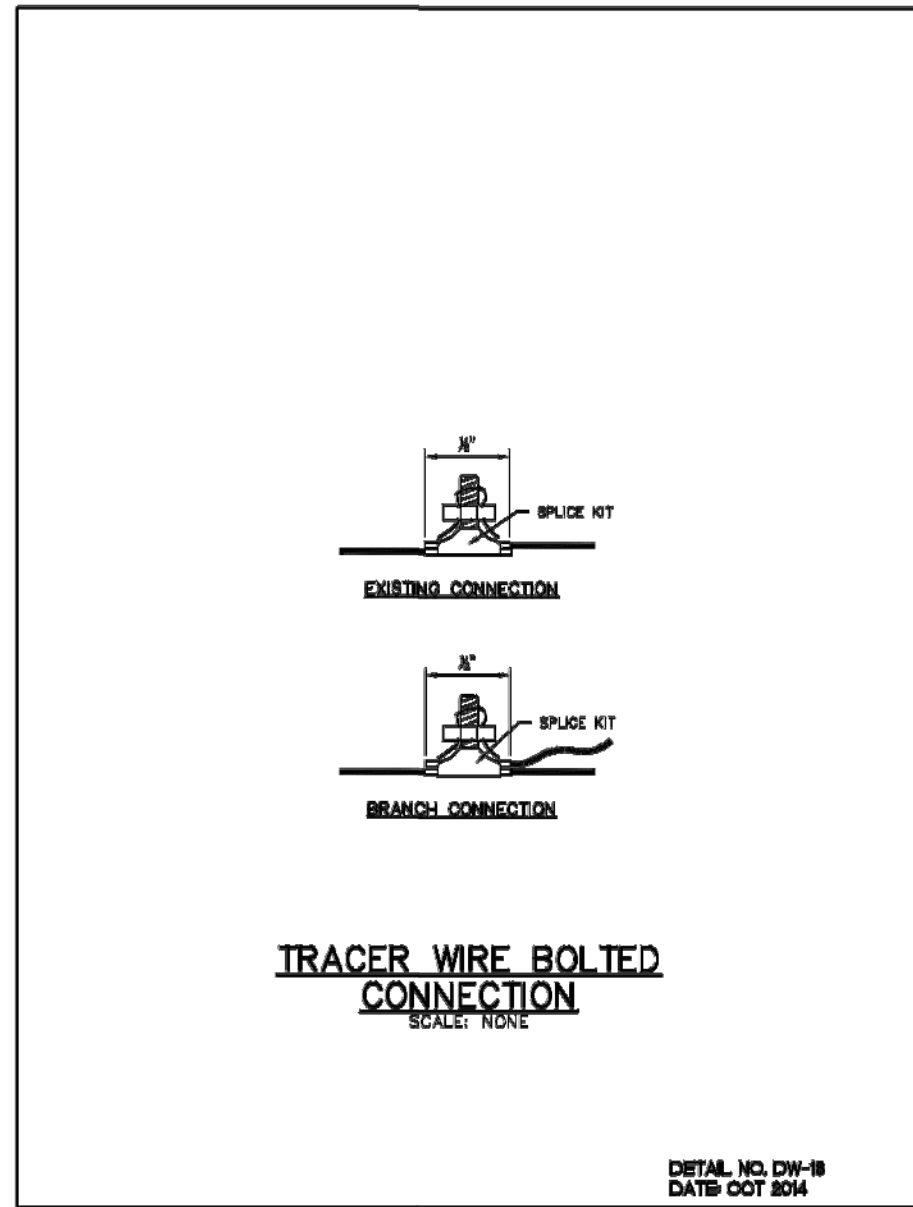
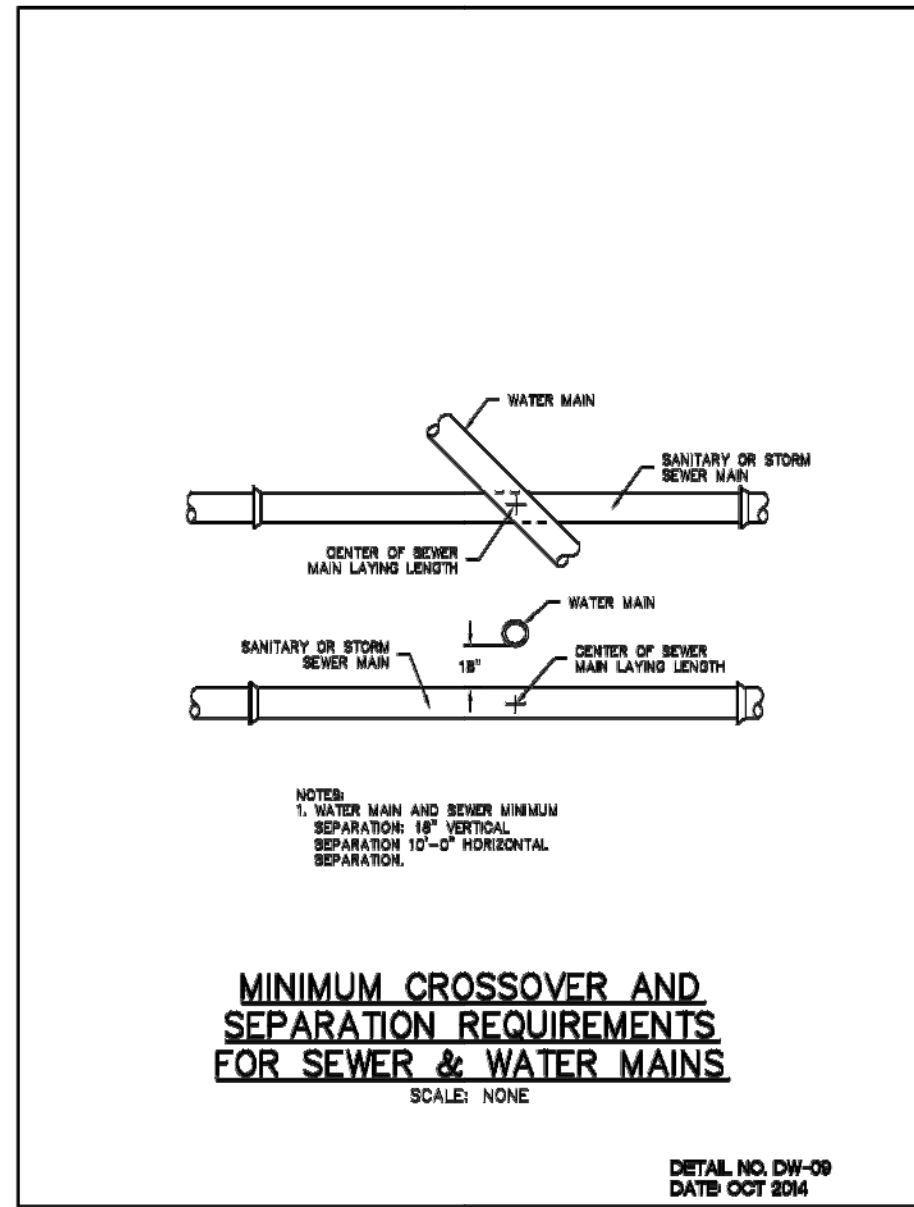
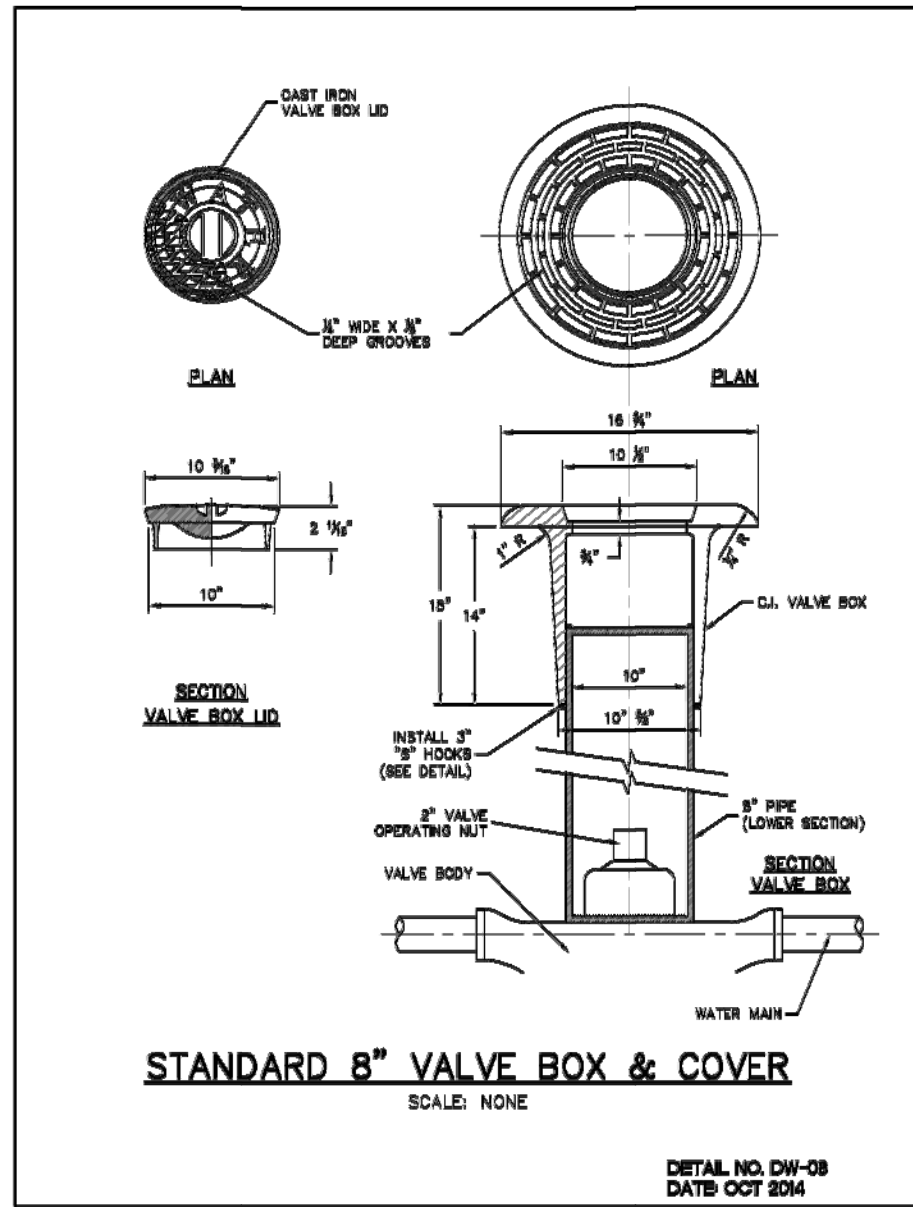
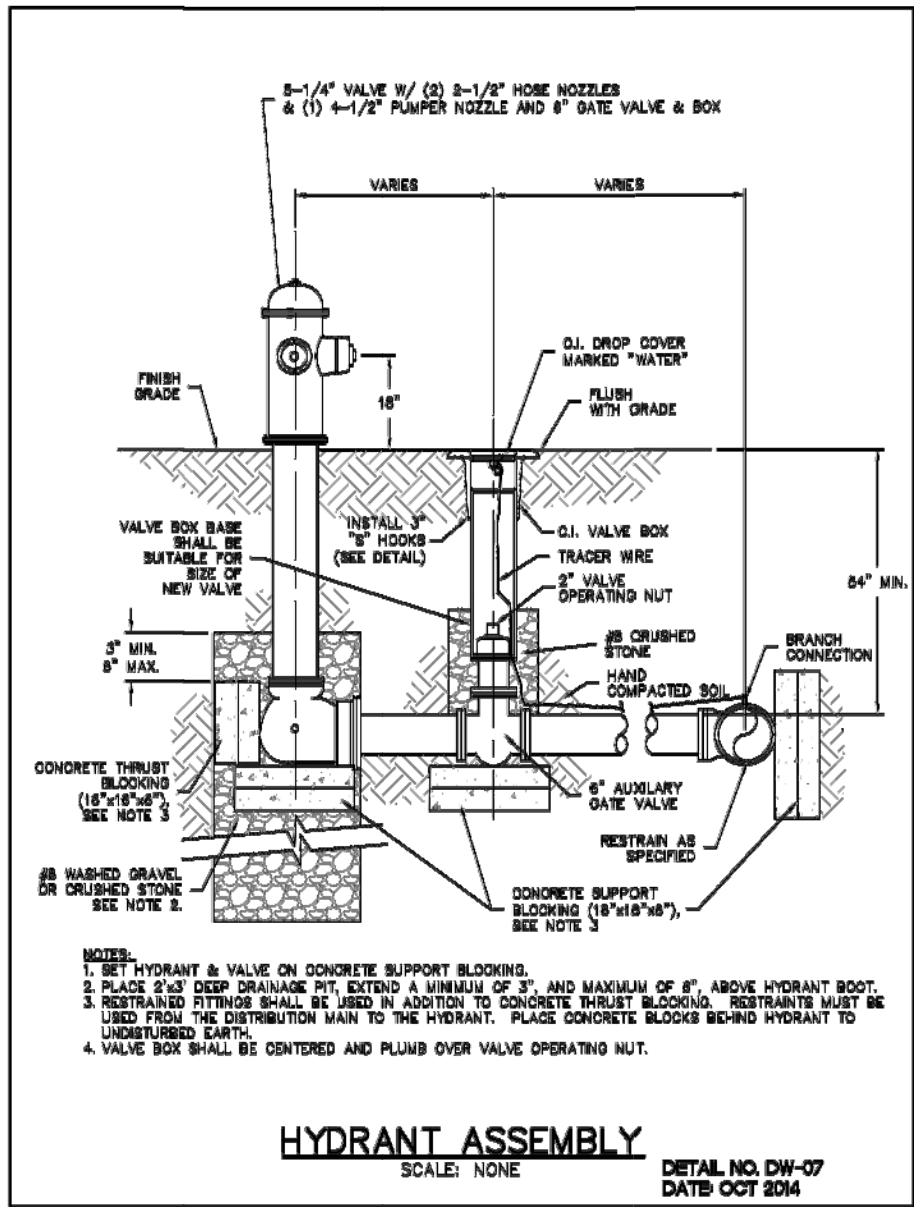
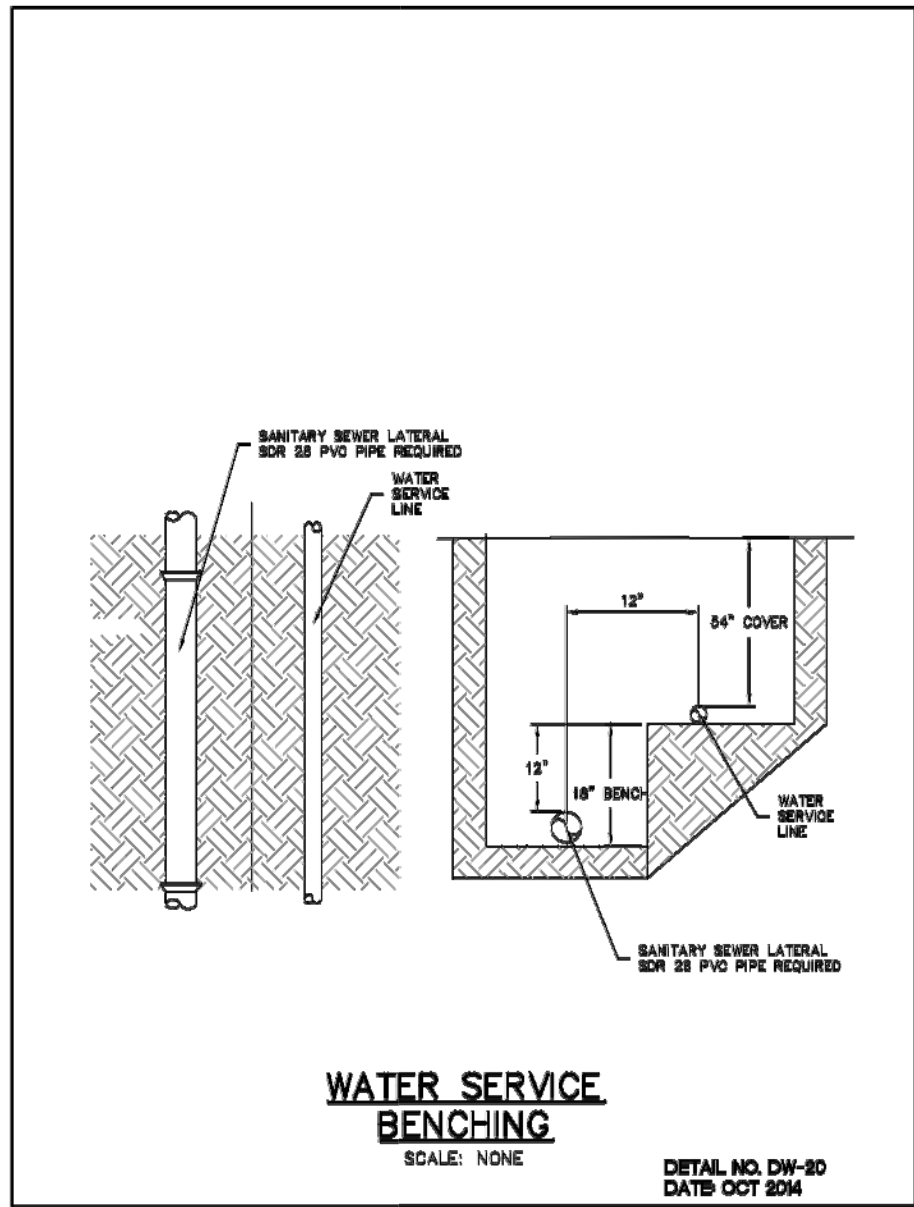
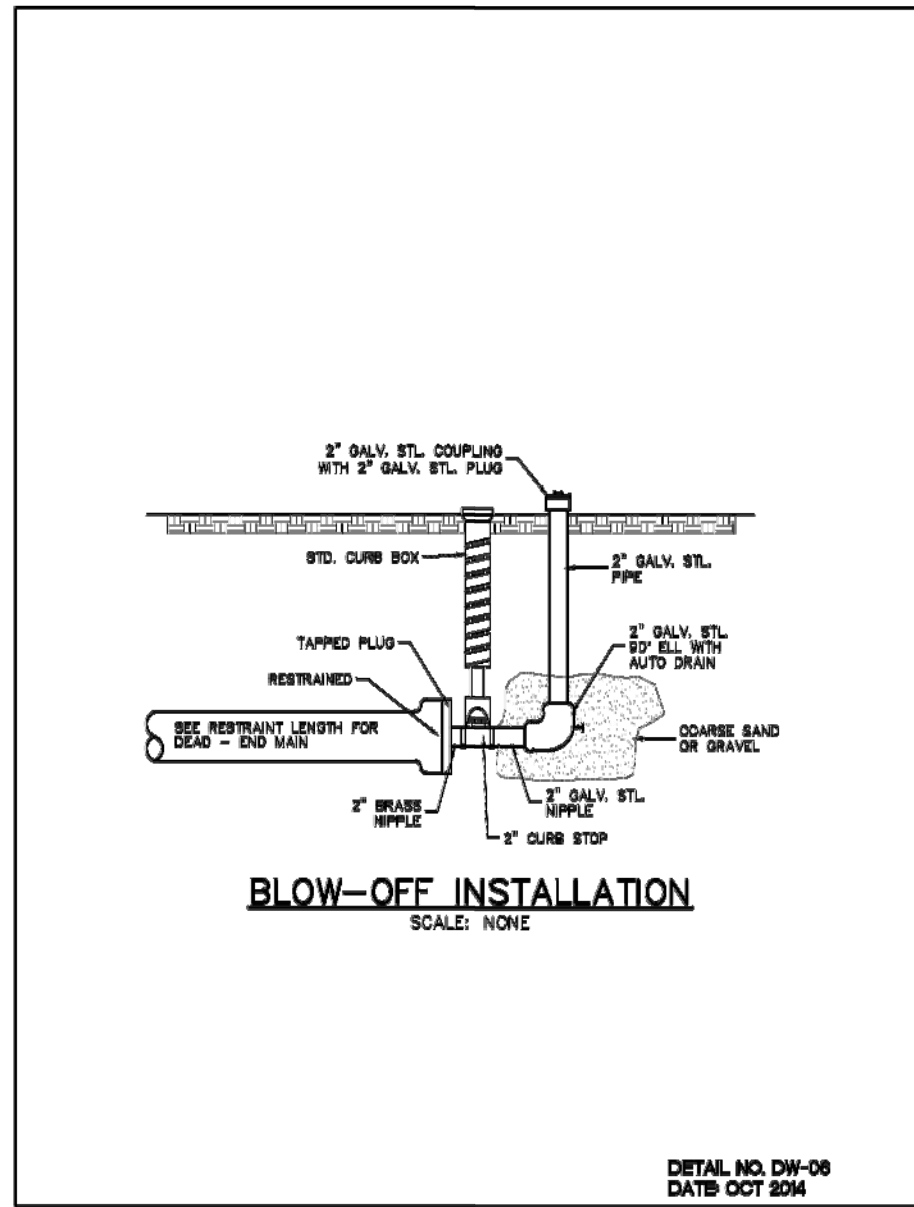
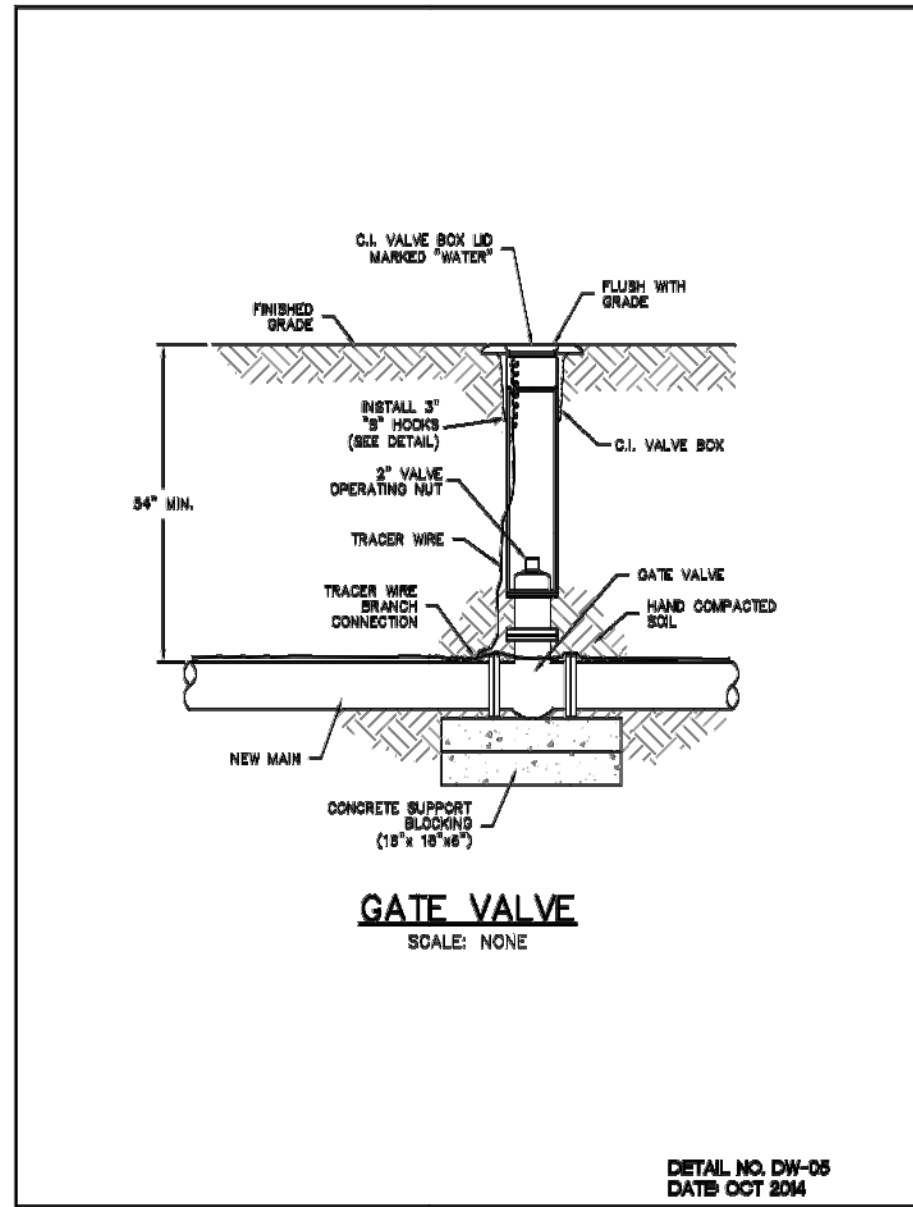
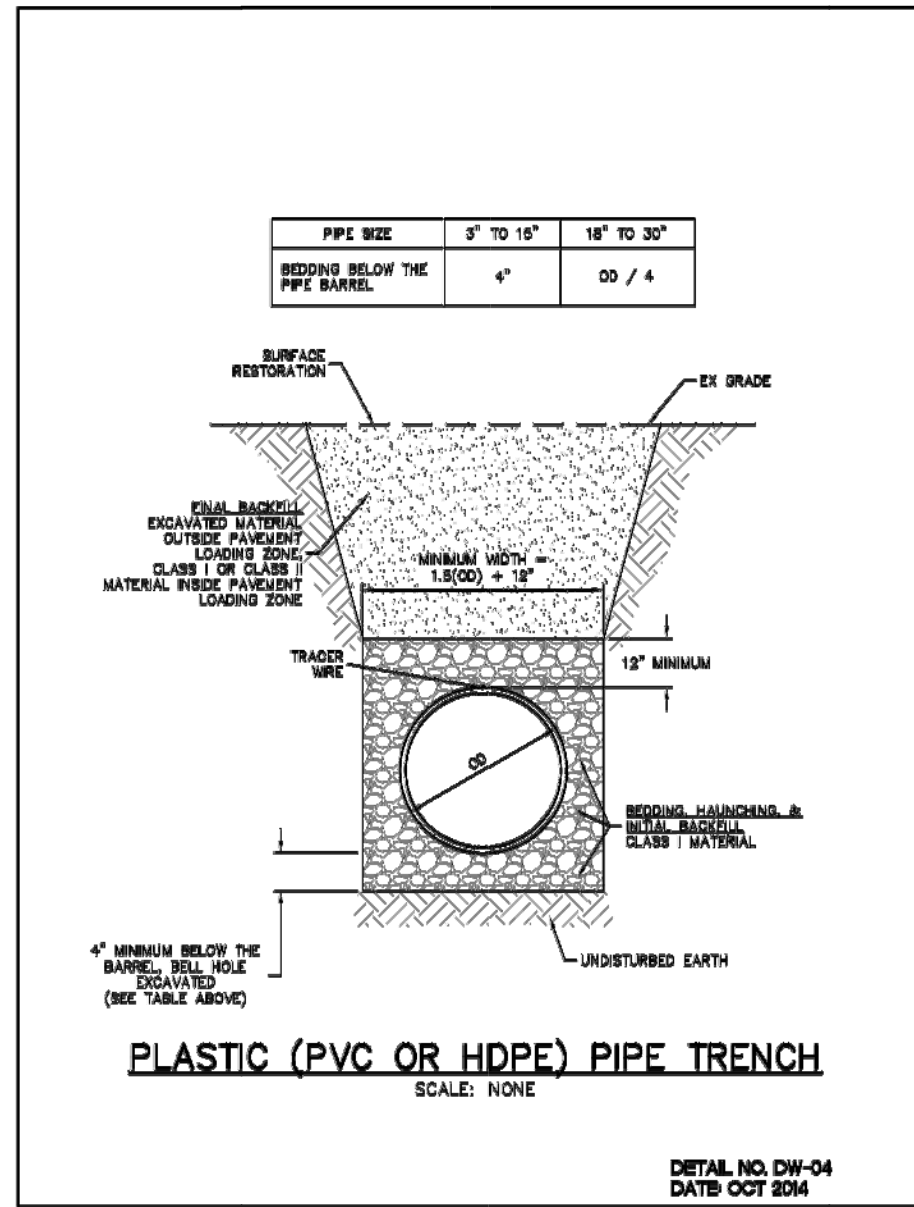
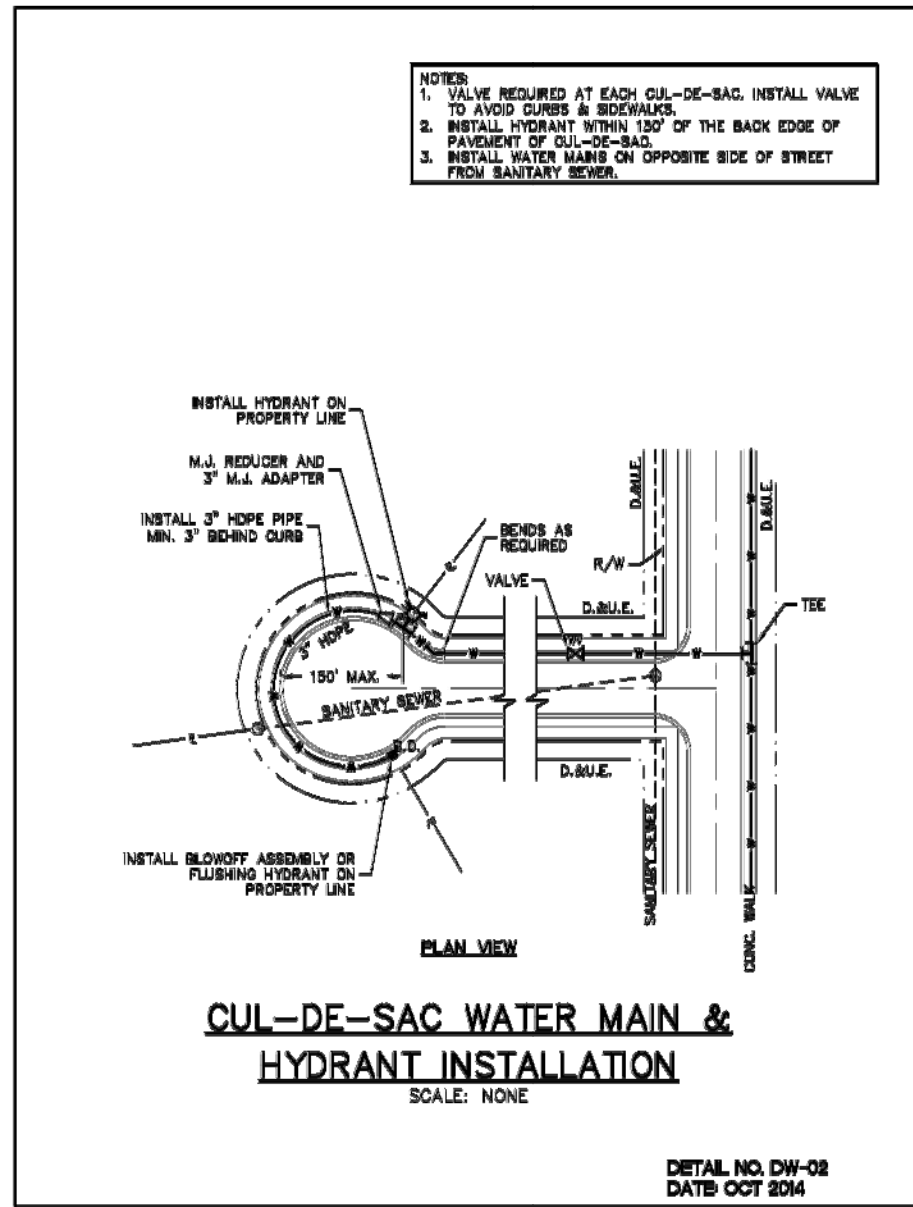
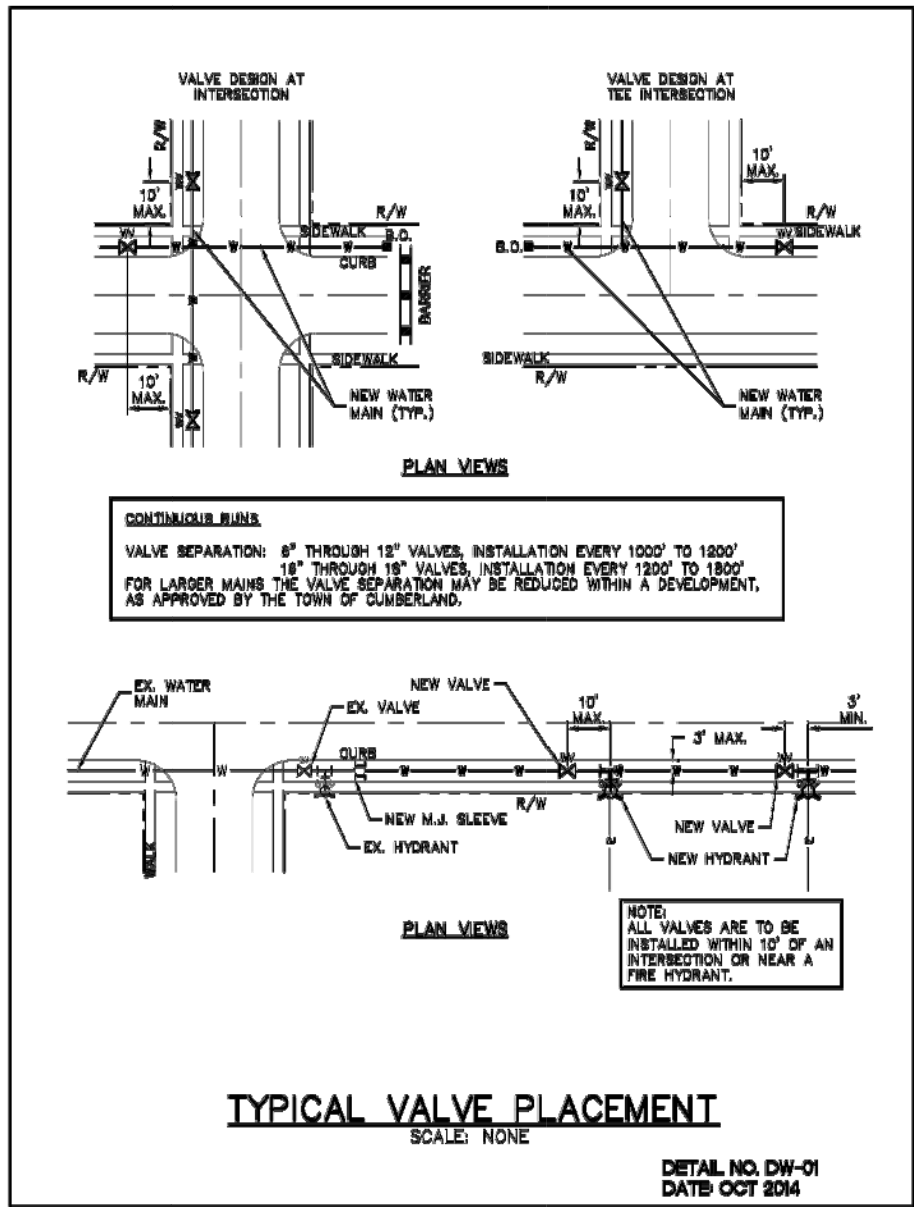
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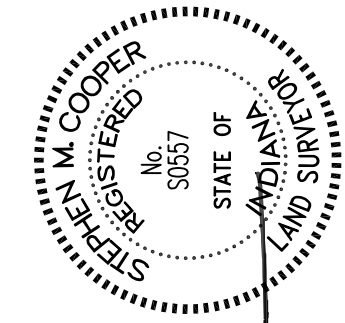


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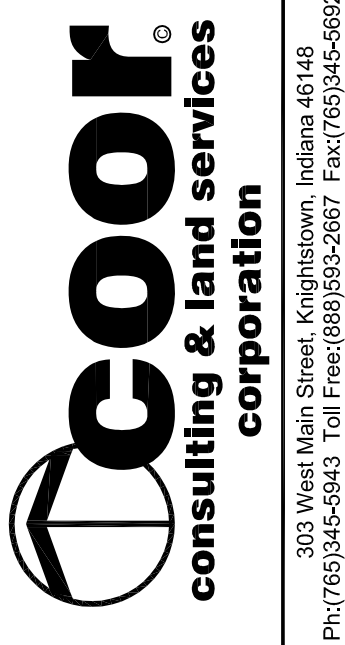
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Date: 9/24/18

JOB #: 2017-124  
FILE #: 2017-124_Standards.dwg  
DATE: 9/24/18  
APPROVED BY: SMC  
DRAWN BY: WTL

TOWN OF CUMBERLAND  
WATER DISTRIBUTION DETAILS  
Prepared For: HANCOCK LAND CO., LLC  
Project Location: PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA

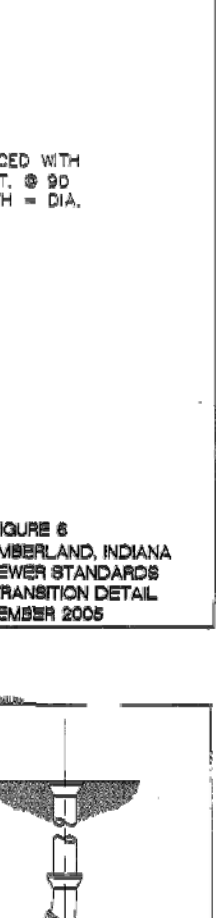
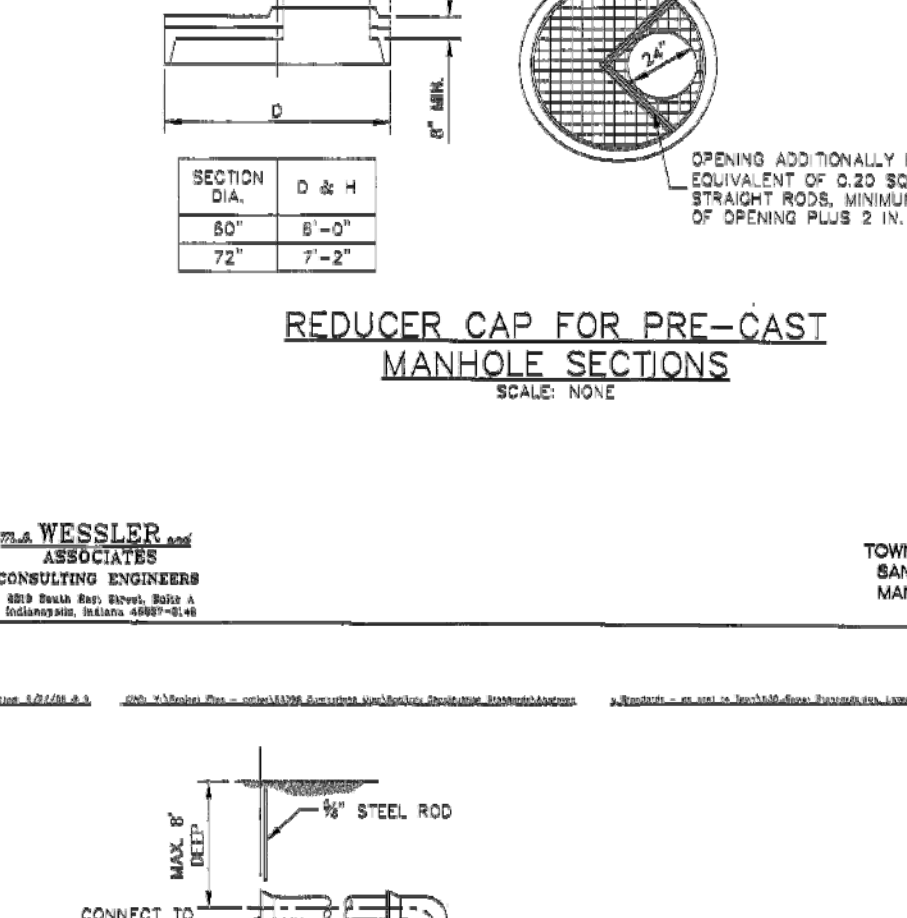
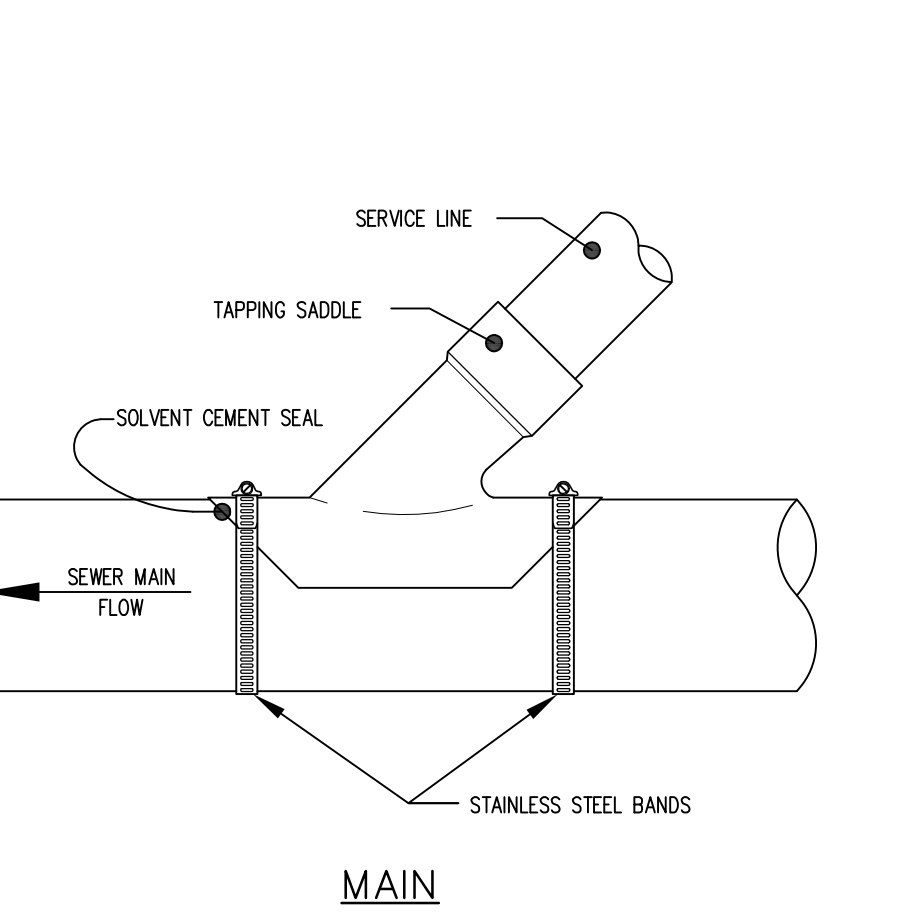
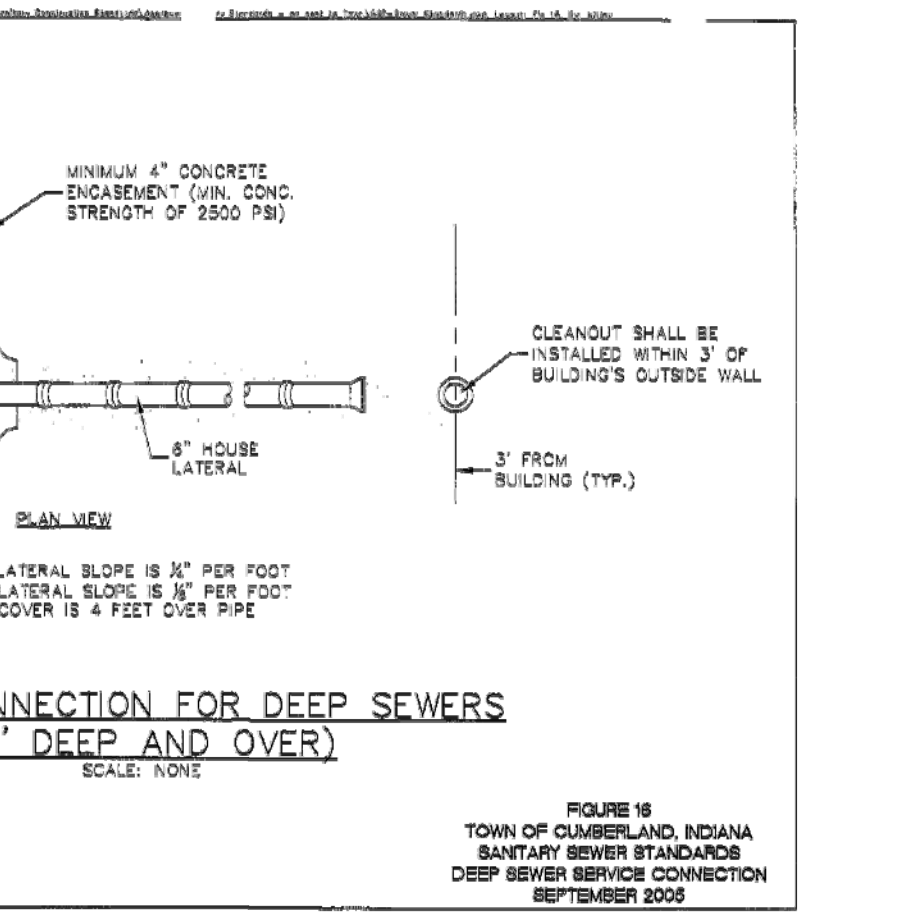
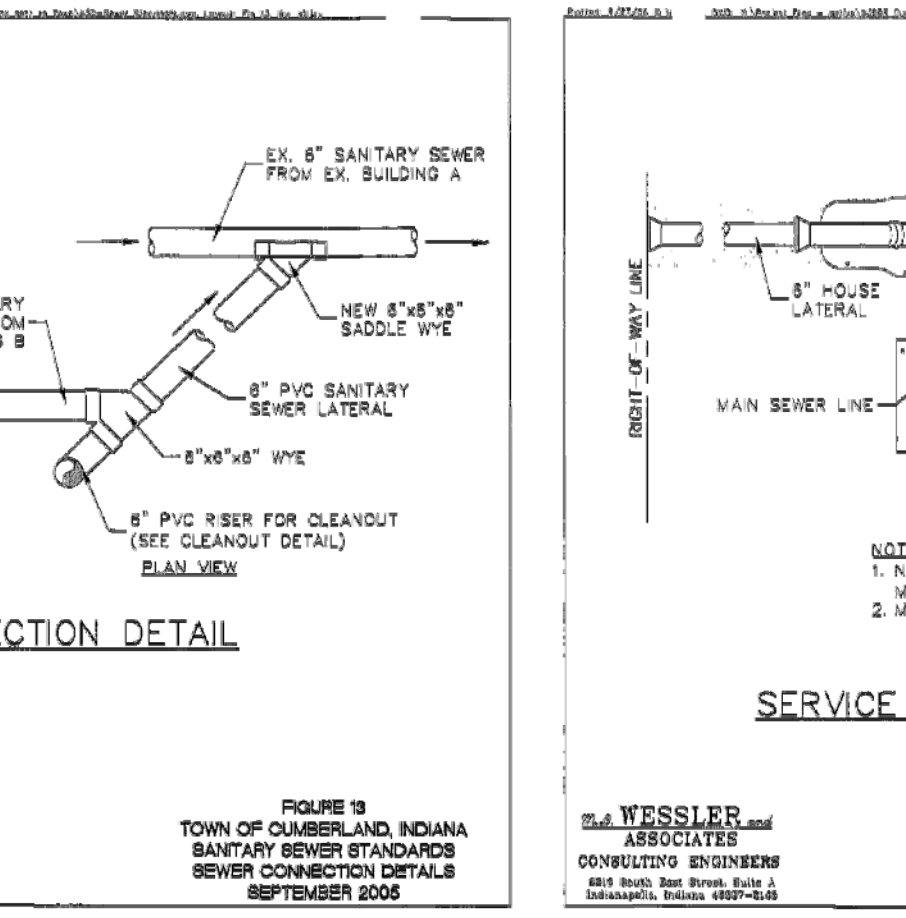
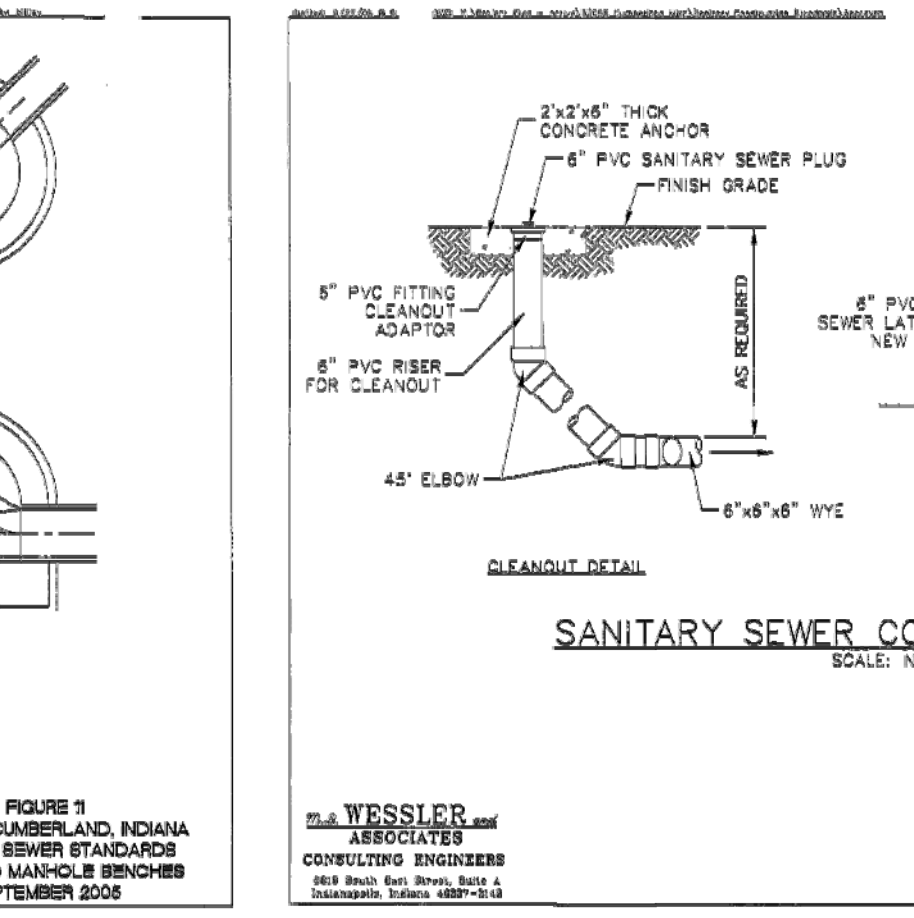
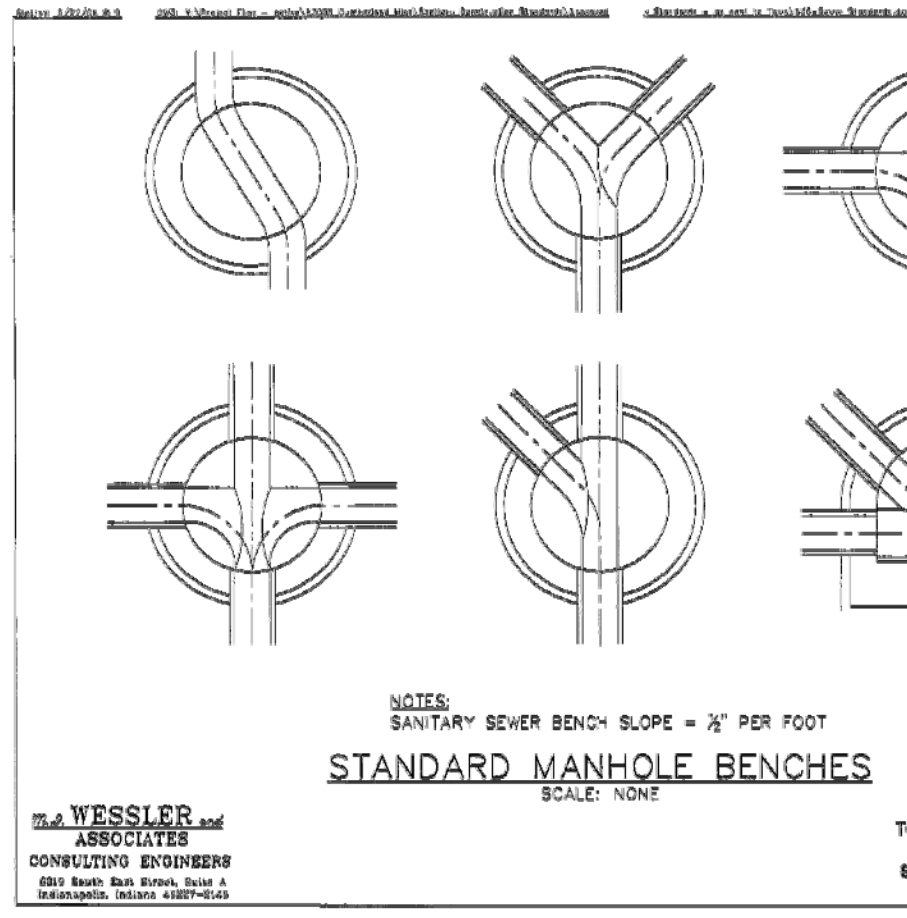
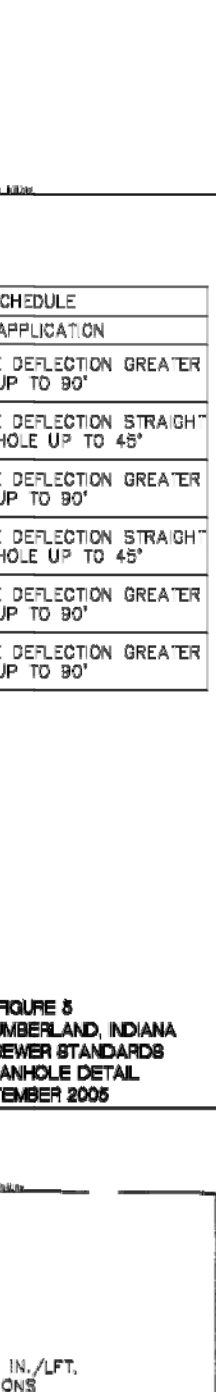
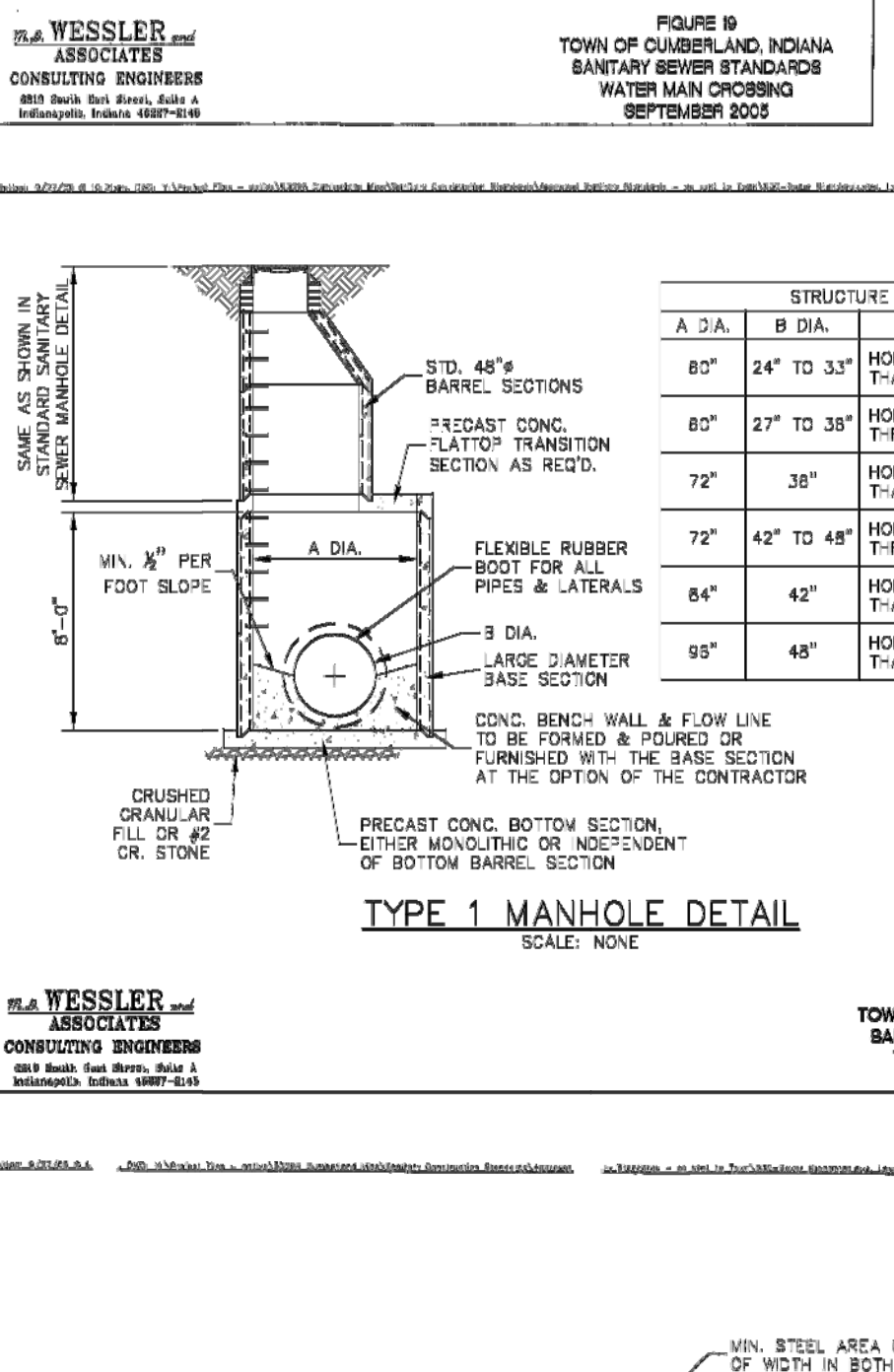
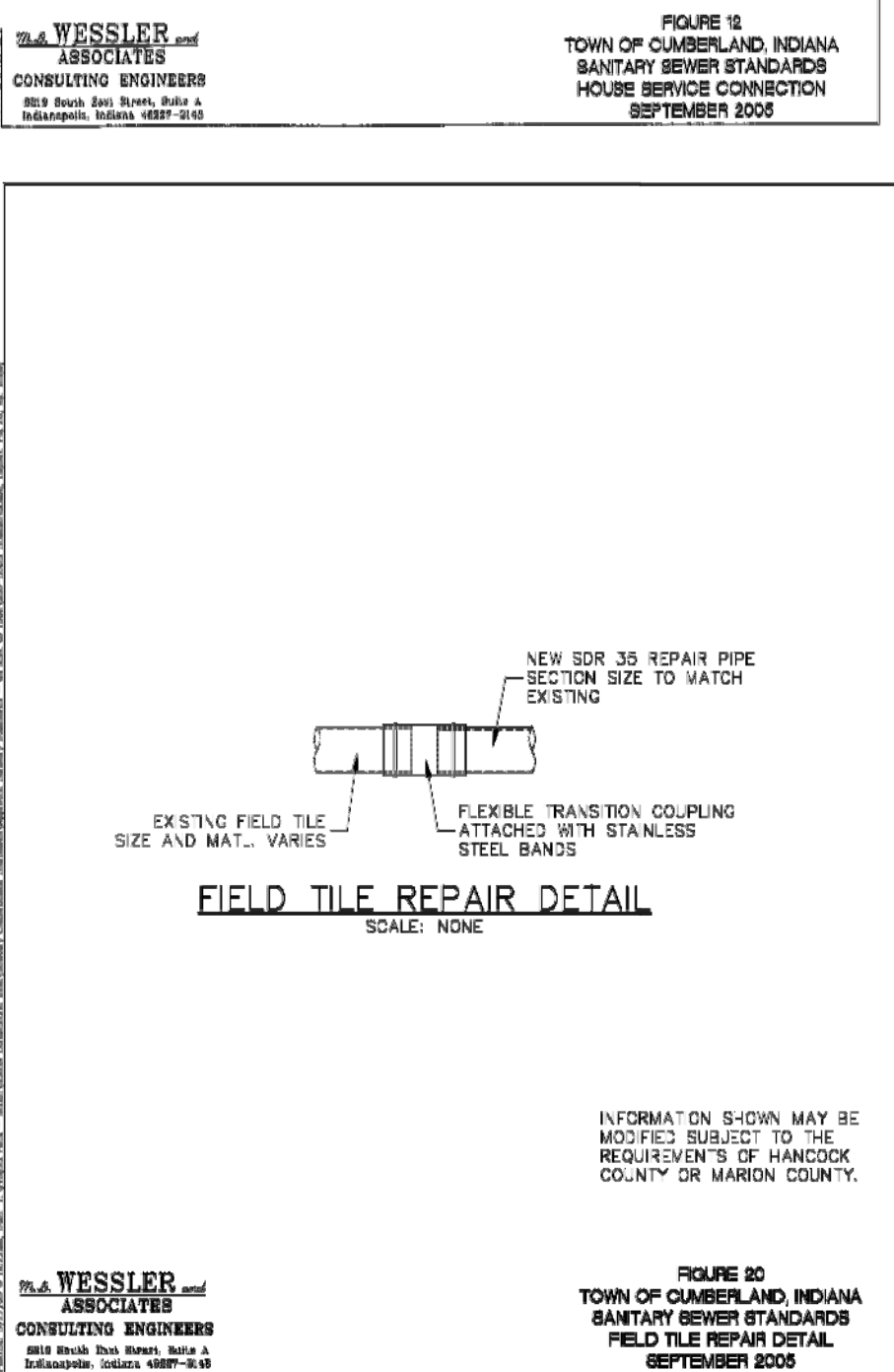
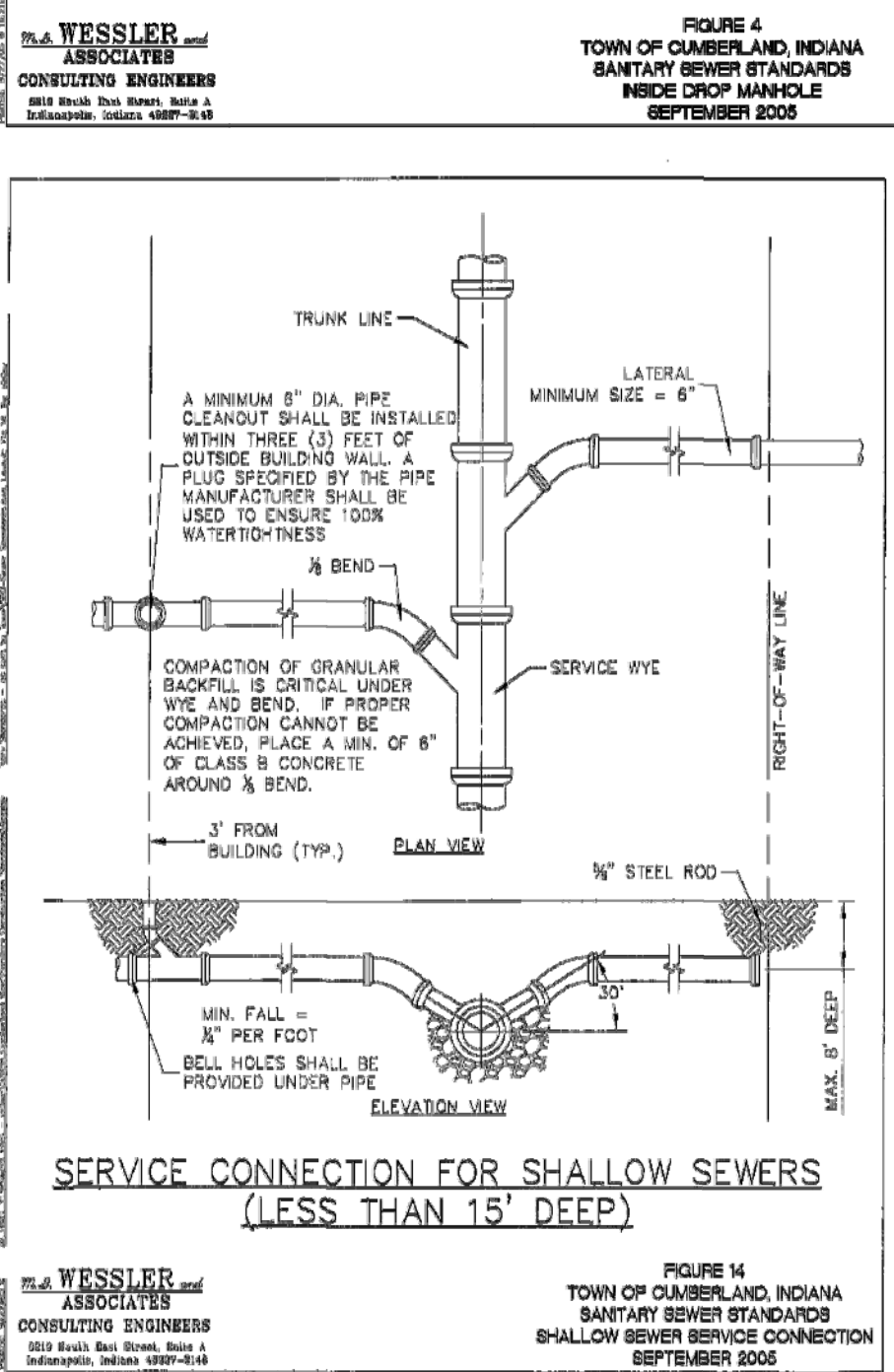
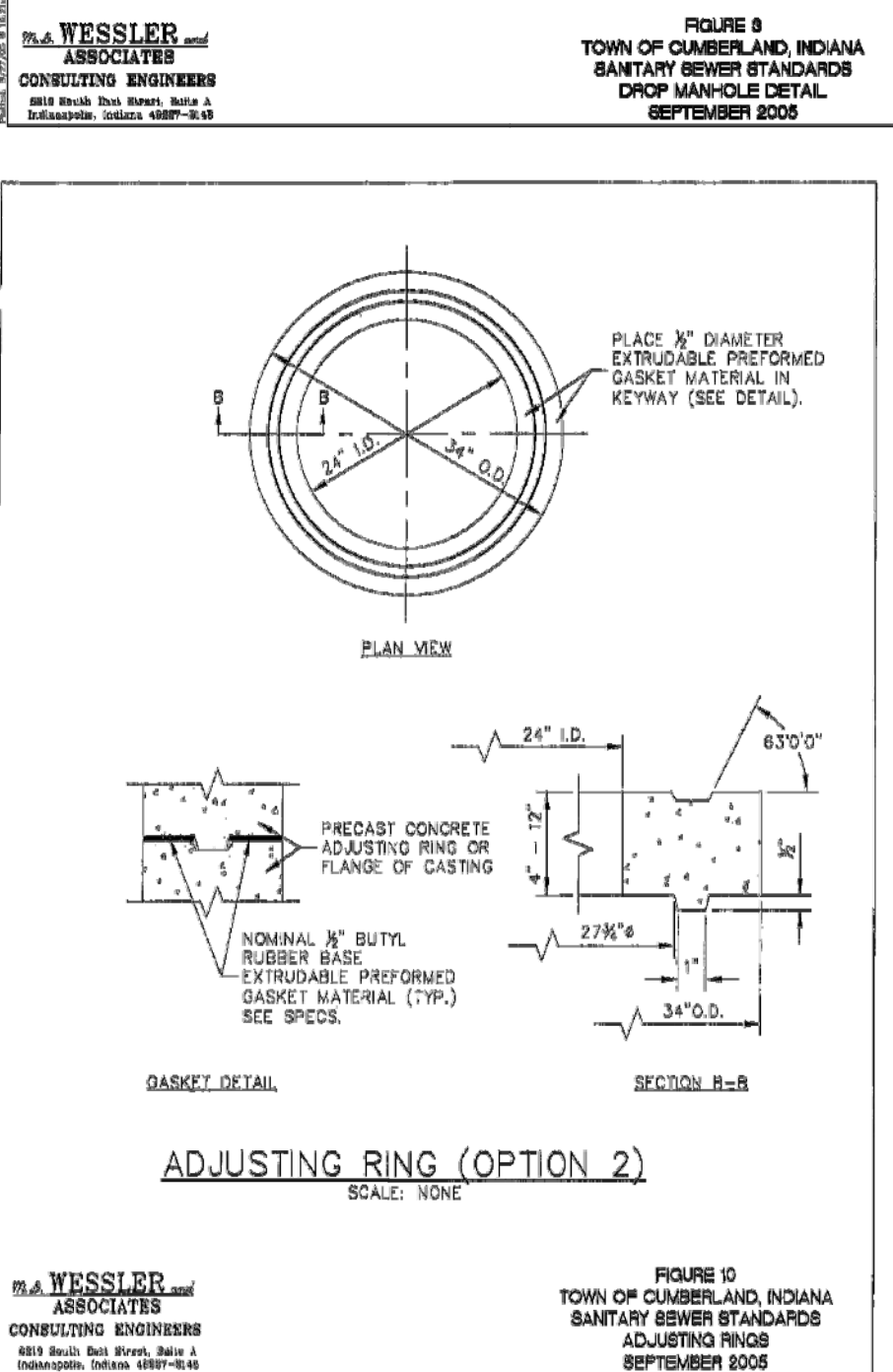
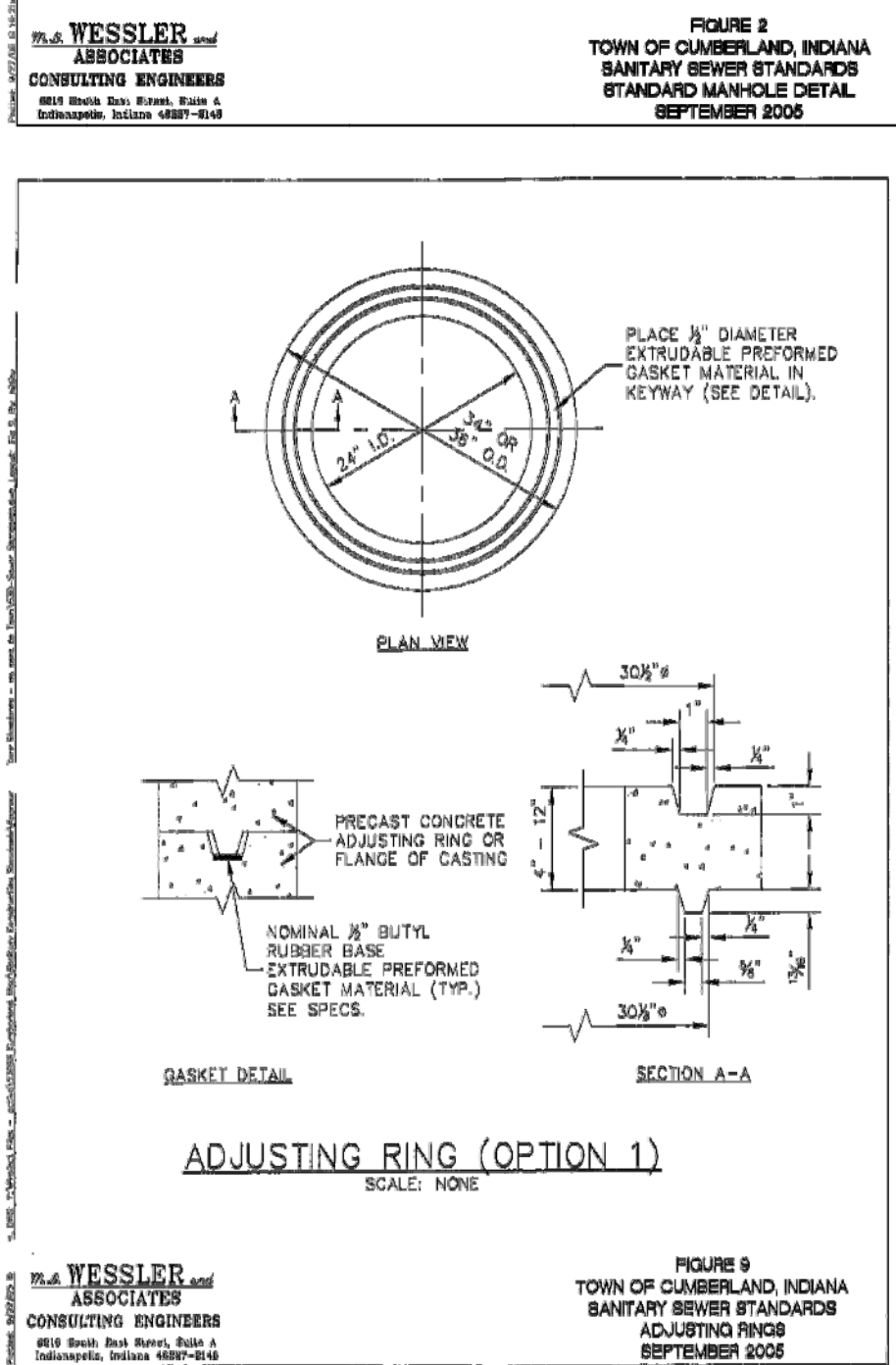
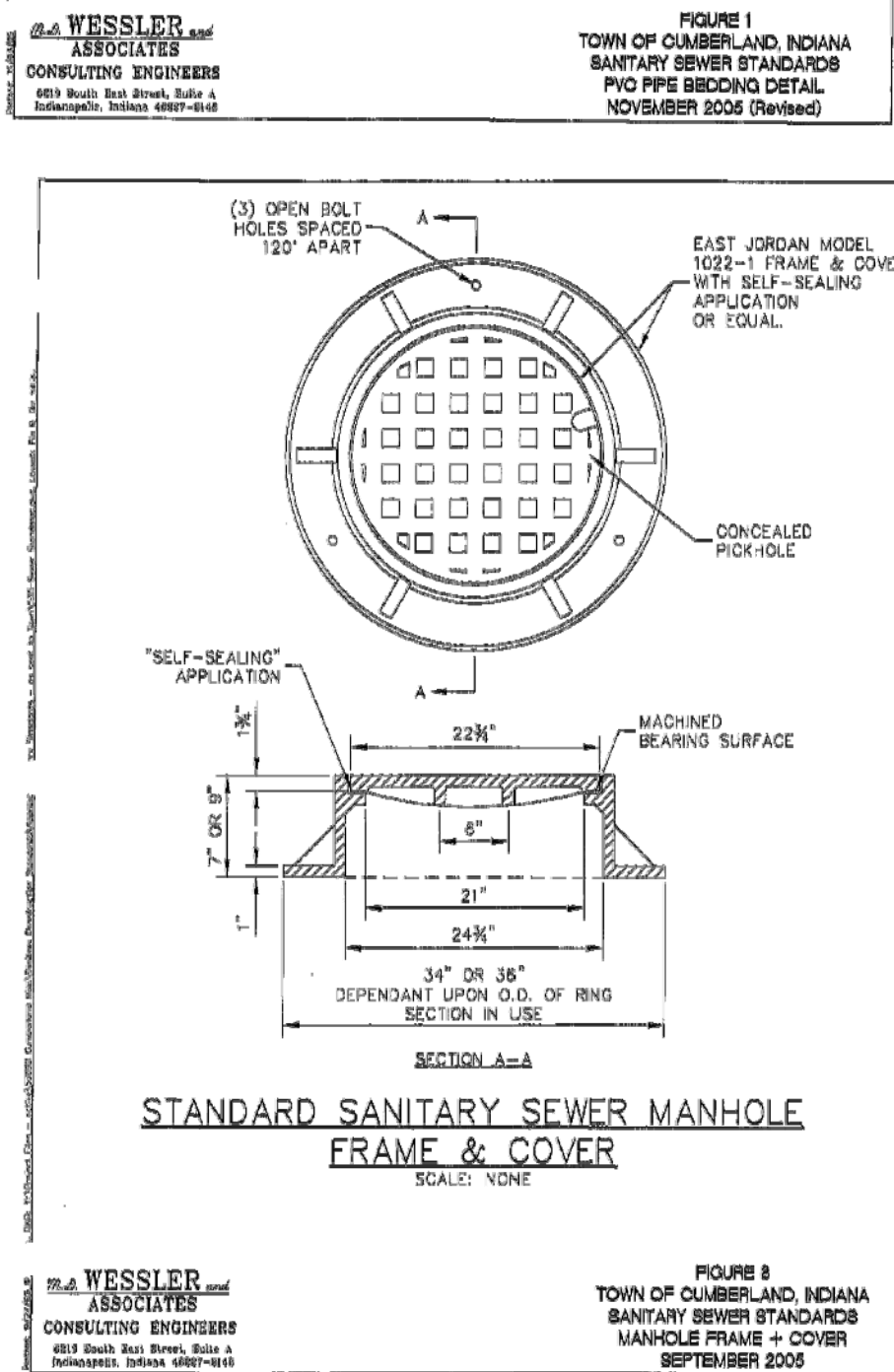
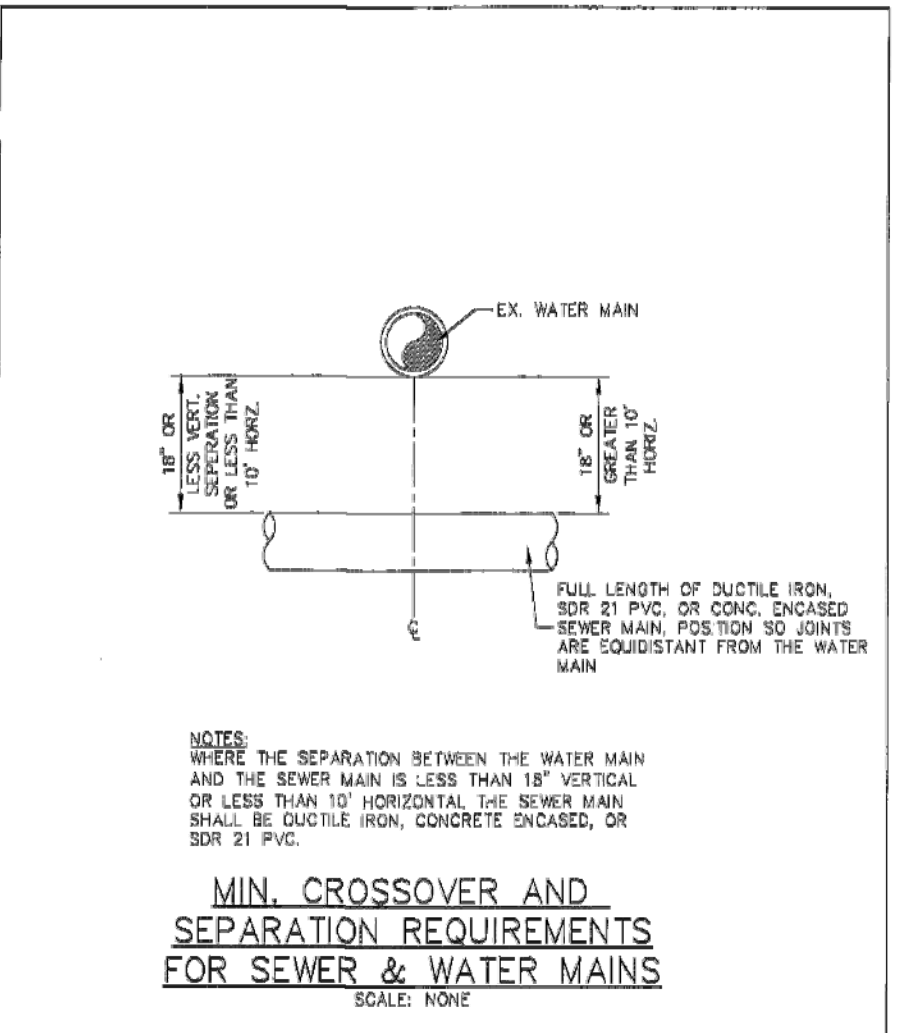
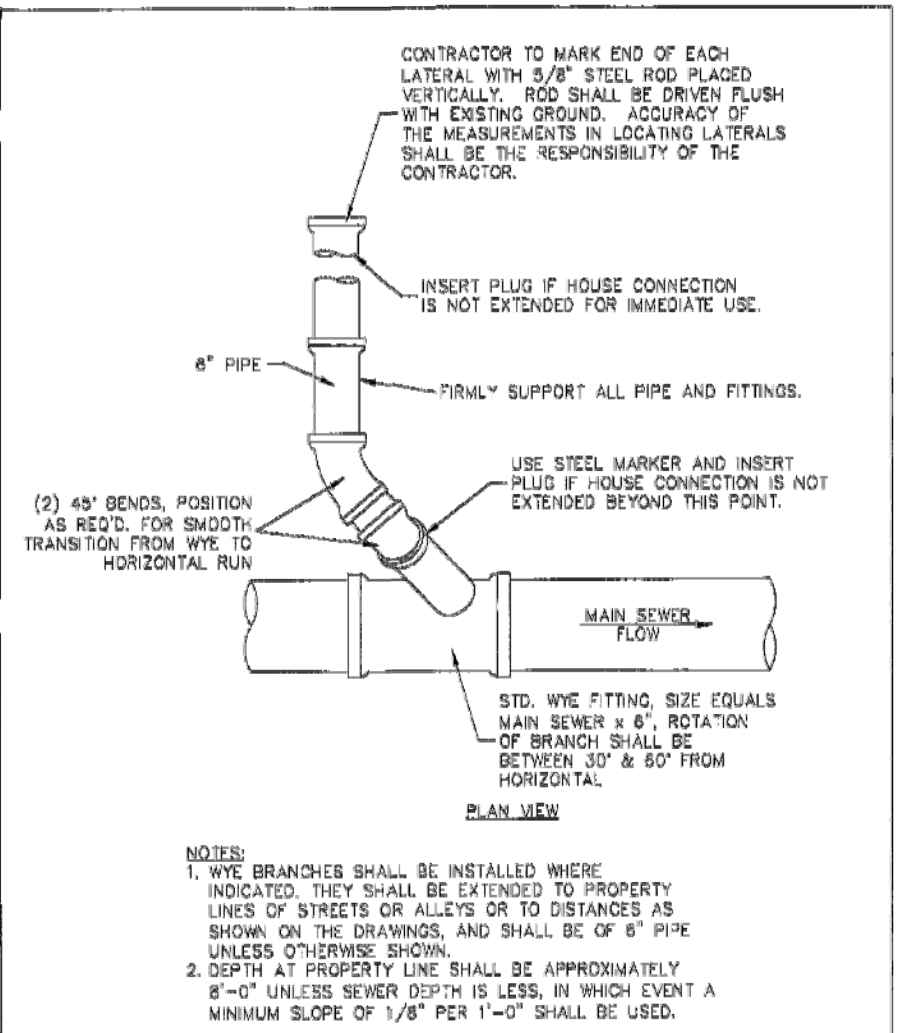
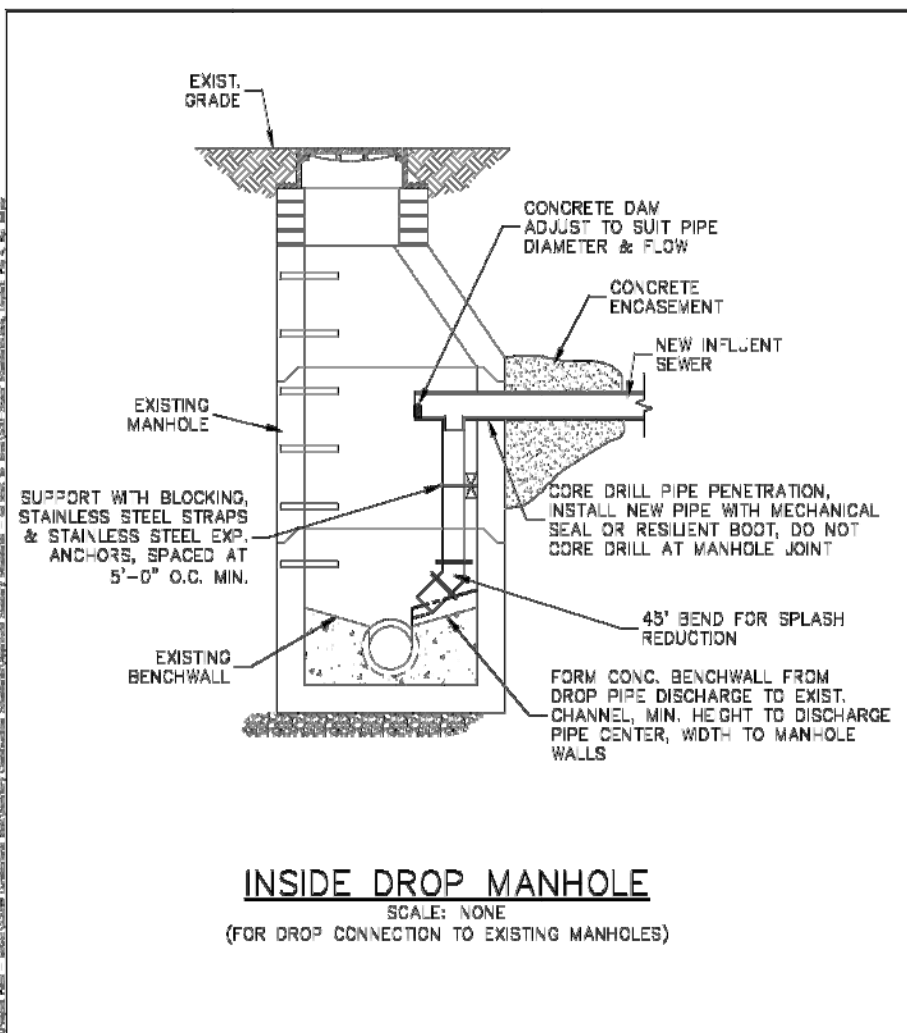
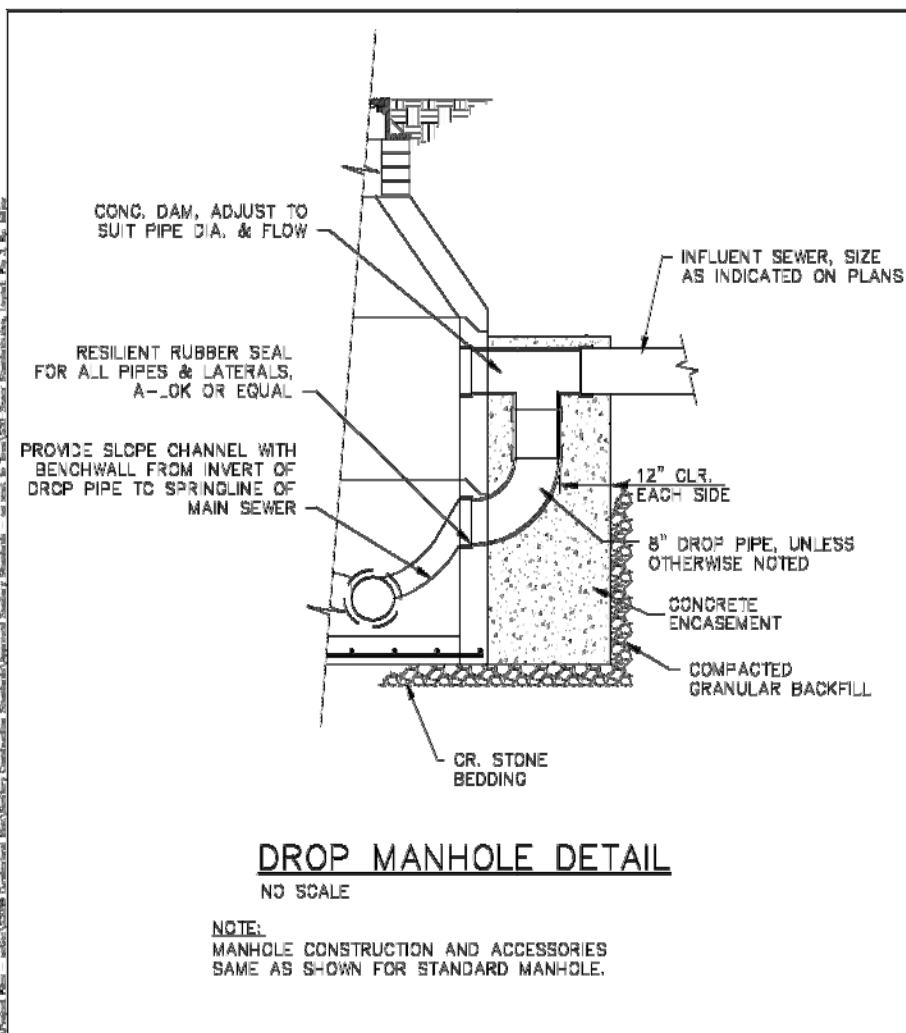
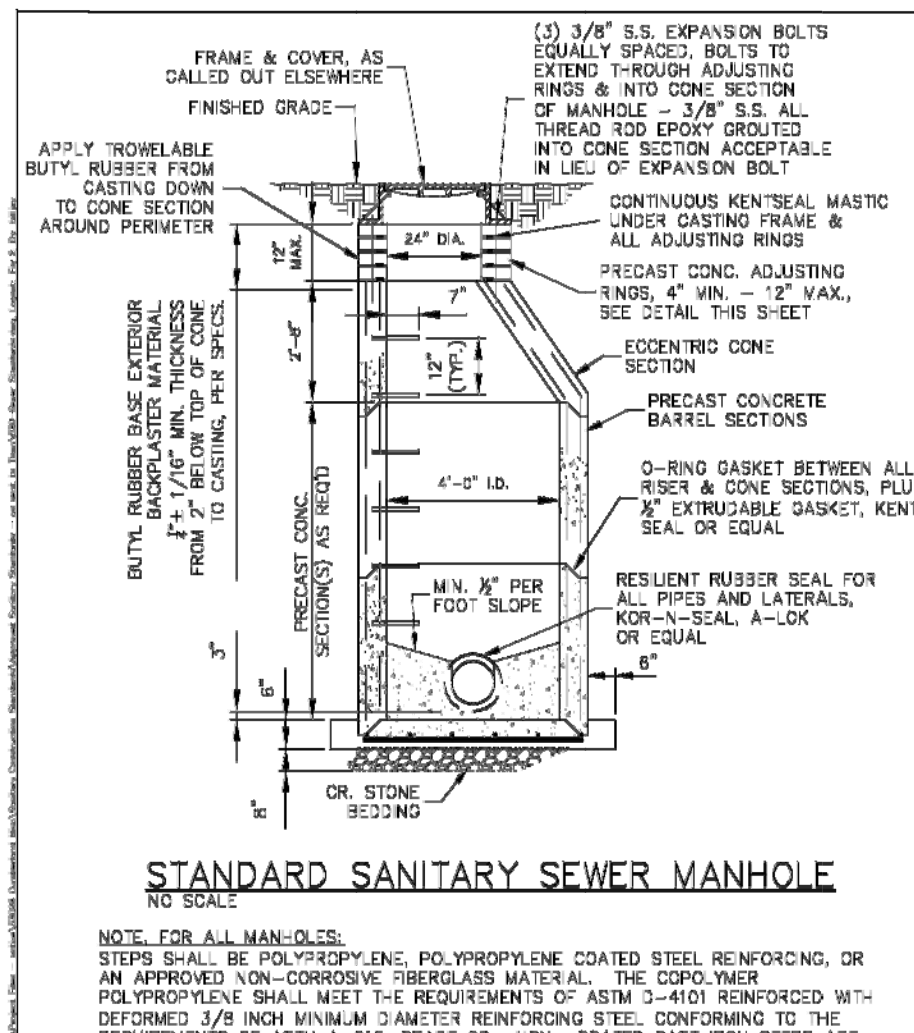
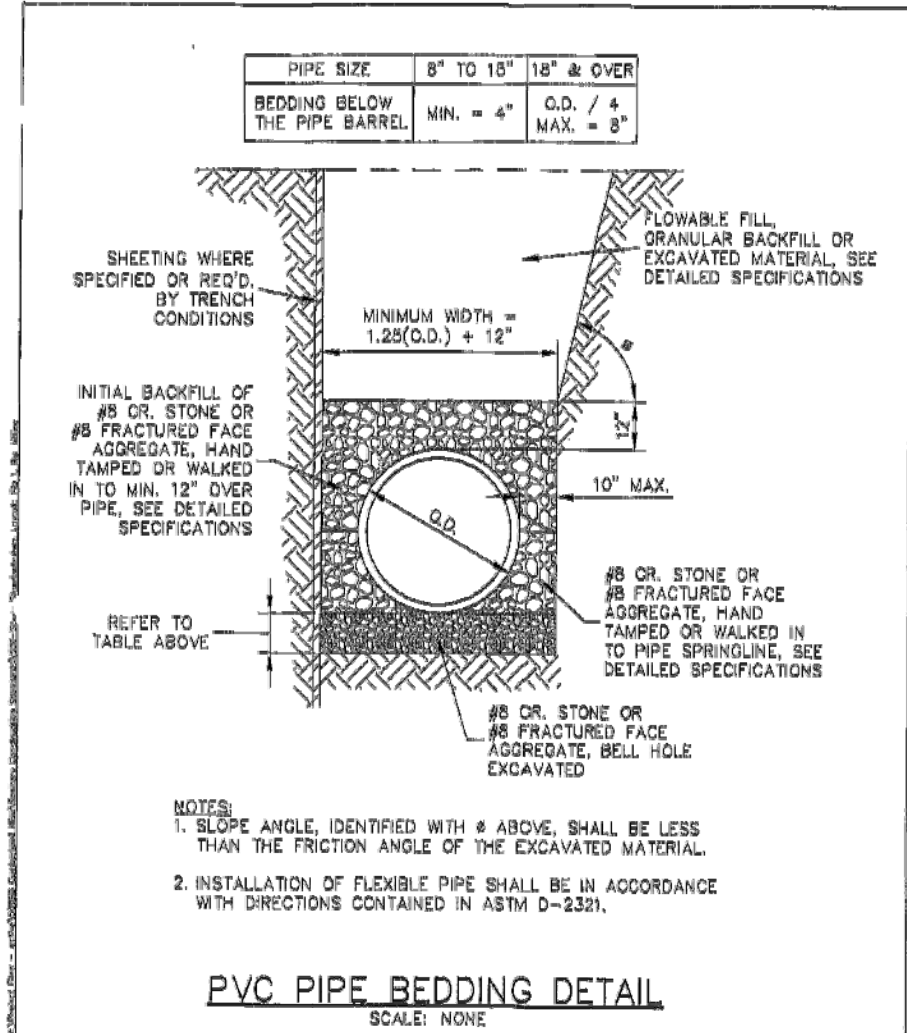


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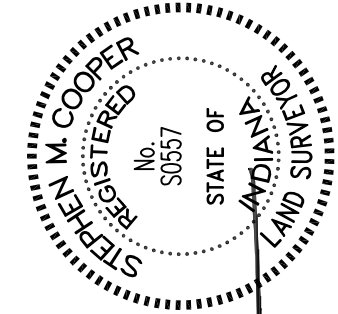
## SADDLE CONNECTIONS SHALL BE AS FOLLOWS:

1. THE CONNECTIONS SHALL BE A SEATED SADDLE THAT WILL NOT ALLOW THE LATERAL TO PROTRUDE INTO THE MAINLINE SEWER.
2. THE SADDLE SHALL HAVE AT LEAST TWO (2) STAINLESS STEEL BANDS CONNECTING AROUND THE EXISTING SEWER.
3. THE CUT INTO THE EXISTING SEWER SHALL BE CORE DRILLED. SAW CUTS AND HAMMER TAPS ARE NOT ALLOWED.
4. DEVELOPER TO INSTALL A CONCRETE CRADLE AROUND EACH LATERAL SADDLE CONNECTION TO DISCOURAGE ANY FUTURE PIPE SETTLEMENT.

## SANITARY SEWER LATERAL SADDLE CONNECTION TO EXISTING MAIN NOTE: NOT A TOWN OF CUMBERLAND DETAIL.



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Stephen M. Cooper, P.E. #50557  
Dated: 9/24/16

JOB #: 2017-124  
FILE #: 2017-124_Standards.dwg  
DATE: 9/24/18  
APPROVED BY: SMC  
DRAWN BY: WTL

TOWN OF CUMBERLAND INDIANA  
SANITARY SEWER STANDARDS  
Prepared For: HANCOCK LAND CO., LLC  
Project Location: PART OF W. 1/2 - N.E. 1/4 S 20 - T 15 N - R 06 E SUGAR CREEK TOWNSHIP HANCOCK COUNTY, INDIANA



Sheet Number

C10.3



Any sewer, gas, water, or other pipes or conduits crossing the trench shall be supported without damage and without interrupting service. The manner of supporting such pipes or conduits shall be subject to the approval of the Town and/or the inspector of the utility involved.

The Contractor shall provide adequate sheeting and bracing in open cut trenches to protect life, property and the work.

All sheeting, planking, timbering, shoring, bracing, and bridging shall be placed, renewed and maintained, and shall not be removed until sufficient backfill has been placed to protect the pipe.

Where rock is encountered during trenching operations, the Contractor may remove the rock by mechanical means. The use of a rock trencher which produces excavated material commensurate to "granular backfill" is preferred. Materials suitable for granular backfill excavated by a rock trencher may be used as bedding for pipe in areas of rock excavation. If the Contractor removes the rock by the use of controlled explosives, he shall employ a licensed blasting supervisor and crews experienced in explosive demolition and excavation. Prior to any blasting operations, the Owner/Contractor shall submit to the Town the blasting supervisor's experience record, a monitoring and control program showing the blasting area, charge per round in pounds, and program procedures for explosives. No farm fences shall be cut when gates are available within a reasonable distance to move equipment from one field to another.

#### 8.03 Bedding and Backfill

##### A. General

All trenches or excavations shall be backfilled to the original surface of the ground or such other grades as required or directed. In general the backfilling shall be carried along as speedily as possible in order to avoid open excavations.

B. Bedding and Backfill Materials  
Bedding and Backfill material classes referenced within this section shall be defined as follows:

Class I Angular, 6- to 40-millimeters ( $\frac{1}{4}$ - to  $\frac{1}{2}$ -inch) graded stone such as crushed stone. A No. 8 gravel possessing a minimum 50% mechanical crush count, and meeting the following nominal sizes and percents passing will be considered an equivalent Class I material (100% passing 1-inch sieve; 75-95% passing a  $\frac{1}{2}$ -inch sieve; 40-70% passing  $\frac{3}{8}$ -inch sieve; and 0-15% passing No. 4 sieve.

Class II Coarse sands and gravel-sand mixtures with a maximum particle size of 40-millimeters ( $\frac{1}{2}$ -inches), including variously graded sands and gravels containing small percentages of fine, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW and SP are included in this class (INDOT Classification for Structural Backfill)

Class III This class is defined as fine sand and clay gravels, including fine sands, sand-clay mixtures and gravel-clay mixtures. Soil types GM, GC, SM and SC (ASTM D2487) are included in this class. These materials will not be accepted as pipe bedding. Class IV Silt, silty clays and clays, including organic-clays and silts of medium to high plasticity and liquid limits. Soil types MH, ML, CH and CL (ASTM D2487) are included in this class. These materials will not be accepted as pipe bedding.

Flowable Fill Unconfined Compressive Strength (28 day) 50 - 150 psi  
Flow Test - Diameter of Spread > 8 inches  $\pm$  1"

1) Design - Mix design must be submitted to and approved by the Town. A trial batch demonstration may be required. The mix design shall include a list of all ingredients, the source of all materials, the gradation of all aggregates, the names of all admixtures and dosage rates, and the batch weights. Except for adjustments to compensate for routine moisture fluctuations, minor mix design changes after the trial batch verification shall be documented and justified prior to implementation by the Contractor. A change in the source of materials, or addition or deletion of admixtures or cementitious materials will require the mix design to be resubmitted for approval. The Contractor may be required to provide test data from a laboratory inspected by the Cement and Concrete Reference Laboratory, and approved by Town, which shows that the proposed mix design is in accordance with the requirements listed in this specification.

2) Flow Test - The test for flow shall consist of filling a three (3) inch diameter by six (6) inch high open ended cylinder placed upon a smooth, nonporous, level surface to the top with flowable fill. The cylinder shall be pulled straight up within 5 seconds. The spread of the fill shall be measured. The minimum diameter of the spread shall be eight (8) inches. There shall be no noticeable segregation and the material spread shall be at least 8" diameter

3) Placement - The mixture shall be discharged from mixing equipment by a reasonable means into the space to be filled. The flowable fill shall be brought up uniformly to the fill line. Each filling stage shall be as continuous as is practicable. Concrete may be placed on the flowable fill as soon as bleeding water has subsided. All pavements shall be placed according to flowable fill manufacturer's recommendations.

4) Limitations - Flowable fill shall be protected from freezing until the material has stiffened and bleeding water has subsided. As the temperature nears freezing, additional curing time may be needed.

C. Backfill of Trench Excavations for Pipes and Conduits  
Bedding and Backfill materials samples shall be submitted to the County prior to start of construction. Shall be in accordance with Indiana Standard Spec. 211.01-211.10 and drawing 715-BKFL-01.

D. Bedding  
1. Plastic (PVC, HDPE) Pipe  
Plastic pipe conduits (PVC and HDPE) shall be provided with No. 8 crushed stone or approved Class I granular bedding material shovel sliced or otherwise carefully placed and "walked" or hand tamped into place from 4- to 8-inches (based in the diameter of the pipe) below the pipe barrel, to a minimum of 12-inches above the crown of the pipe.

Bedding and initial backfill material shall be hand placed around the haunch and sides of the plastic pipe, to ensure proper compaction filling of all voids.

Bedding shall be placed in 6-inch to 8-inch balanced lifts.

2. Ductile Iron Pipe (DI)  
Ductile Iron Pipe (DI) conduits shall be provided with Class I or Class II granular bedding material. Class I material shall be shovel sliced or otherwise carefully placed and "walked" or hand tamped into place from 3- to 6-inches (based upon pipe diameter) below the pipe barrel, to 1/6th the outside pipe diameter (Bc). Class II material shall be compacted to 90% Standard Proctor Density as a minimum, except where the edge of the pipe trench is located within the pavement zone as specified herein, where Class II material shall be compacted to 95% Standard Proctor Density.

E. Backfill Around Pipe  
Do not backfill trenches until all piping and utilities have been inspected and until the piping system, as installed, conforms to the requirements as detailed in these Standards and are approved by the Town. Backfill all trenches within State Highway Right-of-Way in accordance with Indiana Department of Transportation Specifications. Backfill trenches in rights-of-way in accordance with the requirements of public authority having jurisdiction.

Initial backfill material shall be hand placed around the haunch and sides of the Plastic Pipe (PVC or HDPE) to ensure proper compaction filling of all voids. Initial backfill shall be placed in 6-inch to 8-inch balanced lifts. Backfill trenches for mainline sewers under paved roads, curbs, and gutters with flowable fill. Prepare upper portion of the trench for surface restoration or pavement replacement.

Compacted granular fill shall be used for backfilling trenches in the following areas: (1) for sewer laterals under paved roads, curbs, and gutters to 5 feet from the edge of pavement or backside of curb; (2) for mainline sewers and laterals under paved drives, paved alleys, and sidewalks within 5 feet from the edge of pavement or backside of curb; and (3) for mainline sewers and laterals not under paved roads but within 5 feet of the edge of pavement. Place backfill in 8-inch layers and compact to 95% Standard Proctor Density. Prepare upper portion of the trench for surface restoration or pavement replacement.

Backfill trenches at unpaved driveways and alleys with suitable excavated material up to the last 12-inches which shall be the same material as the original surface. Place backfill in 8-inch layers and compact to 95% Standard Proctor Density.

Backfill trenches under sidewalks greater than 5-feet from roadways with suitable excavated material placed in 8-inch layers and compacted to 95% Standard Proctor Density.

Backfill trenches in areas not requiring flowable or granular fill with suitable excavated material compacted to produce an adequate foundation for seeding. The top 4-inches of backfill shall not contain stones or other objects larger than 1-inch in maximum dimension. Mound backfill above the finished grade to allow for settlement. Place 6-inches of clean topsoil over the area to be seeded. Grade area to be restored settlement and immediately before restoration.

Maintain backfilled trenches in a smooth and uniform condition until paving or seeding operations are completed. Contractor shall refill and restore to the original grade any settlement in the backfill which takes place within the 1-year warranty period at no additional cost to the Town. For all areas requiring compacted granular backfill to meet 95% Standard Proctor Density, perform compaction tests in accordance with the standard specifications of the Indiana Department of Transportation. The Contractor shall be responsible for payment of all compaction tests.

#### 8.04 Installation of Sewers

##### A. General

The Contractor shall provide all tools, labor and equipment necessary for the safe and expeditious installation of all sanitary sewers, manholes, and appurtenances.

Inspect sewer pipe, manhole sections and appurtenances prior to installation and promptly remove damaged or unsuitable materials with new and unused materials.

##### B. Installation of Sewers

Sewer pipe shall be laid uniformly to line and grade so that the finished sewer will present a uniform bore.

The Contractor, at his own expense, shall set line and grade by means of laser beam and target for alignment and grade. Sewer pipe shall be laid progressively upgrade with bell upstream in a manner to form close, concentric joints with smooth bottom inverts. After the joint is made, sufficient bedding material shall be placed along each side of the pipe to prevent conditions that might tend to move the pipe off line or grade.

Installed piping systems shall be temporarily plugged at the end of each day's work, or other interruption of progress on a given line. Plugging shall be installed in a manner satisfactory to the Town, and it shall be adequate to prevent entry of animals into the pipe or the entrance or insertion of deleterious materials.

A mechanical plug shall be installed at the end of all sewer stubs for future sewer extensions.

#### 8.05 Installation of Force Mains

##### A. General

The Contractor shall provide all tools, labor and equipment necessary for the safe and expeditious installation of all force mains and appurtenances. Inspect force main pipe and appurtenances prior to installation and promptly remove damaged or unsuitable materials with new and unused materials.

##### B. Installation of Force Mains

Force mains shall be laid uniformly to line and grade so that the finished sewer will present a uniform bore. The Contractor, at his own expense, shall set force main alignment and grade for all sewers. HDPE force mains shall be butt fusion bonded at grade level and lowered into the trench using nylon slings to avoid damage to the pipe. Chains or cable type chokers must be avoided when lifting used sections of pipe. Sewer pipe shall be laid progressively upgrade with bell upstream in a manner to form close, concentric joints with smooth bottom inverts.

After the joint is made, sufficient bedding material shall be placed along each side of the pipe to prevent conditions that might tend to move the pipe off line or grade.

Installed piping systems shall be temporarily plugged at the end of each day's work, or other interruption of progress on a given line. Plugging shall be installed in a manner satisfactory to the Town, and it shall be adequate to prevent entry of animals into the pipe or the entrance or insertion of deleterious materials.

After the main is installed, sufficient bedding material shall be placed along each side of the pipe to prevent conditions that might tend to move the pipe off line or grade. Bedding of #8 crushed stone shall be provided from 4-inches below the pipe to 12-inches above the crown of the pipe. Locate tape and wire shall be installed above all force mains within 2-feet of the finished grade. Tracer wire shall be installed above PVC force mains. It is the responsibility of the Contractor to protect these markers and to verify that all force mains have been properly marked.

8.06 Structure Installation  
Manhole excavation shall be kept free from water during construction. Space excavated below the depth required for the manhole base shall be refilled with compacted sand or crushed stone at the Contractor's expense. Manhole floors shall be formed with concrete to a depth of  $\frac{1}{2}$  the incoming sewer size with the floor sloped to the sewer invert. Floors for "straight through" manholes shall be formed by laying the pipe straight through the manhole, pouring the concrete and then cutting out the top half of the pipe. Floors shall be constructed as the manhole is being built and this thickness is in addition to the 8-inch base required. Precast concrete risers and adjusting rings shall be used in such combination that the top of the eccentric cone section, when installed, will be at a proper elevation for the manhole frame. Concrete adjusting rings shall be allowed up to a maximum of 12-inches height adjustment. Manholes needing more than 12-inches adjustment shall have a concrete riser section installed to the proper elevation.

Manhole frames shall be brought to grade, centered and embedded in a mastic bonding course. Manhole frames shall be bolted or anchored through adjusting rings and into the cone section of the manhole using stainless steel all-thread or expansion bolts.

Steps shall be built into all manholes 4-feet in depth or greater and shall begin 8-inches below the bottom of the chimney. Steps shall be installed at 16-inches on center maximum.

Precast concrete risers and cone sections shall be installed so that the axis of the manhole is vertical. Gaskets for the riser joints shall be installed in accordance with the manufacturer's recommendations. Riser joints shall be wrapped with external joint seals in accordance with manufacturer's recommendations.

Unless otherwise indicated, castings for manholes shall be set at finish grade level. This Contractor shall be responsible for adjusting the casting to the satisfaction of the Town at the Contractor's expense. The Contractor shall remove all debris and excess soil from the manholes after construction and prior to flushing the sewer pipes, to the satisfaction of the Town.

#### 8.07 Pavement Installation

Pavements shall be installed as directed under the Town's Subdivision Control Ordinance.

#### 8.08 Installation of Building Sewers

(Laterals)

##### A. General

Laterals shall be installed at a normal slope of  $\frac{1}{4}$ -inch per foot. Minimum slope shall be 1/8-inch per foot. A mechanical plug shall be installed at the end of each lateral. It shall be the responsibility of the Contractor to install the lateral at a depth sufficient to allow each customer to connect to the end of the lateral.

A piece of resteel shall be installed at the end of each sewer lateral for marking. It shall be the responsibility of the Contractor to protect these markers and to verify that all laterals have been properly marked.

##### B. Connection to Sanitary Sewers

Connections to new sanitary sewers shall be made only at the manufactured fitting. Connections to existing sanitary sewers shall be made at existing manufactured fittings, as shown on the approved record drawings. In the event that no manufactured fitting exists in an existing sanitary sewer, and if approved by the Town, a service connection may be made using a saddle connection or by cutting into the sewer and installing a manufactured fitting using Fernco couplings.

##### C. Connections to Sanitary Manholes

Connections to sanitary manholes shall not be made without prior approval of the Town. Building sewers shall connect to the manhole, when approved, at the manhole invert. Under these circumstances, the manhole base shall be pre-formed with a gasketed connection for the lateral line. The invert shall also be formed at the flow line to accept the lateral sewer connection. No inside drop connections shall be allowed without the prior written approval of the Town.

##### D. Bedding and Backfill

Bedding and Backfill shall be required per the specifications for PVC flexible pipe included in these Standards.

##### E. Laying of PVC Building Sewer

The point of commencement for laying of the building sewer pipe shall be at the connection to the sanitary sewer and shall be laid with the bell end pointing upgrade.

Whenever a service lateral has to go under street pavement to get to the building to be served, an additional 6-inch cleanout shall be installed at the edge of the right-of-way, on the building private property. Tracer wire and location tape shall be installed from the connection to the mainline sewer to the edge of the right-of-way or easement.

#### SECTION 10

##### INSPECTION, TESTING AND ACCEPTANCE OF SANITARY SEWERS

##### 10.01 General

This section describes the minimum requirements and general procedures for the inspection, testing and acceptance of systems dedicated to the Town of Cumberland.

#### 10.02 Inspection

The Developer's Contractor shall test all manholes, gravity sewers, laterals and force mains installed. New gravity sewers shall also be televised.

All necessary equipment and instrumentation required for proper completion of the flushing and testing of the manholes and piping systems shall be provided by the Contractor. Source and quality of water, test procedures, and disposal of water shall be approved by the Town.

All tests shall be made in the presence of the Town or its Agent. Preliminary tests made by the Contractor without being observed by the Town or its Agent will not be accepted. Notify the Town at least 48 hours before any work is to be inspected or tested.

All defects in piping systems shall be repaired and/or replaced and retested until they are found to be acceptable to the Town. Repairs shall be made to the standard of quality specified for the entire system. Sections of the system may be tested separately, but any defect which may develop in a section previously tested and accepted shall be promptly corrected and retested.

All manholes and piping systems shall be tested in accordance with these test methods in addition to any test required by the Indiana Department of Environment Management, State or Local plumbing codes and/or building authorities.

#### 10.03 Gravity Sewer Testing

##### A. General

After backfill has been placed, the Town will visually inspect all gravity flow lines to check alignment and grade. All obstructions shall be removed. Any sewer in which the direct light of a lamp cannot be viewed in either direction between adjacent manholes shall be considered unsatisfactory and shall be repaired by the Contractor immediately. Unless otherwise directed by the Town, all underground sewer system piping for gravity flow shall be subjected to an air test rather than an infiltration or exfiltration tests, however, infiltration and exfiltration test methods may be requested by the Town during construction. When leakage occurs in excess of the specified limits, defective pipe or joints shall be located and repaired. The Contractor shall remove and reconstruct, along with retesting, as much of the original work as necessary to obtain a sewer test within the allowable leakage limits.

##### B. Air Tests

Air tests shall be per ASTM F1417, standard test method for installation acceptance of plastic gravity sewer lines using low pressure air, latest revision. The sewer line to be tested shall be tested in increments between manholes. The line shall be sealed at each end. The seal at one end shall have an orifice through which to pass air into the pipe. An air supply shall be connected to the orifice at one end of the line. The air supply line shall contain an on/off gas valve and a pressure gauge having a range of 0 to 5 psi. The gauge shall have minimum divisions of 0.10 psi and shall have an accuracy of  $\pm 0.04$  psi.

The pipe line under test shall be pressurized to 4 psg. The line shall be allowed to stabilize between 4 psg and 3.5 psg for a period of no less than 5 minutes. If necessary, air shall be added to the line to maintain the pressure above 3.5 psg. After the stabilization period, the gas valve shall be closed. When the line pressure drops to 3.5 psg, commence timing with a stop watch. The stop watch shall be allowed to run until such time as the line pressure drops to 2.5 psg. If the test time is greater than the allowable time for 1.0 psg pressure drop, the test section will have passed the pressure test.

Allowable times are shown in the following table.

TABLE 1: MINIMUM SPECIFIED TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH PIPE INDICATED FOR Q = 0.0015

Pipe Diameter (in.)	Minimum Time (min:sec)	Length for Minimum Time (ft.)	Time for Longer Length (sec)	Specification Time (min:sec) for Length L Shown Below in feet									
				100	150	200	250	300	350	400	450		
4	3:48	507	0.380 L	3:48	3:48	3:48	3:48	3:48	3:48	3:48	3:48		
6	5:40	368	0.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24		
8	7:34	288	1.320 L	7:34	7:34	7:34	7:34	7:36	8:02	10:08	11:28		
10	9:28	239	1.774 L	9:28	9:28	9:28	9:30	11:02	13:51	15:49	17:48		
12	11:20	169	3.418 L	11:20	11:20	11:24	14:15	17:05	19:59	22:47	25:38		
15	14:10	109	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04		
18	17:00	83	7.862 L	17:00	16:15	25:36	33:05	38:27	44:52	51:18	57:41		
21	19:50	114	10.479 L	19:50	28:10	34:34	43:37	52:21	61:00	69:49	78:31		
24	22:40	69	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33		
27	25:30	68	17.306 L	25:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48		
30	28:20	60	21.388 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15		
33	31:10	72	25.882 L	43:35	64:38	86:10	107:43	128:16	150:43	172:21	193:53		
36	34:00	68	30.788 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:48		

If the time lapse is greater than that specified, the section undergoing tests shall have passed. If the time is less than that specified, the line has not passed the test and the Contractor shall be required to make all repairs and retests. If the pipe line to be tested is beneath the ground water level, the test pressure shall be increased 0.433 psi for each foot the ground water level is above the crown of the pipe.

The Contractor shall furnish all equipment and personnel required to make all tests including pipe stoppers, air compressor, air storage tank, pressure regulating valves, pressure gauges, stopwatch, etc. The Contractor shall take all precautions necessary, including blocking of stoppers or plugs, to protect the safety of property and personnel.

##### C. Infiltration Tests

When the groundwater level is 4-feet or more above the top of the sewer, the infiltration test will consist of sealing off a length of sewer and measuring the depth of flow over a measuring weir, or by pumping the infiltrated water into containers for measurement. Tests shall be conducted for a minimum of 4-hours. Infiltration leakage shall not exceed 200 gallons per 24 hours per inch diameter, per mile of sewer.

#### D. Exfiltration Tests

When the groundwater level is below a point 4-feet above the top of the pipe, the exfiltration test shall consist of isolating the particular section and filling the water to a point 4-feet above the ground water level in the upper manhole and allowing it to stand not less than 4-hours. The section shall then be refilled with water up to the original point and after 2 hours the drop in water surface shall be measured. The computed leakage shall not Exceed 200 gallons per inch diameter, per 24 hours, per mile of sewer.

#### E. Deflection Tests

Deflection tests shall be performed on all flexible pipes after the final backfill has been in place at least 30 days. No pipe shall exceed a vertical deflection of 5%. Deflection testing shall be performed using a mandrel pulled by hand. Ductile iron pipe is considered non-flexible and will not require a deflection test.

#### 10.04 Gravity Sewer Television Inspection

A. After new gravity sanitary sewers have been completed and all sewers have passed the required testing, new segments shall be internally inspect, via closed circuit television (CCTV) inspection, by the Developer. These inspections shall be recorded on VHS color video tape or CD/DVD, including a narrative noting:

1. Date and time of day;
2. Sewer segment number "from manhole to manhole";
3. Locations of service connections (laterals) into sewer;
4. If detected, the location of obstructions, structural defects, leakage or evidence thereof, and other abnormalities with respect to the sewer condition and distance in feet from the upstream manhole centerline.
- B. The video shall visually display date, pipe section number (manhole number) and distance from upstream manhole (accuracy of 2 feet). Where an obstruction is encountered and a reverse set up is required, the distance shall be written and verbally noted on the video as to from which manhole measurements are being made. Video case shall display the same information as indicated above plus date and crew ID number. Videos of all sections shall be provided to the Town along with the respective television inspection field logs. TV field logs shall legibly show the location of each point of significance in relation to an identified manhole, including private service connections (laterals).
- C. Video shall be a continuous image of not less than ninety percent (90%) of the internal pipe surface at all times. Maximum acceptable speed of camera through sewer shall be thirty (30) feet per minute. Lighting system shall be adequate for quality pictures. A reflection in the camera may be required to enhance lighting.
- D. If any obstruction in the sewer segment prohibits the passage of the television camera, Contractor shall inspect the remainder of the sewer segments by making a reverse set up at the next down stream manhole.
- E. All obstructions in the sewer segment that prohibit passage of the television camera shall be immediately reported to the Town by Contractor referencing location and nature of the obstruction.
- F. The video camera shall be equipped with remote control devices to adjust the light intensity and a minimum one thousand (1,000) feet of continuous cable shall be provided. The camera shall be able to transmit a continuous image to the television monitor as it is being pulled through the sewer segments.
- G. Developer shall submit the original video tapes or CD/DVD, along with corresponding written televising log sheets, to the Town for review at the conclusion of the project and prior to acceptance of the sewers.

#### 10.06 Manhole Vacuum Testing

A vacuum test shall be conducted by the Contractor on all manholes to ensure water tightness and manhole integrity. The equipment required to conduct a vacuum test on manholes includes inflatable pipe plugs, test head, vacuum pump, flexible air hose and a vacuum gage. The test equipment shall be capable of drawing a vacuum of 10-inches Hg. The equipment shall be designed specifically for the purpose of testing manholes and shall be as manufactured by P.A. Glazier, Inc., Worcester, Massachusetts, 10002 or as approved by the Town. The procedure for conducting an air test on manholes shall be in accordance with the following procedure:

- Each manhole shall be tested immediately after assembly and prior to setting the casting or backfilling around the structure.
- All lift holes shall be plugged with non-shrink grout.
- All pipes entering the manhole shall be securely plugged and adequately braced against the inside of the manhole to prevent being drawn out of the pipe.
- The test head shall be placed on the inside of the cone section and sealed with an inflatable seal.
- A vacuum of 10-inches of mercury (Hg) shall be drawn before the vacuum pump is shut off. With the valves closed, the time shall be measure for the vacuum to drop to 9-inches. The manhole shall pass if the time is greater than the following:

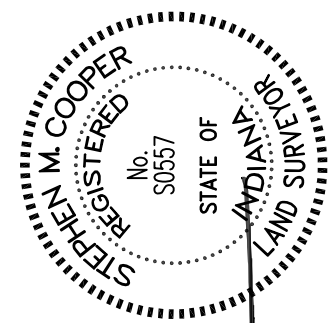
Manhole Depth (ft)	Manhole Diameter		
	48-in	60-in	72-in
	Minimum Test Time, seconds		
8	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	96	121

#### SPECIFICATIONS AND DETAILS NOTE

- TOWN OF CUMBERLAND DETAILS AND SPECIFICATIONS SUPERSEDE ANY CONFLICTING INFORMATION BETWEEN THE GENERAL DETAILS (SHEETS C10.0 - C10.1) AND THE TOWN OF CUMBERLAND (SHEETS C10.2 - C10.4).



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Dated: 9/24/18

JOB #: 2017-124

FILE #: 2017-124-Standards.dwg

DATE: 9/24/18

APPROVED BY: SMC

DRAWN BY: WTL

TOWN OF CUMBERLAND  
SANITARY SEWER SPECIFICATIONS  
Prepared For: HANCOCK LAND CO., LLC

Project Location: PART OF W. 1/2 - N.E. 1/4